

**DETERMINANTS OF UPTAKE OF NATIONAL HOSPITAL INSURANCE
FUND SCHEME BY THE INFORMAL SECTOR IN NAIROBI COUNTY,
KENYA**

BY

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DECLARATION

I declare that this is my original work and has not been submitted to any other University or other institution of higher learning for examination or consideration

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DEDICATION

To my mother for her tireless effort, support and encouragement.

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LIST OF ABBREVIATIONS AND ACRONYMS

CBHI	:	Community Based Health Insurance
IMF	:	International Monetary Fund
ILO	:	International Labour Organisation
JNL	:	Joint Network Learning
KNBS	:	Kenya National Bureau of Statistics
KNH	:	Kenyatta National Hospital
MIP	:	Medical Insurance Provider
NGO	:	Non Governmental Organisation
NHIF	:	National Hospital Insurance
OOP	:	Out of Pocket
PHI	:	Private Health Insurance
SACCO	:	Savings and Credit Cooperative Organisation
SAPS	:	Structural Adjustment Program
SHI	:	Social Health Insurance
WHO	:	World Health Organisation

OPERATIONAL DEFINITIONS OF TERMS

The informal sector	This consist of units engaged in the production of goods and services which typically operate at a low level of organisation, with little or no division between labour and capital as factors of production and on a small scale with non existence contractual or labour relations.
Informal employment:	This employment relationship is, in law or practice, not subject to labour legislation, income taxation, social protection or entitlement to certain employment benefits.
NHIF:	This is the primary provider of health insurance in Kenya with a mandate to enable all Kenyans to access quality and affordable health services.
Uptake:	The number of people who use a service or accept an intervention that is offered where in this study is the NHIF scheme.

ABSTRACT

It's important to address disparities in access to health insurance among those in the informal sector of whom majority are poor and of marginalised groups in order to accelerate the achievement of Millennium Development Goals (MDGs) and also to identify interventions that will mitigate this situation. The purpose of the study was to determine the determinants of uptake of National Hospital Insurance Fund scheme by the informal sector in Kenya, which will be of significance to the government of Kenya in formulating and implementing health insurance policy and in the current process of transforming into a universal health scheme. The target population was the informal sector participants at Laini Saba market, Kibera division, Nairobi County with a population of approximately 350 traders. Descriptive study design was adopted while stratified random sampling method was also applied to select the respondents according to the different enterprises they operate in and the sample size was 97 respondents. The data collection tools were questionnaires with both closed and open ended questions which were reviewed, cleaned and coded to minimize errors and enable easy entry and analysis. Statistical Package for Social Sciences (SPSS) version 20 was used to organise the data and carry out statistical analysis. At univariate level, descriptive analysis using frequencies and percentages was carried out while at bivariate level, multinomial logistic regression was carried out to determine the association between the dependent and independent variables at 0.05 level of significance. In the findings only 32% of respondents were enrolled in NHIF scheme, while 7.1% were enrolled in another type of health scheme. The logistic regression model found that NHIF uptake was significantly associated with income level ($P=0.049$ 95% CI -1.172- -0.003), awareness of NHIF benefits ($P=0.013$ 95% CI -6.366 - -0.744) and access to NHIF outlets ($P=0.011$ 95% CI -6.470- -0.852), since their p-values were < 0.05 indicating that all the variables were statistically significant.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

1.1.1 Uptake of Health Insurance

Out Of Pocket (OOP) payments to finance healthcare usually leads to inequitable and mostly catastrophic situations for most households. This has led to the establishment of health insurance scheme whose purpose is to mitigate this situation (McIntyre *et al.*, 2008). A number of developing countries have introduced Social Health Insurance (SHI) in response to the call by World Health Organization to move towards universal coverage (WHO, 2010). SHI are mostly in form of contributions by employees and employers in the formal sector while those in the informal sector contribute either to private or community based health insurance.

According to a study by Smith *et al.*, (2010) different regions of the world have different levels of uptake of health insurance. In the United States of America, Private Health Insurance (PHI) is the major source of health financing and accounts for approximately 35% of total health expenditure, public expenditure accounts for 44.9% while OOP is at 13.5%. There is a tax based system in the United Kingdom which provides universal health care through the country's National Health Service which covers 86% of overall health expenditure, while PHI accounts for 2.9% and OOP accounts for 11.1% (Boyle, 2011).

A study by Kirigia (2005) in South Africa showed that approximately 30% of respondents had at least one person enrolled in a health insurance scheme while Carrin (2004) concluded in his study that Rwanda had achieved 90% health care coverage through implementation of Community Based Health Insurance scheme.

In Kenya 10% of total health care occurs in a pooled basis where 5.4% of total health expenditure is derived from PHI which is collected through employers, NHIF contributes less than 4% to the total health expenditure, OOP funds 29% of Kenyan health care while 39% is funded by the government.

Different research studies have shown that there are three major sets of factors that influence a household's demand for a health insurance policy and these include; the household perspective, the quality of the healthcare system, and the characteristics of the health insurance policy itself. Scientifically tested literature shows a consistency in factors such as socio-economic and demographic characteristics of the household which include income level, education of household members, employment, health status, presence of children and aged, marital status, and sex of household head as significant determinants of demand for health insurance (Osei-Akoto & Adamba, 2011).

1.1.2 Uptake of NHIF scheme

The mandate of the National Hospital Insurance Fund (NHIF) is to enable all Kenyans access quality and affordable health services since it's the primary provider of health insurance in Kenya. The policy was restructured by the repeal of the National Hospital Insurance Act (CAP 255) and the enactment of the National Hospital Insurance Fund Act No. 9 in 1998 in order to accommodate the changing healthcare needs of the diverse Kenyan population, employment and the continuous restructuring in the health sector. NHIF is responsible for enrolling and registering all eligible members from the formal and informal sectors (NCLR, 2012; JNL, 2011)

The Health Insurance Act of 1998 does not distinguish between those employed in the formal and the informal sector but indicates that membership is mandatory for all Kenyans at least 18 years of age. In practice, however, an evaluation study conducted by Deloitte (2011) indicated that NHIF has achieved high levels of coverage of the formal sector up to almost 100%, but the coverage of the informal sector has proved more challenging.

The informal sector is a concept that was first coined in an International Labor Organisation (ILO) following the study of urban labour markets in Ghana (Hart, 1973), this concept was subsequently used by ILO when reporting on labour market conditions in other African cities and by the World Bank in a series of studies of urbanization and poverty throughout the Third World (SNA, 2008; Sethuraman, 1981).

In Kenya this sector is known as Juakali sector (Amenya, 2007) whose primary objective is the generation of employment and income of persons concerned and is characterised broadly as consisting of units engaged in the production of goods and services which typically operate at a low level of organisation, with little or no division between labour and capital as factors of production and on a small scale. Labour relations are non existence and if they exist, they are based on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees (Britwum, 2002; Velasco, 1999).

According to ILO (2007) and IMF (2008), self-employment constitutes a greater share of informal employment (outside of agriculture) than wage employment: nearly one third of total non-agricultural employment worldwide and constitutes as much as 53 % of non-agricultural employment in sub-Saharan Africa, 44 % in Latin America, 32 % in Asia and 31 % in North Africa. Ouma *et al.*, (2007) in their study estimated that informal businesses accounted for 35-50% of Gross Domestic Product (GDP) in many developing countries, where in Kenya, the informal sector is estimated at 34.3% and accounted for 77% of employment statistics .Over 60% of those working in the informal sector are the youth, aged between 18-35 years, 50% being women.

The players in this sector are involved in small businesses, vehicle repair, transport industry, furniture making, metal work, dress making, food and beverage selling, and cloth hawking. This makes it a broad industry with very high level of employment.

1.1.3 Uptake of NHIF by informal sector

According to World Health Organisation constitution, attainment of the highest possible level of health is a fundamental human right (WHO, 2006) and there are well documented challenges encountered in achieving universal health financing coverage even to the most advanced economies in Europe (Anup, 2011; Tanner, 2008) There are also documented challenges faced by different countries during the process of increasing health insurance coverage among the informal sector workers. An example being Thailand, where slow progress was made towards universal coverage for many years,

until the government decided to purchase premiums for informal sector insurance using tax funds (Tangcharoensathien, 2011)

During their evaluation Delloite (2011) established that the membership enrolment rate in NHIF has grown rapidly in the informal sector but only accounts for 19% of the total membership of the Fund. The annual growth for informal sector members has averaged 38% in the last 5 years and 10% for formal sector members. They concluded that future growth will therefore largely come from the informal sector which has lower levels of coverage.

Delloite (2011) also found out that though there is an increase in enrolment in the number of members, there is variation in their level of activity, with high dropout rates being experienced. Inactivity rates are higher among the informal sector members who make voluntary contributions which becomes apparent when contributions are paid inconsistently by members in a particular period. Overall, NHIF estimates 30% of all members are inactive with significantly higher levels of inactivity among the informal sector. The higher levels of inactivity are compounded by the fact that the informal sector members consume 33% of the benefits paid out and contribute about 5% of contributions.

1.2 Statement of the problem

There is negative impact on health indicators when a large proportion of the population is without health insurance. This is the situation in Kenya where many people have to directly pay for health services whenever they need them; which has led to catastrophic spending to a level of impoverishing the family unit through sale of assets and diversion of their meager income into health care services. This situation is magnified in the informal sector which plays an important role towards generation and provision of potential employment opportunities to many Kenyans thereby improving the quality of life to those who would otherwise be without any source of livelihood (WIEGO, 2013; Chuma & Okungu,2011; Ameyia, 2007;).

A study by Kimani et al., (2012) found that the proportion of the population in this sector without any type of insurance is high, which underscores the need for a social health

insurance program to ensure equitable access to health care among the poor and vulnerable segments of this population. Due to its intricate structure and dynamic nature, the informal sectors growth pattern or trend cannot be extrapolated since the majority of the workers are transitory, operating across the formal and informal economy (Delloite, 2011).

This presents a challenge in incorporating them as stakeholders in health financing both in the private and public sector and calls for innovative approaches to extend coverage which may include introduction of multiple health insurance schemes for various categories of workers in this sector, which should be flexible enough to cater for the needs of the members and requires long term planning (Brockmeyer, 2012).

It's imperative for the government to engage with this sector when designing interventions and projects to promote universal coverage, in order to ensure that their preferences are adequately considered especially in the early stages of policy design, so as to promote acceptability and contribute towards sustainability of the programme especially during the identification phase of the interventions, where by the interests and concerns of key stakeholders who operate in the informal sector should influence the conception of any projects and interventions leading to efficient and effective implementation (Gilson, 1997).

1.3 Objectives of the study

1.3.1 General objective

The purpose of the study was to find out the determinants of NHIF scheme uptake by the informal sector in Nairobi County in Kenya.

1.3.2 Specific objectives

- i. Establish whether Income level affects uptake of NHIF scheme within the informal sector.
- ii. Assess whether awareness of NHIF benefits affects uptake of the scheme within the informal sector.

- iii. Determine whether access to NHIF outlets affects the uptake of the scheme within the informal sector.

1.4 Research questions

- i. To what extent does income level affect uptake of NHIF scheme within the informal sector?
- ii. How does awareness of NHIF benefits affect its uptake within the informal sector?
- iii. To what extent does accessibility to NHIF outlets affect the uptake of the scheme within the informal sector?

1.5 Significance of the study

The findings of the study have both theoretical and practical implications for the future of the informal sector in Kenya. Theoretically the study is expected to contribute to advancement of knowledge about the informal sector to the government of Kenya as it is in the process of implementing a universal social health insurance scheme (Carrin et al., 2007).

Practically the findings will lead to better understanding of factors associated with participation in the current National Hospital Insurance Fund (NHIF), particularly among the poor who are found in the informal sector and will also determine the proportion of individuals without access to health insurance among this demographic group and lead to the development of specific intervention mechanisms including project and programme design that will enable them to fully participate in the scheme.

It's important in the identification phase of any intervention to conduct a thorough assessment by carrying out a situational analysis in order to identify the needs of the beneficiaries and stakeholders so as to develop clear and measurable objectives and also avail baseline data for monitoring and evaluation which will enable to demonstrate significant changes during the implementation of the intervention in this case the universal social health insurance scheme.

1.6 Scope of the study

The aim of the study was to find out the factors affecting the uptake of NHIF scheme and focused on those operating in the informal sector of Nairobi County, Kibera Division in Laini Saba sub location, Laini Saba market.

1.7 Limitation of the study

The study focused only a small area of Nairobi County and did not involve casual workers who work in industries who would have contributed a lot of valuable information to the study. There was insufficient data on uptake of health insurance specifically focusing on players in the informal sector.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter highlighted theoretical reviews of health insurance, the different studies on NHIF scheme, uptake and also explored the variables under study which include: income level, awareness of benefits of NHIF scheme and accessibility to NHIF outlets.

2.2 Theoretical Review

2.2.1 The Diffusion theory

This theory was advanced by Lionberger (1960) which asserted that people process and accept information by going through five stages which is not done impulsively. The stages include; awareness stage where the individual is exposed to the idea but lacks knowledge of its benefit; the interest stage is when the idea arouses the individual who assess the possibility of using it; evaluation stage where the individual must consider whether the idea is potentially useful and of benefit to him; trial stage is when the individual tries out the idea on himself and others in order to conclude how he can benefit; adoption stage which represents final acceptance of the idea and using it consistently based on continuous satisfaction.

2.2.2 Social exchange theory

Thibaut & Kelley (1959) advanced this theory which uses the economic metaphor of cost and benefits to predict behaviour. The theory assumes that individuals and groups choose strategies based on perceived rewards and costs, where they factor in the consequences of their behaviour before acting in order to keep their costs low and rewards high.

2.2.3 Adverse selection theory

This can be defined as strategic behavior by more informed partner in a contract against the interest of the less informed partner(s).its relevant in the health insurance market because each individual chooses among the set of contracts offered by the insurance company according to their probability of using health services. In other words, those

who foresee an intense use of health services will tend to choose more generous plans than those who expect a more limited use of them. The high risk individual will seek health insurance while a low risk individual will avoid health insurance up to the point of requiring medical services to be paid (Morris *et al* 2007; Wagstaff, 2010).

2.2.4 Moral hazard theory

This stipulates that people or organisations with insurance may take risks that are greater than what they would have taken if they did not have insurance because they know that they have monetary protection from the adverse effects that might arise out of the risky behaviour. This leads to the insurer facing excessive claims than anticipated. Moral hazard can be found on both the demand and supply side of a health care transaction.

Demand side moral hazard consists of consumer triggered increase in consumption of services due to their low actual price to the insured patient. It includes excessive spending on the initiative of the consumer who knows that the cost burden will be shifted to the insurance provider. Supply side moral hazard is oversupply at the initiative of the medical care provider who takes advantage of the near absence of any financial consideration on the part of the consumer when he agrees to buy the excessive health care by overcharging and ordering unnecessary medical tests and procedures, because the costs will be transferred to the health insurance provider (De Allegri *et al.*, 2008).

2.2.5 Conventional health insurance theory

This theory was developed by Pauly M.V (1968) who stipulated that economists viewed moral hazard negatively since the additional health care spending generated by insurance represented a welfare loss to society. This is because insurance reduces the price of health care to zero leading to consumers purchasing more health care than they would have at normal price, revealing that the value of this care to consumers is less than the market price even though the additional care is still costly to the producer.

The difference between the high costs of the resources used to produce this care is reflected in high market price and its low apparent value to insured consumers as

reflected in low insurance price and this represents inefficiency. The theory provided an apparent policy solution to this moral hazard by imposing coinsurance payments, deductibles and capitations to increase the price of medical care to insured customers and reduce the inefficient expenditures. The managed health care system we have now is a product of this theory (Besley, 1991).

2.3 Empirical Literature Review

2.3.1 Health schemes in Kenya

NHIF was established with an aim of using risk pooling (insurance) to finance health care which initially targeted the formal sector which was mandatory by law and later progressed to target the informal sector (GOKHS, 2010). Their function is to collect revenue, pool the funds and purchase health care on behalf of its members, and are also responsible for determining the premium rates and benefits packages.

Many Kenyans have had to directly pay for health services whenever they need them; this has led to catastrophic spending to a level of impoverishing the family unit through sale of assets and diversion of their meager income into health care services (Archaya & Vellakal, 2013).

The Kenyan health sector relies heavily on out of pocket payments (OOP) which acts as a barrier to accessing health care, though trends show a reduction from 44.8% in 2002/2003 to 29.1% in 2005/2006 of the total healthcare expenditure (National Health Accounts - NHA).

The Kenya health care financing system is a mixed model consisting of public and private sector elements a part from NHIF and OOP, which include: General tax financing which initially was free but was modified following the introduction of cost sharing in 1989 as part of the Structural Adjustments Programs (SAPs) within the public sector. Private health insurance which is voluntary and is provided through insurance companies and Medical Insurance Providers (MIPs) as regulated by the Insurance Regulatory Authority (IRA) based on the Insurance Act Cap 487.

Employer Self Funded Scheme is an in house medical scheme funded by employers through annual budgets and is part of employee benefits as applied in parastatals and financial sectors. Community Based Health Financing (CBHF) schemes which were formed to meet the healthcare financing needs of low income earners who cannot afford private insurance and NHIF and run by Non Governmental Organisations and donors. They are not regulated and fall under the Ministry of gender and youth.

According to Hussmanns (1998) and ILO (1993), the characteristics of the informal sector including lack of registration under any form of legislation and lack of contracts which bind employers to remit relevant taxes and social security contributions on behalf of the employee or subject the employment relationship to standard labour legislation, this offers a challenge in the uptake of either private insurance or employer self funded schemes by those in the sector.

2.3.2 Income level and uptake of health insurance

Income is the most important social and economic determinant of health, since the level of income determines overall living conditions, psychological functioning and influences health related behavior such as food security, housing, participation in cultural and educational activities, which leads to effects to one's health and lessens the ability to live a fulfilling life (Auger & Alix, 2009). In recent and past studies; house hold income in both developed and developing countries has a positive association with the probability of buying health insurance where income significantly determines the amount of health insurance purchased (Osei-Akoto & Adamba, 2011).

One of the major barriers of access to health for marginalised sections of society in many countries is financial constrains. Approximately 1.3 billion poor worldwide have no access to health services because they cannot afford to pay at the time they need it (Dror & Preker, 2002) which leads to those who have to use the services to suffer financial hardship and impoverisation since they have to pay (WHO, 2010). A study by Xu *et al.*,(2003) determined that around 5 % of Latin American households spend 40% of non

subsistence income on medical care each year while those for households in India paying for hospitalisation, 40% fall into poverty due to healthcare spending.

The activities in the informal sector are linked with inadequate income maintenance and income generating activities that in turn reinforces poverty conditions. According to ESCAP (2006) though the informal sector contributes significantly to the economy of many countries in the world especially in terms of employment, its mainly characterised by low productivity and low wages, poor working conditions and long working hours and therefore there is need to enhance productivity and incomes in order to tackle the poverty problem.

In the Kenyan situation according to The Kenya National Bureau of Statistics the population in Kenya was 38.6 million (KNBS, 2010) where more than 4 out of 10 people that's 46.6% of the population live on less than a dollar a day and nearly half of this group is considered absolutely poor (World Bank, 2010). Poverty is a major driver of poor health status while at the same time poor health status drives the poor deeper into poverty (WHO, 2010).

The mode of contribution to NHIF is usually the worker's salary where the contributions by those in the informal sector is a flat rate of about 160 Kenya shillings per month or 1920 Kenya shillings per year (JNL, 2011). In terms of premium collection, the challenge faced by many African countries in implementing the social health security scheme is coming up with modalities for collecting contributions from the large proportion of the population working in the informal sector unlike those in the formal sector whose premiums are collected through payroll deduction (McIntyre, 2007). Assessing incomes and collecting income taxes from workers employed in the informal sector is also challenging (Collins *et al.*, 1996).

In sub-Saharan Africa studies show that those employed in the formal sector are more likely to have health insurance compared to those in the informal sector (Mathauer 2008; Kiriga 2006; Kimani 2004). This was attributed to factors such as low and non regular

income, insecure employment and factors associated with the insurance scheme that are not in synch with people's needs and preference (Kimani, 2010).

There are different mechanisms used to raise and collect funds by people in the formal and informal sector which include participation in microfinance institutions such as savings and credit cooperative organizations called SACCOs for those in the formal sector and community based savings groups called merry go rounds which according to several studies are important predictors of participation in health insurance (Dekker & Wilms, 2010; Leatherman & Dunford, 2010; Moeller, 2009).

These institutions enable the members to raise and collect funds for various purposes including payment for insurance premiums, emergencies such as hospital care and funeral costs (SSRA, 2010; GCRC, 2005). These was one of the mechanism that was recommended by Delloite (2011) during the evaluation of NHIF operations as a means of collecting premiums from participants in the informal sector.

2.3.3 Awareness of NHIF benefits and uptake of health insurance

The most critical barrier to NHIF enrollment was found out by (Mathauer 2008) to be lack of knowledge of informal sector workers on its enrollment options and procedures. Communication and marketing strategies by the scheme has mostly been employed in targeting those in the formal sector as NHIF has always been viewed as a statutory deduction with no immediate benefits by many contributors leading to possible underutilization by those in this sector.

Bawa (2011) concluded that health insurance was not a new concept in India as people were getting aware about it from the radios, television, newspapers, agents, friends etc but the awareness had not improved the level of subscription since as a result 19.4% of the respondents were being covered by any form of health insurance while the a large proportion of the population was still financing health care expenditure without health insurance.

A study by Bhageerathy *et al.*, (2009) in India found out that in order to gain and retain members in the informal sector, the national health scheme required to rebrand and target

indicators such as socio economic status which was found to have a significant impact on the level of awareness and attitude of respondents towards health insurance which influenced the amount of premium payable.

Results from a study by Sanusi *et al.*, (2009) in Nigeria indicated that 87% of the respondents were aware of the national health insurance and about 83% were registered in the scheme. Factors such as employment level were significantly associated with awareness while gender, income level, family size, marital status and education level were not significant factors influencing awareness of the respondents about the scheme.

There may be a challenge in differentiating between awareness and knowledge of health insurance amongst the informal sector as a study in Ghana by Danso (2005) demonstrated. Awareness on health insurance scheme was at 92.5% but knowledge on the scheme was generally low.

It's important for NHIF to develop clear policy details on the various benefits and risks involved in the scheme to increase knowledge and penetration of the scheme across the general population and also understand people's perceptions and develop packages that are accessible, affordable and acceptable to all sections of the society (Carrin *et al.*, 2005). According to Jehu- Appiah *et al.*, (2012) it's important for policy makers to recognise household perceptions related to providers, schemes and community attributes as they act as enablers or barriers in their decisions to voluntarily enroll and remain enrolled in an insurance scheme.

A study in Ghana by Arhinful (2003) on National Hospital Insurance Fund showed that both the insured and uninsured populations held positive perceptions on the benefits of the scheme which included economic, psychological and social benefit of insurance. But Jehu-Appiah (2012) indicated that those who are uninsured and were previously insured were less positive on the schemes benefits and concluded that this may be associated with their decision not to enroll and renew membership and recommended further qualitative research to explain the phenomena.

The impact of insurance scheme on the household and individual include good health which enable the supply of labour and reduction in catastrophic expenditure on health. Carrin (2007) stated that the uptake of insurance may depend on certain factors which include; how one perceives own risk, an understanding of the product and social factors such as trust in the scheme.

Since the establishment of NHIF in 1966 with the objective of providing all Kenyans access to quality and affordable health care, contributions to the formal sector is compulsory but voluntary to the informal sector and retirees. It's the most widely available medical cover in Kenya with more than four hundred accredited hospitals across the country including government hospitals, mission hospitals and private hospitals. Currently it only covers inpatient costs at selected hospitals which are mainly government hospitals, mission hospitals and some private hospital mainly in the rural areas which are comprehensively covered except for surgery costs which are covered on a copayment basis and are based on a capped amount. For high cost private hospitals there is a daily rebate for a maximum of 180 days per beneficiary per year whereby the rest is borne by the beneficiary (Whitehead, 2001). Apart from the beneficiary, the scheme also covers the dependents including the spouse and children under 18 years and those in college and disabled dependents.

One of NHIF regulation which has faced a lot of criticism is the penalty of up to five times the premium that it imposes on the contributors who do not make their payments on time as it imparts negatively especially on the poor, the unemployed and casual workers in the informal sector who have no consistent income that would enable them pay their contributions regularly (Chuma & Okungu, 2012).

Since the uptake of any type of insurance is low in developing countries, one of the important indicators is the rate of enrolment (Gine, 2007). According to Archaya & Vellakal (2013) the enrollment in voluntary health insurance which targets those in the informal sector is subject to problems of selection bias through adverse selection where more unhealthy people take up the insurance scheme due to its perceived benefits. This situation arises when there is asymmetric information which exists between insurers and

consumers about individual's high risk and people who ensure themselves are those who are more certain that they will make use of the insurance package (Morris *et al.*, 2007; Wagstaff, 2010). This affects enrollment and utilisation of the scheme and affect the proper analysis of insurance scheme.

2.3.4 Access to NHIF outlets and uptake of health insurance

There is increased knowledge about NHIF amongst the Kenyan population as a recent survey indicated (WHO, 2010) but the challenge is the cost incurred by individuals in travelling to NHIF offices for enrollment are prohibitively high. There are 31 fully automated NHIF branches in Kenya and an additional 82 service points which exist in hospital and community centers to which beneficiaries can pay premiums, update membership and receive other forms of customer care services (JNL, 2011).

NHIF is criticized for having majority of its services delivered through private facilities which indicates its preference of salaried workers who make up the majority of its contributors to seek services from private providers rather than public institutions (Chuma *et al.*, 2012).

According to Deloitte (2011) in the National Social Health Insurance Strategy Report, the mechanisms to increase accessibility to collection points for those in the informal sector to include collection by various organizations that are close to the population which include; cooperative societies, welfare organizations, trade associations and churches as they may collect the contributions more effectively than NHIF branch offices. These organisations will be contracted and enumerated to offer these services and others will be licensed to issue or stamp the social health insurance cards. Adequate mechanisms will be put in place to ensure that the contributions collected by these organisations are transferred regularly to the NSHIF.

2.4 Summary of literature and research gap

There is a lot of literature on Community Health Insurance and Private insurance around the world in comparison to Social Health Insurance which many countries especially in the developing world are in the process of implementing. Universal coverage involves

among other things ensuring that health care benefits are distributed on the basis of need for care and not on ability to pay. Understanding the extent to which health care benefits are distributed on the basis of need for care is thus an important policy question, which health systems should aim to address (Chuma & Okungu, 2012).

According to Delloite (2011) the uptake of NHIF in the formal sector has reached saturation levels and the focus is to increase enrollment in the informal sector. It's therefore important to carry out more research and identify the particular factors that act as enhancers or barriers to the uptake of SHI in the informal sector and address them accordingly, as this will lead to reduced out of pocket expenditure on healthcare, appropriate utilization of health services and improved health status among this sector of the population (ILO, 2008).

2.5 Conceptual Framework

The conceptual framework in this study contributed in identifying the different variables being assessed, their relationship and how they are linked to the research question and problem statement.

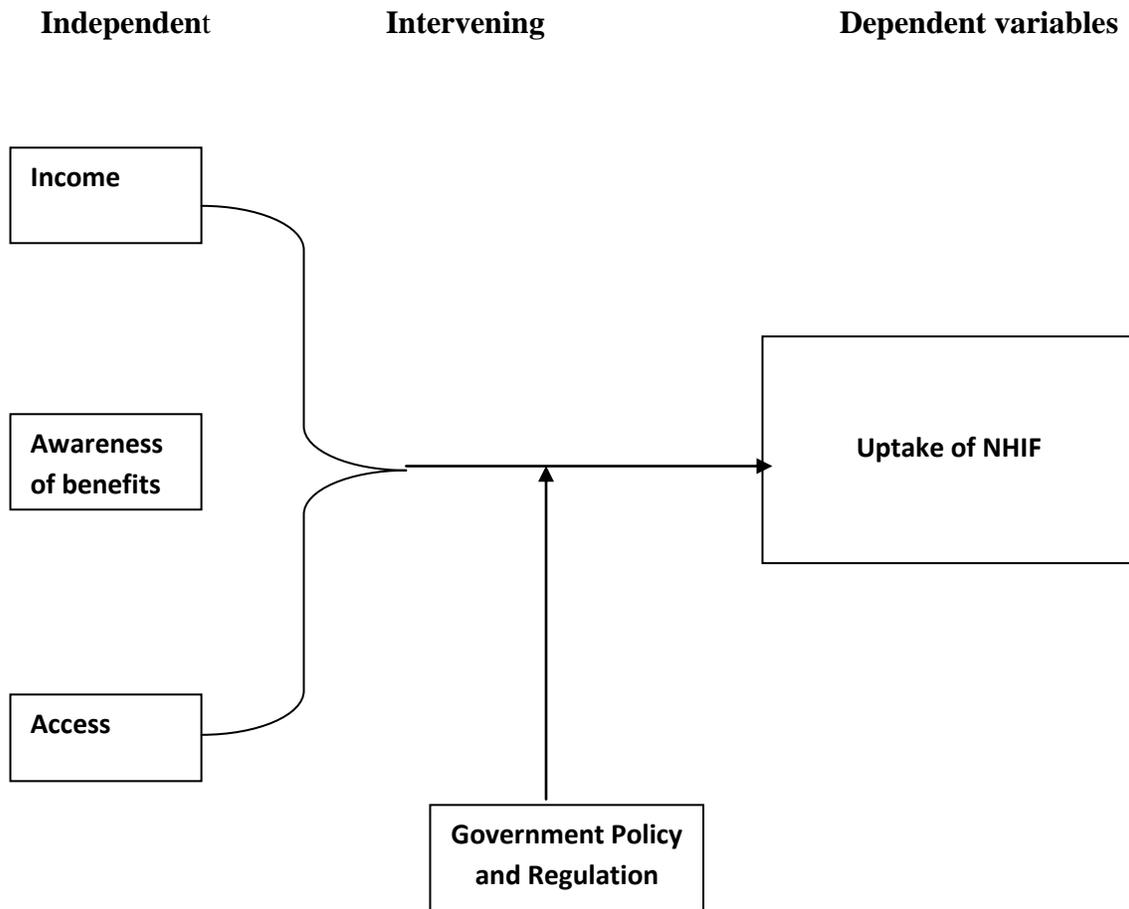


Figure 1.1: Schematic diagram

The primary aim of insurance according to Varian (1992) and Morris (2007) is to smooth out expenditure on a good for which a need arises unexpectedly where in the case of health insurance the good is healthcare over a lifetime. Another purpose of insurance is to provide subsidies across people as the particular need may not arise for some of the people who pay into the financial pool. Thus insurance provides risk pooling across time and people due to differentials in risk across time and people (Archaya & Vellakal, 2013)

There factors that influence the uptake of NHIF among the informal sector and may act as enhancers or barriers. These factors include the source and amount of income, awareness and knowledge on the existence and importance of health insurance, access to paying points for the service and how one perceives their own risk in relation to the perceived benefits of the insurance products.

The first column in figure 1 shows some of the determinants of uptake of NHIF which in relation to the factors in the second column which include government legislature and policies in view of economic, political, demographic and socio-cultural conditions, influence the uptake and utilization of NHIF scheme leading to favourable outcome to those in the informal sector in terms of improved health status, increase in labour productivity and reduced out of pocket expenditure.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section considered various techniques and methods that were used in collecting and analysing data. The chapter provided the research design that was employed, the target population, sampling and sampling design that was to be done. It also provides the techniques that were to be used to collect data, the instruments as well as the data analysis design. Finally it indicated the data presentation techniques and the ethics that would be addressed during the study.

3.2 Research Design

Descriptive research design was employed since the study sought to provide an accurate description of the determinants of uptake of NHIF scheme in the informal sector amongst those who have enrolled and those not enrolled in the scheme. Correlation was also used to enable the researcher gain basic information on the multiple independent variables under analysis in the study in relation to the dependent variable (Creswell, 2008).

The design also enabled the analysis of correlations between the independent variables and the study subjects in order to assess uptake of NHIF scheme which is a binary dependent variable. The descriptive correlation between the two groups produced useful insight which led to important recommendations and hypothesis formation which would lead to further in depth analysis of the phenomena and help identify possible solutions to the identified problems (Gurdial & Jones, 2007; Dey, 2000).

3.3 Target population

The target population for the study were the entrepreneurs operating in the informal sector at Laini Saba location, Laini Saba sub location, Kibera Division of Nairobi County, who were approximately 350 (Admin. rec., 2013). Laini Saba was selected since it was within the largest informal settlement in Kenya (Amnesty International 2009) and consisted of the variety of enterprises identified with the informal sector (WHO, 2006). This was in relation to studies by Hakijamii Trust (2007) and Chuma & Okungu (2011),

which found out that most of the people operating in the informal sector, reside in informal settlements. The list containing the different types of enterprises formed the basis of the sampling frame for the study and the study population was divided into fifteen categories as shown in the table.

Table 3.1 Distribution of Target Population

Distribution of enterprise	Population
Fruits, vegetables and cereals	109
Clothing and shoes	62
Retail kiosks, salons	56
Food and beverage	60
Furniture and metal work	9
Transport industry	54
Total	350

Source: Administration records (2013).

3.4 Sampling and Sampling design

The informal sector population is infinite and an evaluation study by Delloite (2011) and Kimani (2012) estimated that the proportion of those enrolled in the NHIF scheme from this sector was approximately 19% and 11% respectively in the entire country. The respondents were picked from the different categories of entrepreneurs within Laini Saba area, using stratified random sampling method in relation to the categories in which the entrepreneurs operated and were based on the wares, goods or services that they offered.

Stratified random sampling method was deemed appropriate since the researcher didn't know the population sample and just chose the respondents at random from each category (Mugenda & Mugenda, 2003). This method was used to group the respondents into categories or strata as shown in table 3.2 and 30% were selected from each stratum.

Table 3.2 Distribution of Sample Size

Distribution of enterprise	Population	Sample ratio	Sample size
Fruits, vegetables, cereals	109	0.3	32
Clothing and shoes	62	0.3	18
Retail kiosks	56	0.3	16
Food and beverage	60	0.3	17
Furniture and metal work	9	0.3	3
Transport industry	54	0.3	16
Total	350	0.3	102

Source: Administration records (2013).

This variability in scores allowed the determination of whether a pattern of data existed and enabled the researcher to determine the true relationship between variables (Creswell, 2008).

3.5 Data collection Procedure

Primary data was obtained from the entrepreneurs at Laini Saba sub location using questionnaires. The questionnaires were suitable for this study since it solicited for similar information from the respondents (Mertens, 2005). The researcher distributed and picked the questionnaires after two days given the nature of the work place. Out of the 102 distributed questionnaires, 97 were successfully returned. This was enough to make appropriate conclusions for the study since it had a return rate of 95% which is more than the recommended percentage (65%). The questions were structured in simple language to cater for respondents who would have had difficulty in reading and writing. Secondary data was obtained from libraries, internet, journals, organizational reports, session papers and grey information.

3.6 Piloting

3.6.1 Validity of the Instruments

A pilot study was then carried out to pretest the research instrument. Two entrepreneurs from each category were issued with questionnaires to fill out. Content validity was used in the study since the questionnaire had contents on demographic characteristics of participants in the informal sector, enrollment into NHIF scheme, level and source of income, awareness of benefits of NHIF scheme and access to NHIF outlets. Since all indicators pertaining to this content were challenging to elicit, sampling validity was done. The indicators were sampled and put in the content being tested in the instrument for content validity.

The questionnaire was given to two groups of experts where one group assessed the concept being measured while the other group determined whether the set of items accurately represented the concept under study.

3.6.2 Reliability of the Instruments

The responses to the questions were analyzed to find out if the instrument was testing what it intended to test and adjustments carried out accordingly. Reliability of the instrument was assessed using the test retest method where after the pilot study the questionnaire was administered to the same entrepreneurs after one week where their responses were coded and scored using Pearson's chi-square at 0.05% level of significance to assess consistency in responses (Boslough & Walter, 2008; Winer et al., 1991).

3.7 Data analysis and presentation

Once the questionnaires were collected, they were cross checked by the principle investigator for completeness, accuracy and consistency. A coding manual was developed for open ended questions and appropriate codes assigned to individual responses in order to identify questionnaires filled by entrepreneurs in the different categories. Statistical Package for Social Sciences (SPSS) version 20 was used to organise the data and carry

out statistical analysis, which included univariate analysis using descriptive statistics while bivariate analysis using multinomial logistic regression was used to measure the association between the uptake of NHIF scheme and the individual independent variables. The threshold for statistical significance was set at α 0.05 and a two sided p value at 95% confidence interval was reported.

Multinomial logistic regression model was used and analysis was performed, where direct entry method was used and it followed the design:

$$\log \left(\frac{p}{1-p} \right) = \alpha + \beta + \beta X_1 + \beta X_2 + \beta X_3 + \dots$$

with the general equation being $\alpha + \beta + \beta (\sum X_i)$

Where:

- **log** is the natural logarithm, $\log_{\exp} \dots$ where $\exp=2.71828 \dots$
- **p** is the probability that the event Y, which is NHIF uptake occurs, $p(Y=1)$
- **p/(1-p)** is the "odds ratio"
- **log[p/(1-p)]** is the log odds ratio, or "logit"
- **α** is the constant term.
- **β** is the coefficient on the dependent variable(s).
- Covariates $X_1, X_2 \dots$ which are the independent variables.

Adjusted Odds ratios were used to estimate the strength of association between the independent variables and uptake of NHIF scheme (Nyagero et al., 2012; Mukhopadhyay, 2007).

Tables were used to show the frequency of occurrence of different variables, while multiple bar graphs were used to display categorical data which used rectangular bars, where the length represented the quantity or frequency of each type or category and pie charts showed quantitative variations between different independent variables.

3.8 Ethical considerations

The research followed all the protocols of research which included; authority to collect data from Kenyatta University Research coordination office which was used to obtain permission from the District Officer Kibera Division.

The respondents were assured that the information given would be treated with confidentiality and the data collected will only be used for the research, consent was sought from the respondents after explaining to them the purpose of the study, the participants were given a chance to ask questions or seek clarification at any point during the research, only those who give consent were considered for the study. Confidentiality of the respondents was assured by removing all the identifiers prior to data analysis and report writing. A copy of the research report was given to the District Officer's office as a way of feedback. All data files were secured by password to control access to them.

CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION

4.1 Introduction

The purpose of the study was to find out the determinants of NHIF scheme uptake by the informal sector in Nairobi County, Kenya. In order to achieve the goal of the study, the chapter is organized under variables based on the objectives of the study. The variables include: Uptake of NHIF scheme, income level, awareness of benefits of NHIF scheme and access to NHIF outlets. The study intended to collect information from 102 respondents. However, only 97 respondents participated in the study. This was summarized in the table below:

Table 4.1: Respondents turnout

Distribution of enterprises	Population	Expected Sample ratio	Expected Sample size	Actual sample ratio	Actual sample size
Fruits, vegetables, cereals	109	0.3	32	0.22	24
Clothing and shoes	62	0.3	18	0.30	20
Retail kiosks	56	0.3	16	0.29	16
Food and beverage	60	0.3	17	0.30	18
Furniture and metal work	9	0.3	3	0.40	4
Transport industry	54	0.3	16	0.27	15
Total	350	0.3	102	0.30	97

Source: (Survey data, 2013)

4.2 Background Information

4.2.1 Gender of the respondents

The respondents were asked to indicate their gender, and the responses obtained are summarized in table 4.1 below.

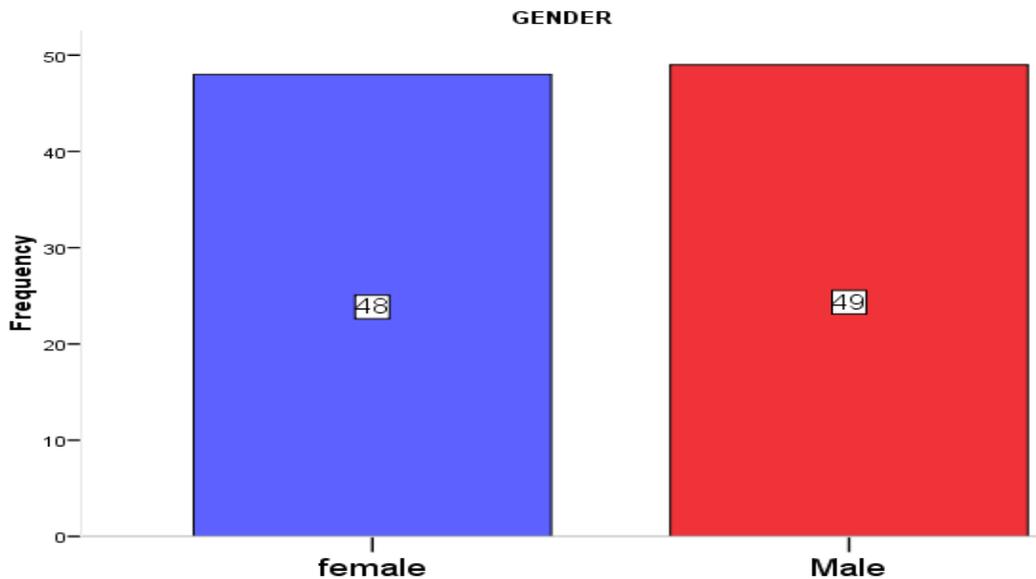


Figure 4.1 Gender distribution of the respondents

Source: (Survey data, 2013)

The above figure shows the distribution of respondents by gender. It indicates that 50.5% (n=49) were male while 49.5% (n=48) were female. This implies that the proportion of male and female were nearly the same, indicating that gender of respondents was evenly represented in the sample which tallies with the findings of Ouma et al., (2007) which showed that approximately 50% of those operating in the informal sector were women.

4.2.2 Distribution of the respondents by age

The respondents were asked to indicate their age categories. The results were summarized using bar graphs as shown in figure 4.2 below.

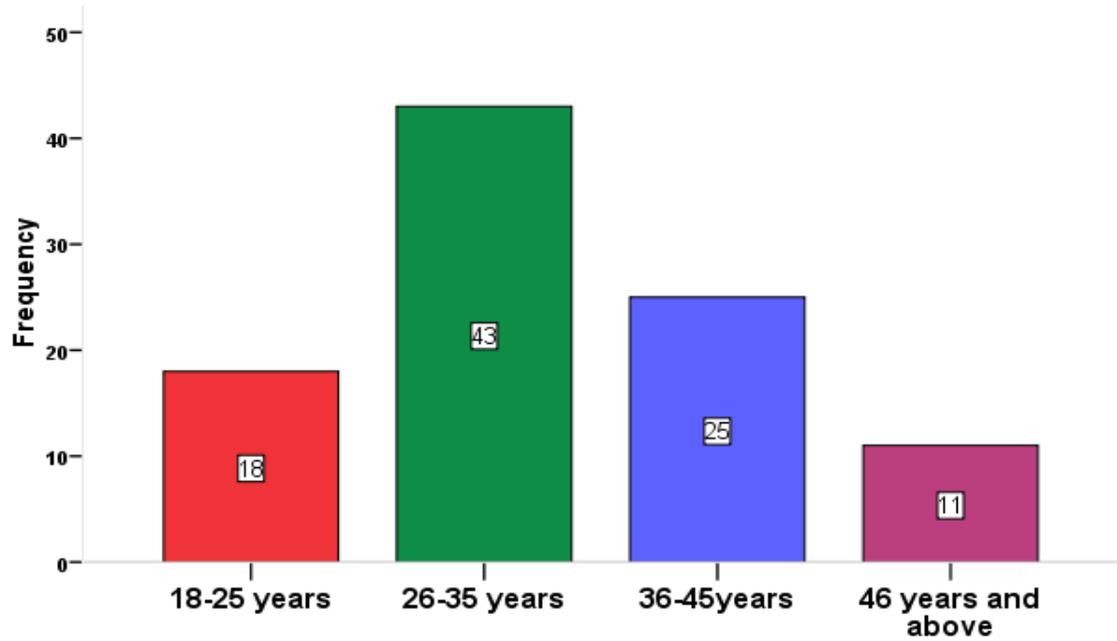


Figure 4.2 Age Category of the respondents

Source: (Survey data, 2013)

As shown above, among the respondents who participated in this study, 18.6% (n=18) were aged between 18-25 years, majority 44.3% (n=43) were aged between 26-35 years while only 11.3% (n=11) were 46 years and above.

4.2.3 Marital Status of the respondents

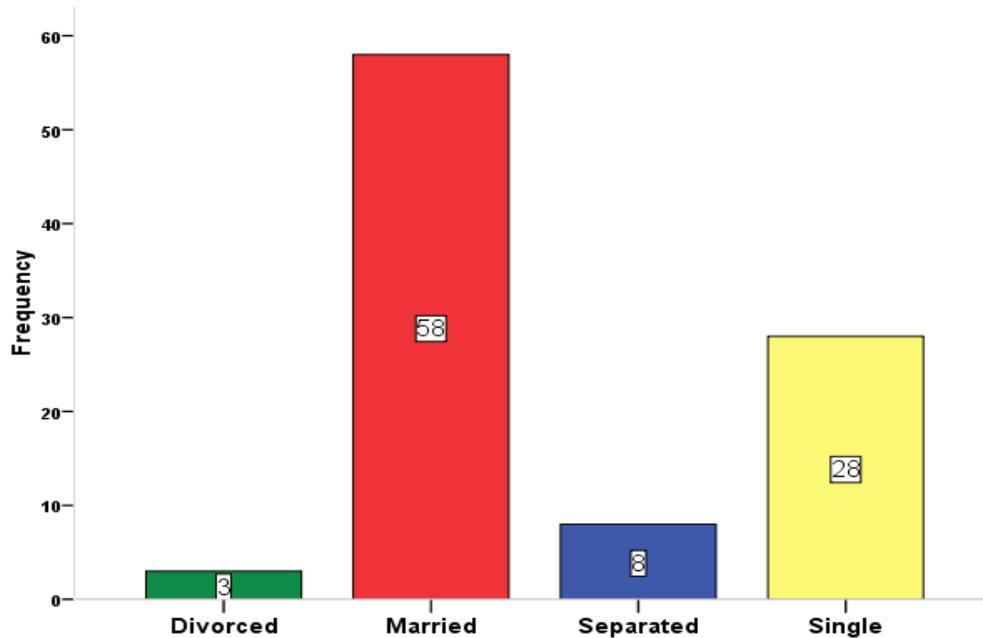


Figure 4.3: Marital Status of the respondents

Source: (Survey data, 2013)

The results from the figure above indicate that majority of the respondents were married; 59.8% (n=58); 28.9% (n=28) were single; and 8.2% (n=8) were separated. However, only 3.1% (n=3) were divorced.

4.2.4 Education level

Education level is a determinant of unemployment rate in the economy based on job opportunities; which is a factor of level of income. Thus the respondents were asked to indicate their level of education. The results were summarized as shown in figure 4.4 below

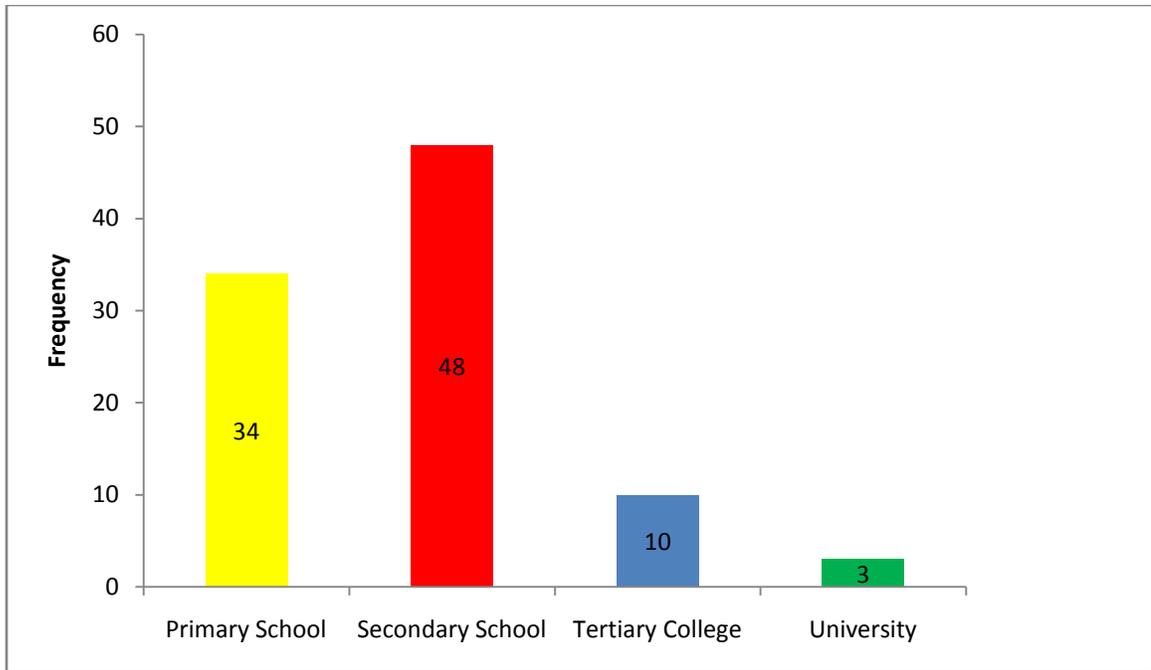


Figure 4.4 Level of Education.

Source: (Survey data, 2013)

The results from the above figure show that majority of the entrepreneurs were secondary and primary school leavers. These were represented by response rates of 49.5% and 34.0% respectively.

4.2.5 Enrolment in NHIF Scheme

The study sought to establish the number of entrepreneurs enrolled in NHIF Scheme and to clarify further the factors determining their enrolment. The table below shows the enrolment by number in NHIF Scheme.

Table 4.2 Enrollment Size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	66	68.0	68.0	68.0
	Yes	31	32.0	32.0	100.0
Total		97	100.0	100.0	

Source: (Survey data, 2013)

The results from the above table shows majority of the respondents were not enrolled in NHIF Scheme. This is indicated by a response rate of 68.0% (n=66). However, only 32.0% (n=31) were enrolled. The next question sought to know whether the respondents or their spouses were enrolled in any other type of health insurance if they were not enrolled in NHIF scheme. Only 7.1% (n=4) had another type of insurance while 93.1% (n=62) didn't have any type of insurance.

4.3 Findings and Interpretations by Research Objectives

4.3.1 Effects of income level on the uptake of NHIF scheme

The study sought to establish whether income level was a determinant in the uptake of NHIF scheme in the informal sector. The respondents were asked to indicate their income level. The table below gives a summary of how much income they earned in a month.

Table 4.3 Levels of income in Kshs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	11,000-20,000	9	9.3	9.3	9.3
	6000 -10,000	33	34.0	34.0	43.3
	Above 20,000	8	8.2	8.2	51.5
	Below 5000	47	48.5	48.5	100.0
	Total	97	100.0	100.0	

n=97

Source: (Survey data, 2013)

From the above table, most of the entrepreneurs 48.5% (47) earned an income of less than 5000 Shillings and between Kshs 6000-10000; 34.0% (47).

Most of the entrepreneurs owned the business enterprises they were engaged in at 74.2% (n=72) while 26.8% (26) were employees. Those without another source of income were 83.5% (81) while 16.5% (16) reported to have another source of income. Despite having another source of income majority earned an income less than 5,000 shillings in a month.

4.3.2 Income distribution among the spouses**Table 4.4: Whether spouse had other income**

	Response	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	47	48.5	48.5	48.5
	No response	23	23.7	23.7	72.2
	Yes	27	27.8	27.8	100.0
	Total	97	100.0	100.0	

n=97

Source: (Survey data, 2013)

The results from findings indicate that 27.89% (27) had another source of income while 23.7% (23) gave no response since they were single, separated or divorced. Majority

48.5% (47) of spouses had no other source of income indicating high poverty levels in the informal sector. This following table shows that summary of the findings.

Table 4.5: Belonging to a Welfare group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Chama	46	47.4	47.4	47.4
	Merry go round	27	27.8	27.8	75.3
	none	15	15.5	15.5	90.7
	SACCO	9	9.3	9.3	100.0
	Total	97	100.0	100.0	

n=97

Source: (Survey data, 2013)

Most of the entrepreneurs belonged to a social welfare group where 9.3 % (9) belonged to a SACCO while majority 47.4% (46) were in *chamas* and 25.8% (25) were involved in a Merry go round. However 15.4% (15) reported that they belonged to no welfare organizations.

Table 4.6: Dependants children

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	28	28.9	28.9	28.9
	Yes	69	71.1	71.1	100.0
	Total	97	100.0	100.0	

Source: (Survey data, 2013)

The above results indicate that most entrepreneurs had children below 18 years who depended on them for health support. This could be due to the age of the entrepreneurs operating in the sector where majority are between 18-35 years which is characterised by high birth rates (KDHS, 2007).

4.3.3 Awareness of NHIF benefits

The study sought to determine whether awareness of NHIF benefits was a determinant of uptake of NHIF scheme.

Table 4.7: Health facilities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government hospital	27	27.8	27.8	27.8
	KNH	29	29.9	29.9	57.7
	Mission hospital	6	6.2	6.2	63.9
	NGO hospital	20	20.6	20.6	84.5
	Private hospital	15	15.5	15.5	100.0
	Total	97	100.0	100.0	

n=97

Source: (Survey data, 2013)

The results from the above table shows that majority 29.9% (29) of the people sought treatment from Kenyatta National Hospital (KNH), followed by government facilities 27.8% (27) and Non Governmental Organisation facilities N20 20.6% (20) when sick.

Table 4.8: Whether has been admitted in hospital

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	74	76.3	76.3	76.3
	Yes	23	23.7	23.7	100.0
	Total	97	100.0	100.0	

n=97

Source: (Survey data, 2013)

When asked whether they had been admitted in hospital in the past two years, the majority of the respondents 74 (76.3%) said no while only 23 (23.7%) had been admitted. For those admitted majority 11.3% (11) had been admitted twice while 8.2% (8) only once while 2.1 % (2) had been admitted three and four times respectively. In response to

whether an immediate family member had been admitted in the past 2 years, 39.2% (38) said yes while 60.8% (69) said no. For those who said yes 15.5% had a dependent who had been admitted once or twice respectively.

Table 4.9: Methods of paying hospital bill

Means of paying hospital bill		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Borrowed money to pay	14	14.4	14.4	14.4
	contribution from family	2	2.1	2.1	16.5
	insurance	1	1.0	1.0	17.5
	NHIF	9	9.3	9.3	26.8
	not applicable	55	56.7	56.7	83.5
	Sold property to pay	4	4.1	4.1	87.6
	Using family savings	12	12.4	12.4	100.0
Total		97	100.0	100.0	

n=97

Source: (Survey data, 2013)

The study sought to find out how those who had been admitted paid their hospital bills. The table 4.12 shows the manner used in settling the hospital bills. 14.4% (14) borrowed money to pay hospital bill, 12.4% (12) used family savings, 4.1% (4) sold property while 9.3% (9) used NHIF to pay hospital bill.

Table 4.10: Opinion on the usefulness of the scheme

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	22	22.7	22.7	22.7
	Yes	75	77.3	77.3	100.0
Total		97	100.0	100.0	

n=97

Source: (Survey data, 2013)

Majority of the respondents 77% (75) agreed that NHIF would have assisted when admitted in hospital while 22.7% (22.7) disagreed. Of those who had agreed 56.7% (55) stated that it would assist in paying hospital bill while 28.5% (28) indicated that it reduced the cost of paying the hospital bill while for those who disagreed 8.3% (8) cited issues such as corruption and a long process as hindrances.

When asked about who can enroll in the scheme and who was covered by the scheme, Majority 87.6% (85) of the respondents agreed that that anybody who could contribute qualifies to enroll in NHIF scheme. Even though 17.5% (17) reported that NHIF covered the contributor and the family members, the rest of the respondents 82.5% (80) were not aware that the children and spouse can also benefit from the NHIF scheme. Majority 97.9% (95) reported that NHIF scheme covered those who are enrolled when they are admitted in hospital.

Although majority 64.5% (64) reported that NHIF covered all disease conditions, 33.5% (33) did not know what conditions the NHIF scheme covered, while 39.2 (38) stated correctly how much the monthly premiums to NHIF were, 43.3% (42) didn't know how much were the contributions while 17.5% (17) quoted the wrong premium.

4.3.4 Access to NHIF outlets

The study also sought to find out if the respondents knew where the NHIF outlets were situated as this determined their accessibility and if there are any other means of paying the premiums other than visiting the offices

Table 4.11: Location of NHIF offices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	19	19.6	19.6	19.6
	Yes	78	80.4	80.4	100.0
	Total	97	100.0	100.0	

n=97

Source: (Survey data, 2013)

Most respondents 80.4% (78) knew where the NHIF offices within Nairobi County are located whereas 19.6% (19) did not know. While 57.7% (56) agreed that there are other means of contributing to NHIF scheme apart from going to offices, while 41.2% (41) disagreed. Among those who agreed, 50.5% (49) stated that payments can be made through *mpesa* services while 5.1% (5) indicated that payments can be made through banks.

4.4 Logistic analysis on determinants of NHIF uptake in the informal sector

Inferential analysis was carried out using multinomial logistic analysis. In this study, it was used to analyze the relationship between the non-metric dependant variable Uptake with the metric dichotomous independent variables, where it compared multiple groups through a combination of binary logistic regression. The group comparisons were equivalent for a dummy coded dependent variable, where by default; SPSS used the group with the least numerical score as the reference group (Christensen, 1997; Agresti, 1996).

Table 4.12: Model Fitting Information

Model	Model fitting criteria	Likelihood ratio test		
	-2 log likelihood	Chi-square	df	Sig. fig
Intercept only	118.333			
Final	1.785	116.548	42	.000

Source: (Survey data, 2013)

The model followed a chi-square distribution where the significant test for the final model chi-square after the independent variables had been added was the statistical evidence of presence of a relationship between the independent variables combined. In the analysis, the probability of model chi-square (116.548) was 0.000 which was less than the significance value of 0.05 showing the existence of a relationship between the

independent and the dependent variables and also the integrity and appropriateness of the model.

Table 4.13: Uptake of NHIF Scheme

	Beta estimate	Std error	Z	p-value	Confidence interval	
					Upper bound	Lower bound
Uptake Constant:	3.450					
Uptake:	.747	.216	3.455	.001	.323	1.171

Source: (Survey data, 2013)

In the study, the variable Uptake was the dependent variable where Enrolled was coded as 0, while Not enrolled was coded as 1 and the reference group was Enrolled. A one-unit increase in the variable uptake was associated with .747 decrease in the relative log odds of enrolling in NHIF which was significant (P=0.001 95% CI 1.171- 2.111).

Table 4.14: Socio-demographic Characteristics

	Beta estimate	Std error	Z	p-value	Confidence interval	
					Upper bound	Lower bound
Gender vs. uptake						
Intercept:	3.450					
Reference: Male						
Uptake	-.588	.298	-1.971	.049	-1.172	-.003
Female*Uptake	5.183	1.452	3.569	.000	2.337	8.029
Age vs. Uptake						

Intercept	2.603					
Reference: Above 46 years						
Uptake	-3.611	1.433	-2.520	.012	-6.420	-.802
Uptake*18-25 years	4.426	1.470	3.011	.003	1.545	7.307
Uptake * 26-35 years	6.746	2.035	3.315	.001	2.758	10.735
Uptake * 36- 45years	7.534	2.022	3.730	.000	3.579	11.506

**Marital status vs.
uptake**

Intercept	3.350					
Ref: Divorced						
Uptake :	1.946	1.512	1.287	.198	-1.017	4.909
Uptake*Married	2.816	2.074	1.358	.175	-1.249	6.881
Uptake * Single	-5.989	2.079	-2.881	.004	-10.063	-1.915
Uptake * Separated	-1.494	1.659	-.900	.368	-4.746	1.758

**Education vs.
uptake**

Intercept:	1.705					
Ref university						
Uptake:	-2.398	1.477	-1.623	.105	-5.293	-.497
Uptake*secondary	6.959	2.050	3.401	.001	2.955	10.990
Uptake*primary	2.512	1.515	1.658	.097	-.458	5.482

Uptake*tertiary	-.647	2.068	-.313	.755	-4.700	3.407
Type of business						
vs. uptake						
Intercept:	1.504					
Ref furniture/metal						
Uptake:	-2.197	1.491	-1.474	.140	-5.119	.725
Uptake*fruits, vegetables and cereals	6.089	2.064	2.950	.003	2.043	10.135
Uptake*clothing and shoes	5.911	2.066	2.860	.004	1.861	9.961
Uptake*food and beverage	5.808	2.068	2.809	.005	1.755	9.861
Uptake*retail kiosk	1.176	1.589	.740	.459	-1.939	4.290
Uptake* transport	-1.239	2.070	-.597	.550	-5.295	2.821

Source: (Survey data, 2013)

In the variable Gender, male was coded 0 while female was coded 1 and the reference group was male. A one-unit increase in the variable uptake was associated with .588 decrease in the relative log odds of male enrolling in NHIF versus female enrolling which was significant (P=0.049 95% CI -1.172- -0.003). The log odds of male not enrolling in NHIF versus female not enrolling, increased by 5.183 if moving from female to male, with the coefficient being significant (P=0.000 95% CI 2.337- 8.029).

In the variable Age, above 46 years was coded as 0 while 36-45 was 1, 26-35 years was coded 2, 18-25 years was coded 3 and the reference was group above 46 years. A one-unit increase in the variable uptake was associated with 3.611 decrease in the relative log odds of being in age groups above 46 years, versus between 36-45 years, versus between

26-35 years, versus 18-25 years which was significant (P=0.012 95% CI -6.420- -.802). The log odds of ages 36-45 years enrolling in NHIF versus 26-35 years and 18-25 years not enrolling, increased by 7.543 if moving from 26-35 years and 18-25, with the coefficient being significant (P=0.000 95% CI 3.579-11.506). The log odds of ages 26-35 years not enrolling in NHIF versus 36-45 years and 18-25 years enrolling, increased by 6.746 if moving from 36-45 years and 18-25, with the coefficient being significant (P=0.001 95% CI 2.758- 10.735). The log odds of ages 18-25 years enrolling in NHIF versus 26-35 years and 36-45 years not enrolling, increased by 4.426 if moving from 26-35 years and 36-45, with the coefficient being significant (P=0.003 95% CI 1.545- 7.307).

In the variable Marital status, married was coded as 0 while single was coded 1, separated was coded 2, divorced was coded 3 and the reference was divorced. A one-unit increase in the variable uptake was associated with 3.611 decrease in the relative log odds of those married enrolling in NHIF, versus those who are single enrolling in the scheme, versus those separated enrolling in the scheme, which was not significant. The log odds of those who are single not enrolling in NHIF scheme versus those separated and divorced, will decrease by 5.989 if moving from those separated and those divorced, with the coefficient being significant (P=0.004 95% CI -10.990 - -2.955).

In the variable Highest level of education, secondary was coded as 0, while primary was coded 1, Tertiary was coded 2, University was coded 3 and the reference was university. A one-unit increase in the variable uptake was associated with 2.398 decrease in the relative log odds of those having secondary education enrolling in NHIF scheme, versus those with primary education, versus those with tertiary education which was not significant. The log odds of those who have secondary education not enrolling in NHIF scheme versus those with primary and tertiary education not enrolling in the scheme, will increase by 2.050 if moving from those with primary education and those with tertiary education, with the coefficient being significant (P=0.001 95% CI 2.99 – 10.990).

In the variable Type of business, selling fruits, vegetables and cereals was coded as 0

while clothing and shoes was coded 1, food and beverage was coded 2, retail kiosk was coded 3, transport industry was coded 4, furniture and metal work coded 5 and the reference was furniture and metal work. A one-unit increase in the variable uptake was associated with 2.197 decrease in the relative log odds of being in the business of selling fruits vegetables and cereals, versus clothing and shoes, versus food and beverage, versus retail kiosk, versus transport industry versus furniture and metal work, which was not significant. The log odds of those in the fruits, vegetables and cereal business not enrolling in NHIF scheme versus those in the clothing and shoes, versus food and beverage, versus retail kiosk, versus transport industry versus furniture and metal work not enrolling in the scheme, increased by 6.089 if moving from those in the clothing and shoes, food and beverage, retail kiosk, transport industry and furniture and metal work with the coefficient being significant (P=0.003 95% CI 2.043 – 10.135). The log odds of those in the clothing and shoes business not enrolling in NHIF scheme versus those in the fruit, vegetable and cereal business versus food and beverage, versus retail kiosk, versus transport industry not enrolling in the scheme, increased by 5.911 if moving from those in the clothing and shoes business, food and beverage, retail kiosk, and transport industry with the coefficient being significant (P=0.004 95% CI 1.861 – 9.961).

Table 4.15: Income Level and Uptake

	Beta estimate	Std error	Z	P-value	Confidence interval	
					Upper bound	Lower bound
Monthly income vs. uptake						
Intercept:	3.450					
Ref 2000 and above						
Uptake:						
Uptake*below 5000	-0.588	.298	-1.947	.049	-1.172	-.003
Uptake* 6000 to 10000	3.421	1.485	2.303	.021	.510	6.332
Uptake* 11000 to 20000	3.532	1.481	2.385	.017	.629	6.435
	4.762	1.456	3.271	.001	1.909	7.616

**business ownership
vs. uptake**

Intercept:	3.239					
Ref: employee						
Uptake:	-3.932	1.427	-2.755	.006	-6.727	-1.135
Uptake* ownership	6.257	1.485	4.214	..000	3.347	9.168

**Another source of
income vs. uptake**

Intercept:	2.803					
Ref: yes						
Uptake:	-3.497	1.435	-2.436	.015	-6.310	-.683
Uptake * no other source of income	4.938	1.463	3.375	.001	2.070	7.805

**Spouse with
income vs. uptake**

Intercept:	3.157					
Ref: no response						
Uptake:	-3.850	1.429	-2.694	.007	-6.651	-1.049
Uptake* no income	8.404	2.016	4.169	.000	4.453	12.355
Uptake *has income	4.680	1.487	3.147	.002	1.766	7.595

**Welfare group vs.
uptake**

Intercept:	2.251					
Ref SACCO	-2.944	1.451	-2.029	.042	-5.788	-.101
Uptake:	7.477	2.031	3.681	.000	3.496	11.458
Uptake*chama	3.950	1.512	2.612	.009	.986	6.914
Uptake *merry-go- round	-.490	2.042	-.240	.811	-4.492	3.513

Uptake * none

**Dependents on
health vs. uptake**

Intercept:	3.350					
Ref no dependents						
Uptake:	-4.043	1.425	-2.838	.005	-6.835	-1.251
Uptake * has dependents	6.987	1.527	4.577	.000	3.995	9.980

Source: (Survey
data 2013)

In the variable Monthly income, below 5000 was coded as 0 while 6000-10000 was coded 1, 11000-20000 was coded 2, above 20000 was coded 3 and the reference was above 20000. A one-unit increase in the variable uptake was associated with .588 decrease in the relative log odds of having an income below 5000 versus 6000-10000 versus 11000-20000 versus above 20000 which was significant (P=0.049 95% CI -1.172- -0.003). The log odds of those earning below 5000 shillings not enrolling in NHIF scheme versus 6000-10000 and versus 11000-20000 not enrolling in the scheme will increase by 3.421 if moving from those earning between 6000-10000, between 11000-20000 and above 20000 shillings per month with the coefficient being significant (P=0.021 95% CI 0.510 – 6.332). The log odds of those earning between 6000-10000 shillings not enrolling in NHIF scheme versus those earning below 5000 shilling, versus between 11000-20000 shillings and above 20000 shillings will increase by 3.532 if moving from those earning below 5000 shillings, between 11000-20000 and above 20000 shillings per month with the coefficient being significant (P=0.017 95% CI .627 – 6.435). The log odds of those earning between 11000-20000 shillings not enrolling in NHIF scheme versus those earning below 5000 shilling, versus between 6000-10000 shillings and above 20000 shillings will increase by 4.769 if moving from those earning below 5000 shillings, between 6000-10000 and above 20000 shillings per month with the coefficient being significant (P=0.001 95% CI -6.727 – -1.135).

In the variable Business ownership, Owner was coded as 0 while Employee was coded 1 and the reference was employee. A one-unit increase in the variable uptake was associated with 3.932 decrease in the relative log odds of being a business owner versus being an employee which was significant (P=0.006 95% CI -6.727- -1.135). The log odds of the respondents owning the business not enrolling in NHIF versus the respondents who are employees not enrolling, will increase by 6.257 if moving from those owning the business to employees, with the coefficient being significant (P=0.000 95% CI 3.347- 9.168).

In the variable another source of income, No was coded as 0 while Yes was coded 1 and the reference was Yes. A one-unit increase in the variable uptake was associated with 3.497 decrease in the relative log odds of having another source of income versus no other source of income was significant (P=0.015 95% CI -6.310- -1.135). The log odds of those not having another source of income not enrolling in NHIF versus, those having another source of income will increase by 4.938 if moving from those not having another source of income to those having another source of income, with the coefficient being significant (P=0.001 95% CI 2.070-7.805).

In the variable Spouse with income, spouse has no income was coded as 0 while spouse has income was coded 1, No response was coded 2 and the reference was no income. A one-unit increase in the variable uptake was associated with 3.850 decrease in the relative log odds of having spouse with income versus spouse with no income versus no response which was significant (P=0.007 95% CI -6.651- -1.049). The log odds of those with spouses without income not enrolling in NHIF versus spouses with income and no response, increased by 8.464, if moving from spouses without income, spouses with income and no response, with the coefficient being significant (P=0.000 95% CI 4.453- 12.355). The log odds of those with spouses with income not enrolling in NHIF versus spouses without income and no response, will increase by 4.680, if moving from spouses with income, spouses without income and no response, with the coefficient being significant (P=0.002 95% CI 1.766- 7.595).

In the variable Welfare group, Chama was coded as 0 while Merry Go Round was coded 1, None was coded 2, SACCO was coded 3 and the reference SACCO. A one-unit increase in the variable uptake was associated with 2.944 decrease in the relative log odds of belonging to a Chama, versus Merry Go Round, versus belonging to none versus SACCO which was significant (P=0.042 95% CI -5.788- -0.101). The log odds of those in Chamas not enrolling in NHIF versus those in Merry Go Round versus None versus SACCO, increased by 7.477 if moving from Merry Go Round to None to SACCO, with the coefficient being significant (P=0.000 95% CI 3.995- 11.458). The log odds of those in Merry Go Round not enrolling in NHIF versus those in Chamas versus None versus SACCO, increased by 3.950 if moving from Chama to None to SACCO, with the coefficient being significant (P=0.009 95% CI .986- 6.914).

In the variable Dependents, Has dependents was coded as 0 while No dependents was coded 1 and the reference was No dependents. A one-unit increase in the variable uptake was associated with 4.043 decrease in the relative log odds of having a dependent on health versus no dependents, which was significant (P=0.005 95% CI -6.835- -1.251). The log odds of those with dependents not enrolling in NHIF versus those not having dependents, increased by 3.527 if moving from those with dependents to those not having dependents with the coefficient being significant (P=0.000 95% CI 3995- 9.980).

Table 4.16: NHIF Benefits and Uptake

	Beta estimate	Std error	Z	P-value	Confidence interval	
					upper bound	lower bound
Treatment facility vs. uptake						
Intercept:	1.872					
Ref: mission hospital						
Uptake:	-2.565	1.468	-1.748	.081	-5.441	.311
Uptake * KNH	6.642	2.045	3.248	.001	2.635	10.650
Uptake * government	6.572	2.046	3.212	.001	2.562	10.582
Uptake * NGO	2.565	1.531	1.675	.094	-.436	5.660

Uptake * private hospital	-0.869	2.054	-4.23	.672	-4.894	3.156
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**Hospital admission vs.
uptake**

Intercept:	-0.693					
Ref : admission						
Uptake:	3.850	1.428	2.695	.007	1.050	6.650
Uptake* no admission	-3.527	1.448	-2.437	.015	-6.364	-.690

**Assistance of scheme vs.
uptake**

Intercept:	2.251					
Ref: not useful						
Uptake:	-3.807	1.429	-2.663	.008	-6.608	-1.005
Uptake * useful	5.753	1.471	3.911	.000	2.870	8.635

**Who can enroll vs.
uptake**

Intercept:	2.970					
Ref: permanent employee	-3.219	1.442	-2.232	.026	-6.046	-.392
Uptake:	4.446	1.465	3.035	.002	1.574	7.317
Uptake *anyone						

**When it covers vs.
uptake**

Intercept:	2.603					
Ref: not admitted	-3.55	1.434	-2.479	.013	-6.366	-.744
Uptake:	5.150	1.465	3.516	.000	2.279	8.021
Uptake* when admitted						

Monthly premium vs. uptake

Intercept:	3.450					
Ref: right premium						
Uptake:	-1.435	.406	-3.532	.000	-2.231	-.639
Uptake * wrong premium	6.214	1.477	4.208	.000	3.320	9.108

Source: (Survey data, 2013)

In the variable Treatment facility, KNH was coded as 0, Government hospital was coded 1, NGO hospital was coded 2, Private hospital was coded 3, Mission hospital was coded 4 and the reference was Mission. A one-unit increase in the variable uptake was associated with a 2.565 decrease in the relative log odds of having been treated at KNH versus Government hospital versus NGO versus Private hospital versus Mission hospital, which was not significant. The log odds of those seeking treatment at KNH not enrolling in NHIF versus those seeking treatment at Government hospital versus those seeking treatment at NGO hospital versus those seeking treatment in Private hospitals versus those seeking treatment in Mission hospitals will increase by 6.642 if moving from Government hospitals, from NGOs, from Private hospitals and from Mission hospitals with the coefficient being significant (P=0.001 95% CI 2.635 – 10.650). The log odds of those seeking treatment at Government hospitals not enrolling in NHIF versus those seeking treatment at KNH versus those seeking treatment at NGOs versus those seeking treatment in Private hospitals versus those seeking treatment in Mission hospitals will increase by 6.572 if moving from Government hospital, from NGOs, from Private hospitals and from Mission hospitals with the coefficient being significant (P=0.001 95% CI 2.562 – 10.582).

In the variable Hospital admission in the past two years, Not admitted was coded as 0 while Admitted was coded as 1 and the reference was Admitted. A one-unit increase in the variable uptake was associated with 3.850 increase in the relative log odds of having been admitted in hospital versus not being admitted which was significant (P=0.007 95%

CI 1.050- 6.650). The log odds of those not admitted not enrolling in NHIF versus those admitted will decrease by 3.527 if moving from those not been admitted in hospital to those having been admitted in hospital with the coefficient being significant (P=0.015 95% CI - 6.364- -0.690).

In the variable Assistance of the scheme, Useful was coded as 0 while not useful was coded 1 and the reference was not useful. A one-unit increase in the variable uptake was associated with 3.807 decrease in the relative log odds of a responded stating that it's useful versus not useful which was significant (P=0.008 95% CI -6.608 - -1.005). The log odds of the respondents who stated that the scheme was useful not enrolling in NHIF versus those who stated that it was not useful will increase by 5.753 if moving from scheme was useful to not useful, with the coefficient being significant (P=0.000 95% CI 2.870 - 8.635).

In the variable who can enroll in the scheme, anyone was coded as 0 while those in permanent employment was coded as 1 and the reference was permanent employment. A one-unit increase in the variable uptake was associated with 3.219 decrease in the relative log odds of knowing who can enroll versus those who did not know, which was significant (P=0.026 95% CI -6.046- -.392). The log odds of those who stated that 'anyone can enroll' not enrolling in NHIF versus those in permanent employment, increased by 4.446 if moving from 'anyone can enroll' to those in permanent employment, with the coefficient being significant (P=0.002 95% CI 1.574- 7.313).

In the variable when the scheme covers, when admitted in hospital was coded as 0 while not admitted in hospital was coded as 1 and the reference was not admitted in hospital. A one-unit increase in the variable uptake was associated with 3.55 decrease in the relative log odds of knowing when it covers the contributor versus when it does not cover, which was significant (P=0.013 95% CI -6.366 - -.744). The log odds of those who knew when it covers the contributor not enrolling in NHIF scheme versus those who did not know when it covered, increased by 5.150 if moving from those who know when it covers the

contributor to those who do not know, with the coefficient being significant (P=0.000 95% CI 2.337- 8.029).

In the variable knowledge of monthly premiums, a right premium was coded as 0 while a wrong premium was coded as 1 and the reference was right premium. A one-unit increase in the variable uptake was associated with 1.435 decrease in the relative log odds of knowing the right monthly premium versus wrong premium, which was significant (P=0.000 95% CI -2.231 - -.639). The log odds of those not knowing the right monthly premium not enrolling in NHIF versus wrong monthly premium increased by 6.214 if moving from knowing the right monthly premium to wrong monthly premium, with the coefficient being significant (P=0.000 95% CI 3.320 – 9.108).

Table 4.17: Access to NHIF Outlet and Uptake

	Beta estimate	Std error	Z	P-value	Confidence interval	
					upper bound	lower bound
Location of outlet vs. uptake						
Intercept:	2.526					
Ref: don't know						
location	-3.664	1.432	-2.558	.011	-6.470	-.857
Uptake:	5.335	1.465	3.642	.000	2.464	8.206
Uptake * know						
location						
Other means of payment vs. uptake						
Intercept:	3.157					
Ref: bank						
Uptake:	-2.708	1.461	-1.854	.064	-5.571	-.155
Uptake * M-PESA	6.205	1.679	3.695	.000	2.913	9.496
Uptake * don't know	2.413	1.494	1.615	.106	-.516	5.342

Source: (Survey data, 2013)

In the variable Knowledge of NHIF outlets, know location was coded as 0 while don't know location was coded as 1 and the reference was don't know location. A one-unit increase in the variable uptake was associated with 3.664 decrease in the relative log odds of knowing the location of NHIF outlets versus not knowing their location which was significant (P=0.011 95% CI -6.470- -.857). The log odds of the respondent knowing the location of the outlet not enrolling in NHIF versus not knowing, increased by 5.335 if moving from knowing the location of NHIF outlets versus not knowing their location, with the coefficient being significant (P=0.000 95% CI 2.464 - 8.206).

In the variable Any other means of payment, Mpesa was coded as 0 while 'don't know' was coded as 1, bank was coded as 2, and the reference was bank. A one-unit increase in the variable uptake was associated with 2.708 decrease in the relative log odds of knowing other means of payment versus not knowing which was not significant. The log odds of the respondent stating Mpesa as another means of payment not enrolling in NHIF versus not knowing versus Bank, increased by 6.205 if moving from stating Mpesa as another means of payment to not knowing to Bank, with the coefficient being significant (P=0.000 95% CI 2.913 – 9.496).

4.5 Discussion

In the study, most of the respondents were not insured by NHIF, with only 32 % insured which was significant (P=0 .001 95% CI 0.323-1.171). This was consistent with existing literature which showed low enrollment amongst the poor (Narhi-Bana *et al* 2008; GSS,2000).This low enrolment was identified as a problem facing health insurance schemes in low income countries including Kenya. How people perceived their health needs in relation to the need for health care determined enrollment, where in this case, health insurance is not viewed as a basic need which in turn affects its attractiveness to those in the informal sector in Kenya (Carrin 2006; Morris *et al* 2007; Wagstaff, 2010).

Another factor that could have compromised the attractiveness of the scheme is that, in early 2012 NHIF was restructured to provide outpatient cover to those in the formal

sector but it was not extended to those in the informal sector as most health services are sought on outpatient basis (Kirigia et al. 2005; Whitehead 2001). This leads to the need to increase education on the benefits of enrolling in NHIF among those in the informal sector, since the sector plays an important role in the generation and provision of potential employment opportunities to many Kenyans thereby improving the quality of life to those who would otherwise be left without any source of livelihood or income (Chuma et al. 2011).

4.5.1 Socio-demographic Characteristics and Uptake

The influence of socio-demographic characteristics in the decision to enroll in NHIF were demonstrated in the study. Age, gender, level of education, type of trade and marital status were some of the determinants to membership in insurance schemes. In this study, the said determinants demonstrated that these variables affected membership to NHIF scheme, which are consistent with results obtained by Jutting (2000) and Kirigia (2005).

In the study, gender was significantly associated with uptake of NHIF scheme ($P= 0.049$, 95% CI -1.172- -0.003), where females were significantly more likely not to enroll in NHIF scheme unlike male respondents ($P = 0.000$ 95% CI 2.337-8.029). This is inconsistent with a study by Archaya et al., (2013) where she found out that in India, female headed households are more likely to enroll in health schemes. There are various factors such as high premium rates, power hierarchy within households, class structure, political and geographical factors which cause women to be excluded from health schemes (Hottordze, 2006).

Due to this there is need to educate women on the importance of enrolling in NHIF scheme and empower them, since they represent the more vulnerable in the society, where health utilisation is concerned, they are the greatest users of health facilities and services, and also being care givers to their children and other members of the household, together with their physiological make-up, they should be urged to take up NHIF scheme.

Age was also significantly associated with uptake of NHIF ($P=0.012$, 95% CI- 6.42- 0.802) with all the age groups significantly not enrolled in HNIF scheme. This concurs

with various studies which show that age is a major determinant of health insurance uptake and may reflect both increasing disposal income and greater concern about acquiring timely access to health care among older population. In a study in the U.K, the older population is more likely to take health insurance than the young (Kirigia, 2006). In Asia where there is a strong saving culture, uptake of Private Health Insurance (PHI) is popular unlike in Africa where this may not be the case due to the health care system structure and problematic socio-economic characteristic of the population. According to Ouma et al., (2007) in his study he found out that over 60% of those working in the informal sector are the youth, aged between 18-35 years.

Marital status in this study was not significantly associated with uptake of NHIF scheme though those who are single are significantly not likely to enroll in NHIF scheme ($P=0.004$ 95% CI 10.003-1.915). This was consistent with results from previous studies where married respondents were more likely to be insured (Trujilo, 2003; Liu *et al.*, 2002). This could be due to the fact that those who are single are of a relatively younger age with no dependants, or lack of consistent income or perhaps lack of alternative income source to support the extra premium payments required by the scheme. Other reasons include the perception of not being at risk in terms of health for this sub-population or lack of knowledge on the importance of the scheme. However, households with children seem to be more risk averse and/or expect a higher need for health care and subsequently more likely to want to join insurance.

There was no significant relationship between the types of business the trades engaged in with uptake of NHIF scheme, though those who sold fruits, vegetables and cereals and those who engaged in clothes and shoes business were significantly not likely to enroll in NHIF scheme ($P=0.003$, 95% C.I 2.043-10.135) and ($P=0.004$, 95% C.I 1.861-9.961) respectively. The reason could be attributed to low earnings from trade, which is consistent with studies by Butler (1999) and Savage (1999) where respondents who had relatively higher levels of income were most likely to enroll in insurance schemes as they were able to sustain the monthly premiums

Education level of the respondents was not significant in influencing enrollment into insurance schemes. Those with secondary education were significantly not likely to enroll in NHIF (P= 0.001 95% CI 2.955-10.990). This concurs with a study by Nyagero *et al.*,(2012) which showed no significant association between education level of respondents and enrollment in health insurance scheme. But previous studies by Osei-Akoto & Adamba (2011) showed that the highly educated were more likely to purchase health insurance than the lowly educated due to a positive relationship between a person's education level and ability to acquire skills, stock of knowledge, higher earnings and a positive attitude of avoiding the risk of catastrophic medical expenditure.

4.5.2 Income Level and Uptake

The monthly income of the respondents was significantly associated with uptake of NHIF (P=0.049, 95% CI -1.172- -.003) with all income categories significantly associated with not enrolling in NHIF scheme. This could be due to the activities in the informal sector being linked with inadequate income maintenance and income generating activities which in turn reinforces poverty conditions. Where according to ESCAP (2006) though the informal sector contributes significantly to the economy of many countries in the world especially in terms of employment, its mainly characterised by low productivity and low wages, poor working conditions and long working hours and therefore there is need to enhance productivity and incomes in order to tackle the poverty problem.

Lack of money to pay the monthly premiums could also be another reason for low enrollment and also lack of confidence in the scheme since income is the most important social and economic determinant of health, since the level of income determines overall living conditions, psychological functioning and influences health related behavior such as food security, housing, participation in cultural and educational activities, which leads to effects to one's health and lessens the ability to live a fulfilling life (Auger & Alix, 2009). In recent and past studies; house hold income in both developed and developing countries has a positive association with the probability of buying health insurance where income significantly determines the amount of health insurance purchased (Osei-Akoto & Adamba, 2011).

These findings are also in line with the findings of Kimani (2010) which showed that those employed in the formal sector are more likely to have health insurance compared to those in the informal sector. This was attributed to factors such as low and non regular income, and even insecure employment. Many poor people may not make use of health care at all; this may be much more prevalent among those without insurance than those with insurance. Thus higher expenditure for the poor when insured may actually be an indication of a large increase in welfare.

Belonging to a welfare association was significantly associated with uptake of NHIF scheme which was significant ($P=0.042$ 95% CI -5.788- -0.101). With those belonging to Chama and Merry Go Round being significantly associated with not enrolling in NHIF scheme at ($P =0.000$ CI 3.496-11.458) and ($P=0 .009$ 95% CI .986-6.914) respectively. These findings tally with those of Nyagero et al.,(2012) which confirmed that belonging to a welfare association was significantly associated with enrollment into a health scheme. These associations are important as they can act as channels for promoting awareness of NHIF scheme and also as mechanisms which can be used to raise and collect funds by people in the informal sector (Dekker & Wilms, 2010; Leatherman & Dunford, 2010; Moeller, 2009). These institutions can be used by the members to raise and collect funds for various purposes including payment for insurance premiums ,emergencies such as hospital care and funeral costs (SSRA, 2010;GCRC, 2005). These was one of the mechanism that was recommended by Delloite (2011).

The activities in the informal sector are linked with inadequate income maintenance and income generating activities which in turn reinforces poverty conditions. According to ESCAP (2006) though the informal sector contributes significantly to the economy of many countries in the world especially in terms of employment, its mainly characterized by low productivity and low wages, poor working conditions and long working hours and therefore there is need to enhance productivity and incomes in order to tackle the poverty problem. These findings are also in line with the findings of Kimani (2010) which

showed that those employed in the formal sector are more likely to have health insurance compared to those in the informal sector. This was attributed to factors such as low and non regular income, and even insecure employment.

4.5.3 Awareness of NHIF Benefits and Uptake

Type of treatment facility was not significantly associated with uptake of NHIF though those who sought admission at KNH and government hospital were significantly not to enroll in NHIF scheme at (P=0.001 95% CI 2.635-10650) and (P=0.001 95% CI 2.562-10.582) respectively. This implies KNH, government and NGO facilities are more accessible to those in the informal sector in terms of availability and affordability of health services. This reinforces the fact that one of the major barriers of access to health for marginalised sections of society in many countries is financial constraints.

Hospital admission in the past two years was not significantly associated with uptake of NHIF scheme though those who had never been admitted were significantly not to enroll in NHIF scheme (P=0.015 95% CI -6.364- -0.690). This is important as it highlighted how the respondents perceived their health risk and thus the need to enroll in the insurance scheme. Turning to the effect of the incidence of past illnesses on insurance uptake we find that except for hospitalisation, which increases the probability of enrolling in health insurance there is no evidence that household decision-making is motivated by previous illness (Wang *et al.*, 2005).

Those who agreed that the scheme would have assisted in case of hospital admission not enrolling in NHIF was significant (P=0.000 95% 2.870-8.635) which concurred with a study in Ghana by Arhinful (2003) on National Hospital Insurance Fund showed that both the insured and uninsured populations held positive perceptions on the benefits of the scheme which included economic, psychological and social benefit of insurance. But Jehu-Appiah (2012) indicated that those who are uninsured and were previously insured were less positive on the schemes benefits and concluded that this may be associated with their decision not to enroll and renew membership and recommended further qualitative research to explain the phenomena.

Knowledge on who can enroll, when it covers those who have enrolled and the monthly premiums were all significant with not enrolling in NHIF scheme at (P=0.026, 95% CI -6.046 --392), (P=0.013 95% CI -6.366--0.744), (P=0.000 95% CI -2.231 - -0.639) respectively. The above findings confirm what Danso (2005) demonstrated in his study of the informal sector in Ghana, where it's challenging to differentiate between awareness and knowledge of health insurance amongst the informal sector where awareness on health insurance scheme was at 92.5% but knowledge on the scheme was generally low. It's therefore important for NHIF to develop clear policy details on the various benefits and risks involved in the scheme in order to increase knowledge and penetration of the scheme across the general population.

Since the uptake of any type of insurance is low in developing countries, one of the important indicators is the rate of enrolment (Gine, 2007).According to Archaya & Vellakal (2013) the enrollment in voluntary health insurance which targets those in the informal sector is subject to problems of selection bias through adverse selection where more unhealthy people take up the insurance scheme due to its perceived benefits. This situation arises when there is asymmetric information which exists between insurers and consumers about individual's high risk and people who ensure themselves are those who are more certain that they will make use of the insurance package (Morris *et al.*, 2007; Wagstaff, 2010).This affects enrollment and utilisation of the scheme and affect the proper analysis of insurance scheme.

4.5.4 Access to NHIF Outlet and Uptake

Identifying the location of NHIF offices was significantly associated with uptake of NHIF scheme (P=0.011 95% CI -6.470- -0.852).This is important as the NHIF office is a walking distance from Line Saba area or alternatively one pays between 10 and 20 Kshs as fare using public transport which is the common means of transport making it accessible. Identifying other means of payment was not significant though those who stated Mpesa as an alternative means of payment were significantly associated with not

enrolling in NHIF scheme (P=0.000 95% CI 2.913-9.496). This is important since according to Deloitte (2011) in the National Social Health Insurance Strategy Report, they identified different mechanisms to increase accessibility to collection points for those in the informal sector which included collection by various organizations that are close to the population which include; cooperative societies, welfare organizations, trade associations and churches as they may collect the contributions more effectively than NHIF branch offices. These organisations will be contracted and enumerated to offer these services and others will be licensed to issue or stamp the social health insurance cards. Adequate mechanisms will be put in place to ensure that the contributions collected by these organisations are transferred regularly to the NSHIF.

Different research studies have shown that there are three major sets of factors that influence a household's demand for a health insurance policy and these include; the household perspective, the quality of the healthcare system, and the characteristics of the health insurance policy itself. Scientifically tested literature shows a consistency in factors such as socio-economic and demographic characteristics of the household which include income level, education of household members, employment, health status, presence of children and aged, marital status, and sex of household head as significant determinants of demand for health insurance (Osei-Akoto & Adamba, 2011).

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter gives a summary of the study, draws conclusion and makes recommendations and suggestion for further research.

5.2 Summary

When a large proportion of the population is without health insurance, it results in out of pocket expenditure on health services which is catastrophic to the household with resultant negative impact on health indicators. The main issue was the attainment of the highest possible level of health which according to World Health Organisation constitution is a fundamental human right and the impact of health insurance scheme on the household and individual include good health which enable the supply of labour and reduction in catastrophic expenditure on health. This situation is magnified in the informal sector which plays an important role towards generation and provision of potential employment opportunities to many Kenyans thereby improving the quality of life to those who would otherwise be without any source of livelihood.

The purpose of the study was to find out the determinants of NHIF scheme uptake by the informal sector in Nairobi County, Kenya. The specific objectives were to establish whether Income level affects uptake of NHIF scheme within the informal sector, assess whether awareness of NHIF benefits affects uptake of the scheme within the informal sector and to determine whether access to NHIF outlets affects the uptake of the scheme within the informal sector.

The research was carried out at Laini Saba sub location of Kibera division which had approximately 350 traders where 97 traders engaging in various categories of enterprises were respondents. Descriptive research design was used while stratified random sampling

was applied to select the entrepreneurs. Questionnaires were used to obtain information from the respondents.

In the research findings, the numbers of male and female entrepreneurs were equal with most of respondents aged between 18-35 years with majority being primary and secondary school leavers. Less than half were enrolled in NHIF scheme with most of the entrepreneurs running their own business and earned a monthly income of less than 5000 shillings. Most of the traders belonged to a social welfare society including SACCO, *Chama* or Merry go round and had children below 18 years who dependent on them for health support.

Most of the traders sought health services at KNH, government hospital, or NGO hospitals, with few of them either having been admitted or having a family member being admitted in the past 2 years. Those admitted paid their hospital bills either through borrowing money, selling family property, using family savings or relied on contributions from family with only a small fraction using NHIF. On whether having NHIF scheme would have assisted, majority agreed that it would pay or reduced the hospital bill.

Only a few respondents indicated that NHIF covers the contributor, the spouse and the children, while majority did not know the premium per month or quoted the wrong amount. Most respondents knew where NHIF offices were located in Nairobi County with more than half agreeing that there were alternative means of making payments apart from visiting the NHIF offices of whom half stated that they can be made through *mpesa* and banks.

5.3 Conclusion

There was a strong positive correlation between the level of income and awareness of NHIF benefits while the binary logistic regression model found that NHIF uptake was significantly associated with income level, awareness of NHIF benefits and access to NHIF outlets since their p-values were < 0.05 indicating that all the variables were statistically significant.

5.4 Recommendations

After the research findings it's important for the government to fully incorporate those in the informal sector when designing the Universal Health Insurance Scheme since less than half of them are enrolled in NHIF scheme yet due to their living standards and the kind of environment they operate in they are at high risk of developing health problems. The activities in the sector are associated with low inadequate income which reinforces poverty and the transitory nature of the operators presents a challenge in incorporating them as stakeholders in NHIF scheme and requires innovative approaches which will cater for their specific needs. This calls for a lot of baseline survey and long term planning.

The entrepreneurs in the informal sector should have easy access to sources of financing which include Small and Medium enterprises (SMEs) which like Youth Enterprise Fund and Uwezo Fund which give subsidized loans to help boost their business at the same time mechanisms should be put in place to increase their knowledge and skills in running their enterprises. This will boost and ensure sustainability of their income enabling them enroll in NHIF scheme and sustain the required premiums.

There are different mechanisms that the government can employ to sensitize and raise awareness about the NHIF scheme through mass media and public forums like public meeting places, road shows, churches and hospitals during health talks. Since most of the entrepreneurs are enrolled in a social welfare society like SACCO, Chama or Merry go round, this can also be used as avenues for raising awareness about NHIF scheme and collecting premiums.

5.5 Suggestions for Further Research

There is a need for related research to be carried out in other Counties in Kenya so as to compare and assess whether the findings are consistent. There is also need to conduct a study on pricing and service quality between private and public health sectors in relation to NHIF. A study also needs to be conducted to find out how social factors like religion, culture and one's perception to health risk can affect the uptake of NHIF.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

Good morning/good evening. Thank you for taking the time to provide answers to this questionnaire.

My name is JACINTA NAMUHISA a student at Kenyatta University. I would like to ask you a few questions about National Hospital Insurance. This information will be used to develop research into relevant health insurance products to meet your and others needs. Your responses will be confidential and you will not be directly named. Please also remember that there is no right or wrong answers to these questions.

SECTION A: BIODATA:

1. What is your gender?

Male ()

Female ()

2. What is your age?

18-25 years ()

26-35 years ()

36-45years ()

46 years and above ()

3. What is your marital status?

Married ()

Separated ()

Divorced ()

Single. ()

4. What is your highest level of education? ()

Primary school ()

Secondary school ()

Tertiary college ()

University ()

5. Please tick the business you are engaged in:

Fruits, vegetables and cereals ()

Clothing and shoes ()

Operating retail kiosks ()

Food and beverage, processing and sale ()

Vehicle repair ()

Furniture making, metal work ()

Transport industry including; *taxis, matatus*, motorcycles and handcarts ().

SECTION B: UPTAKE OF NHIF SCHEME:

1. Are you enrolled in the NHIF scheme?

Yes ()

No ()

2. If no, are you or your spouse enrolled in any other type of health insurance?

Yes ()

No ()

3. If yes, which one?.....

SECTION C: INCOME LEVEL WITHIN THE INFORMAL SECTOR:

1. Approximately how much money do you earn in a month?

Below shillings 5000 ()

6000 -10,000 ()

11,000-20, 000 ()

Above 20,000 ()

2. In this business:

I am the owner ()

I am an employee ()

3. Do you have another source of income apart from this one?

Yes ()

No ()

4. If yes, how much?

Below shillings 5000 ()

6000 -10,000 ()

11,000-20, 000 ()

Above 20,000 ()

Not applicable ()

5. Does your spouse have another source of income?

Yes ()

No ()

6. If yes, how much?

Below shillings 5000 ()

6000 -10,000 ()

11,000-20, 000 ()

Above 20,000 ()

Not applicable ()

7. Are you enrolled in any of the following?

Merry go round ()

Chama ()

SACCO ()

None of the above ()

8. Do you have any children 18 years or below who depend on you for health support?

Yes ()

No ()

SECTION D: AWARENESS OF NHIF BENEFITS WITHIN THE INFORMAL SECTOR:

1. Where do you seek treatment when admitted?

KNH ()

Government hospital ()

Mission hospital ()

Private hospital ()

NGO hospital ()

2. Have you been admitted in hospital for the past 2 years?

Yes ()

No ()

3. If yes, how many times?

4. Has any member of your family been admitted in hospital for the last 2 years?

Yes ()

No ()

5. If yes, how many times?

6. How did you pay the hospital bill?

Using family savings ()

Borrowed money to pay ()

Sold property to pay ()

Others.....

7. Do you think if one has NHIF scheme in this situation, it would have assisted?

Yes ()

No ()

8. Explain your answer please.....

9. Who can enroll in NHIF scheme?

Those that are in permanent employment ()

Anybody who can contribute ()

10. Whom does NHIF cover?

The contributor and family members ()

Other relatives of the contributor who are not his children or spouse ().

11. When does NHIF scheme cover those who are enrolled?

When you are admitted in hospital ()

When you are not admitted in hospital ()

12. What disease conditions does NHIF scheme cover?

13. How much are the contributions per month?

SECTION E: ACCESS TO NHIF OUTLET WITHIN THE INFORMAL SECTOR:

1. Do you know where the NHIF offices located?

Yes ()

No ()

2. If yes where are NHIF offices located?

3. Are there other means of contributing to NHIF apart from going to their offices?

Yes ()

No ()

4. If yes which ones?

APPENDIX II: SAMPLING FRAME

Category of enterprise	Population	Sample ratio	Sample size
Fruits, vegetables, cereals	109	0.3	32
Clothing and shoes	62	0.3	18
Retail kiosks	56	0.3	16
Food and beverage	60	0.3	17
Furniture and metal work	9	0.3	3
Transport industry	54	0.3	16
Total	350	0.3	102