DETERMINANTS OF HEALTH INSURANCE UPTAKE BY URBAN INFORMAL SECTOR WORKERS IN NAIROBI AND MACHAKOS, KENYA

BERNARD MUNYAO MUIYA

C82/21363/2010

A THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN THE SCHOOL OF HUMANITIES AND SOCIAL SCIENCES, KENYATTA UNIVERSITY

NOVEMBER 2017
DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

Signature ____________________ Date ____________________
Bernard Munyao Muiya
C82/21363/2010

This thesis has been submitted with our approval as university supervisors:

Signature ____________________ Date ____________________
Dr. Anne Kamau
Institute for Development Studies (IDS)
University of Nairobi

Signature ____________________ Date ____________________
Dr. Lucy W. Maina
Department of Sociology
Kenyatta University
DEDICATION

I dedicate this work to my wife, Norah S. Munyao and children, Linnet Mwikali, Christine Mukui and Faustina Mwongeli. Others are Richard Wambua Mang’oka and the late James Muli of Mulingana Village, both of whom challenged me to pursue postgraduate studies.
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<tbody>
<tr>
<td>ACA</td>
<td>Affordable Care Act</td>
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<tr>
<td>APHRC</td>
<td>African Population and Health Research Centre</td>
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<td>BNHI</td>
<td>Bureau of National Health Insurance</td>
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<td>BPL</td>
<td>Below Poverty Line</td>
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<td>CBHI</td>
<td>Community Based Health Insurance</td>
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<td>CGHS</td>
<td>Central Government Health Scheme</td>
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<td>DFID</td>
<td>Department for International Development</td>
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<td>ESIS</td>
<td>Employees’ State Insurance Scheme</td>
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<td>FBO</td>
<td>Faith-Based-Organizations</td>
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<td>FGDs</td>
<td>Focus Group Discussions</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GHC</td>
<td>Ghanaian cedi</td>
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<td>GoG</td>
<td>Government of Ghana</td>
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<td>GoK</td>
<td>Government of Kenya</td>
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<td>ICRHK</td>
<td>International Centre for Reproductive Health Kenya</td>
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<td>IDA</td>
<td>the International Development Association</td>
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<tr>
<td>IFC</td>
<td>the International Finance Corporation</td>
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<td>IHME</td>
<td>Institute for Health Metrics and Evaluation</td>
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<td>ILO</td>
<td>International Labour Organization</td>
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<tr>
<td>IPP</td>
<td>Individually-Paying Programme</td>
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<td>JBHI</td>
<td>Jamii Bora Health Insurance</td>
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<td>KAM</td>
<td>Kangundo-Matungulu Transporters’ Association</td>
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<td>KCBHFA</td>
<td>Kenya Community-Based Health Financing Association</td>
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<td>Abbreviation</td>
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<tr>
<td>KEMSA</td>
<td>Kenya Medical Supplies Authority</td>
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<td>KHPF</td>
<td>Kenya Health Policy Framework</td>
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<td>KMO</td>
<td>Kaiser-Meyer-Olkin Measure</td>
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<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<td>KSh</td>
<td>Kenya Shillings</td>
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<td>LMICs</td>
<td>Low and Middle-Income Countries</td>
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<td>MFIs</td>
<td>Micro-finance Institutions</td>
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<td>MoH</td>
<td>Ministry of Health</td>
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<td>MoPHS</td>
<td>Ministry of Public Health and Sanitation</td>
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<td>MoHSW</td>
<td>Ministry of Health and Social Welfare – Liberia</td>
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<td>NACOSTI</td>
<td>National Commission for Science, Technology and Innovation</td>
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<td>NHIS</td>
<td>National Health Insurance Scheme</td>
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<td>NHIF</td>
<td>National Hospital Insurance Fund</td>
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<td>NHIL</td>
<td>National Health Insurance Levy</td>
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<td>NSHIF</td>
<td>National Social Health Insurance Fund</td>
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<td>NRCMS</td>
<td>New Rural Cooperative Medical Scheme</td>
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<td>OOP</td>
<td>Out-of-Pocket Expenditures</td>
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<td>PAI</td>
<td>Population Action International</td>
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<td>PCA</td>
<td>Principal Component Analysis</td>
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<td>PMA</td>
<td>Performance Monitoring and Accountability</td>
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<td>PPS</td>
<td>Probability-Proportional-to-Size</td>
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<td>PSP4H</td>
<td>Private Sector Innovation Programme for Health</td>
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<td>RA</td>
<td>Research Assistant</td>
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<td>RAS</td>
<td>Rajiv Aarogyasri Scheme</td>
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<td>RSBY</td>
<td>Rashtiya Swasthiya Bima Yojana</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>RESYST</td>
<td>Resilient and Responsive Health Systems</td>
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<td>SACCO</td>
<td>Savings and Credit Co-operative Organization</td>
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<td>SAWE</td>
<td>Self-Employed Women’s Association</td>
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<td>SDGs</td>
<td>Sustainable Development Goals</td>
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<td>SHIB</td>
<td>Social Health Insurance Benefits</td>
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<td>SID</td>
<td>Society for International Development</td>
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<tr>
<td>SSPSF</td>
<td>Social Security and Pensions Scheme Fund</td>
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<tr>
<td>THE</td>
<td>Total Health Expenditure</td>
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<tr>
<td>UHC</td>
<td>Universal Health Coverage</td>
</tr>
<tr>
<td>USD</td>
<td>United States Dollar</td>
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<tr>
<td>WBG</td>
<td>The World Bank Group</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<td>WIEGO</td>
<td>Women in Informal Employment Globalizing and Organizing</td>
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OPERATIONAL DEFINITION OF TERMS

Catastrophic health financing: A situation where patients spend in excess of a given fraction of their resources on health care at the expense of current consumption relative to current income.

Enrolee: An eligible person or eligible employee who is enrolled in a health insurance plan.

Enrolment status: whether an individual has or lacks coverage that provides for the payments of benefits as a result of sickness or injury.

Determinants of health insurance uptake: the range of behavioural, and socio-demographic and economic factors that influence the choice of enrolling into a health insurance scheme.

Health care financing: mobilization of funds for healthcare/mechanisms for paying for health care.

Health insurance: a scheme against the risk of incurring medical expenses among individuals with a routine finance structure such as a monthly premium.

Informal sector workers: a collection of small-scale business enterprises engaged in service and retail trade activities.

Informal sector: a sector of the economy which includes work that takes place in unincorporated enterprises that are unregistered or small.

Matatu: privately owned minibuses, a popular form of public transport in Kenya.

Peri-urban: communities living between town and the countryside. They are characterised by diffusion of urban lifestyle and new residential zones.

Out-of-pocket payments (user fees or direct payments): monies levied in
health for consultations with health professionals, medical or investigative procedures, medicines and other supplies, and for laboratory tests

**Uptake:** making use of a health insurance cover through paying premiums charged by the insurance scheme
ABSTRACT

The informal sector in Kenya had employed 12.5 million people by 2015 who contributed substantially to the national GDP yet they are often excluded in healthcare systems and are therefore unlikely to access health benefits unlike persons in formal employment. This is despite the high risks associated with their work. Even though health insurance increases access to healthcare services and improves financial risk protection, only a few of these workers have a cover in Kenya. This study investigated the determinants of health insurance uptake among urban informal sector workers in Nairobi and Machakos Counties. The objectives of the study were to; (i) examine enrolment status and patterns into health insurance schemes by informal sector workers, (ii) explain the level and source of awareness of health insurance among informal sector workers, (iii) establish factors of enrolment into health insurance schemes by informal sector workers, and (iv) establish the key determinants of enrolment into health insurance by informal sector workers. The study used four hypotheses to test for independence between enrolment into health insurance schemes and awareness of health insurance, source of health insurance information, individual and household characteristics of informal sector workers. The Health Belief Model, the Weberian Stratification model and Rational Choice Theory guided the study. Cross-sectional survey design was used. Data were collected through a structured interview schedule and a focus group discussion guide. Four hundred and fifty six respondents from informal sector workers, healthcare facilities and NHIF officials were sampled through both proportionate (cluster) and non-proportionate (purposive) sampling techniques. Quantitative data were analyzed using SPSS through Chi-square, Cramer’s V and Principal Component Analysis. Qualitative data were analyzed thematically. The study established that enrolment in health insurance for the sampled population was low (15 per cent). Even though there were high levels of awareness, there was limited understanding of health insurance benefits. The National Hospital Insurance Fund had an enrolment rate of 63 per cent compared to private health insurance schemes. Family members and friends were the popular source of awareness (43 per cent) of health insurance. Eight variables (marital status, income, age, level of education, number of dependants, reading of newspapers, television viewing, and awareness of health insurance) were significantly related to enrolment into health insurance. The relationships were, however, weak. Principal Component Analysis (PCA) extracted two components with high loadings on level of education, television viewing and reading of newspapers (Component 1) and number of dependants and marital status for component 2. This study recommends that health insurers conduct health insurance education through intensive outreach programmes and design flexible payment schedules to accommodate the irregular incomes for the informal sector workers in order to increase enrolment.
CHAPTER ONE: INTRODUCTION

1.1 Introduction

This chapter opens with a background that highlights available options and challenges for inclusion of the informal sector into health insurance programmes. The section presents both the ideal health care situation for the informal sector workers and the reality that their uptake of health insurance was low. This sets the basis for the study through the general objective: to establish the determinants of health insurance uptake by urban informal sector workers. The other sections of the chapter set out the hypotheses, justification of the study as well as its scope and limitation.

1.2 Background to the Study

Achieving universal health coverage (UHC) has been a global challenge. The major constraint is the inability to pay for health care services by the poor (Wong, 2015). According to World Health Organization (2010), many low-income countries have made significant progress in developing their financing systems towards universal coverage. These include Chile, Colombia, Cuba, Rwanda, Sri Lanka and Thailand (WHO, 2010). The World Health Organization (WHO), makes three propositions towards achieving universal health coverage: raising financial resources to cover the costs of the health system and purchasing health services to ensure optimal use of available resources. Thirdly, pooling financial resources (health insurance) to protect people from the financial consequences of ill-health (Ties et al., 2015).
Some high and low income countries have combined these approaches to ensure access to health care. For instance, Australia has both publicly and privately financed health care (Mossialos, Wenzl, Osborn, & Anderson, 2015). The federal government of Australia funds and administers health services through Medicare, the national medical insurance scheme. The scheme provides automatic universal health coverage for citizens and permanent residents. Voluntary private health insurance supplements Medicare, with individuals and families encouraged to take policies through tax incentives.

Ghana too, uses a similar approach. The National Health Insurance Scheme (NHIS) is financed from value added tax on goods and services, a certain portion of social security taxes from formal sector workers, among other sources (Blanchet, Fink, & Osei-Akoto, 2012). A levy known as the National Health Insurance Levy (NHIL) is charged on the supply of goods and services as well as imports of goods and services (Ashiagbor et al., 2016).

Most medium and low-income nations, however, lag behind in achieving quality health care for their citizens. Hsiao, Kappel, and Gruber (2011) claim that such nations face difficulties funding their healthcare. This is because healthcare policies in most countries are not backed-up with adequate public funds or a rational financing system. This leads to poor health, especially for low-income earners.

Both the public and private health care sectors in most low-and middle-income countries such as Kenya rely heavily on out-of-pocket payments with a majority of its population receiving health care services from the public sector (PSP4H, 2014).
Chuma, Mulupi, and Kirigia (2012) found that faith-based and public health sectors were pro-poor compared to the private health sector. Griffin-EL, Darko, Chater, and Mburu (2014) argue that despite the low charges in public health care facilities in Kenya, the poor and vulnerable cannot access health care with ease since they cannot afford the out-of-pocket payments. An assessment by the Institute for Health Metrics and Evaluation (IHME) established that on average, a patient spends at least KSh 342 per outpatient visit at public dispensaries (IHME, 2014). The assessment reveals that the average cost per birth ranged from Kshs 1,403 at public dispensaries to KSh 18,382 at level four and five hospitals. This is despite the fact that 45 per cent of the Kenyan population lives below the poverty line and is likely not to afford health care (KNBS & SID, 2016). An alternative for this category is health insurance, though only 16 per cent of the informal sector population has a health insurance cover (Mukhwana, Ngaira, & Mutai, 2015).

People who have no health insurance cover are likely to seek alternative sources of health care or do not seek for health care at all (Mukhwana, Ngaira, & Mutai, 2015, 2015). Study findings from the national health accounts indicate that more than a third of the poor who were ill did not seek care compared to only 15 per cent of the rich (GoK, 2010). Kimani, Ettarh, Warren, and Bellows (2014) argue that equity in health is a problem for a majority of people in Kenya, particularly the poor who are highly vulnerable to economic changes. This is besides the fact that the poor are more likely to get sick, and less likely to use preventive and curative health care (Falkingham, Akkazieva, & Baschieri, 2010, Perkins et al., 2009; Ziraba, Mills, Madise, Saliku, &
Fotsom, 2009). Thus, mortality rates are higher among the poor and vulnerable in society than among the rich.

One of the goals that the Government of Kenya has outlined in the National Health Sector Strategic Plan and national development is to extend access to health care to the entire population (Chuma & Okungu, 2011, GoK, 2009). Kenya’s Vision 2030, through the First Medium Term Development Plan 2008-2012 (FTDP) spells out that one of the flagship projects for health is “developing equitable financing mechanisms” (Ministry of Public Health and Sanitation, 2011). The government commits to ensuring affordability, equity, quality and capacity as the main objectives of the entire social sector. Chuma and Okungu (2011) indicate, however, that Kenya has made little progress towards achieving these goals. For instance, the Abuja Declaration of 2000 of allocating 15 per cent of the government’s budget to the health sector has not yet been achieved (Tram, 2013). The 2010 World Health Report and the 2010 Millennium Development Goals Report emphasize reduction of disparities in access to healthcare, more so for the poor and vulnerable groups. The report advocates for universal health coverage, which can be successfully implemented through a social health insurance scheme (Evans & Etienne, 2010; UN, 2010).

Health insurance in Kenya is offered through public, private and community-based health insurance (CBHI) schemes. Low income earners cannot easily access private health insurance schemes. These are voluntary private health insurance organizations where premiums are risk-rated (rather than being based on ability-to-pay) and are operated on a for-profit basis (PSP4H, 2014). Community-based health insurance has limited coverage since, by 2012, there were 38 CBHI schemes with 100,510 principal
members. The total population in Kenya benefiting from CBHIs was only 1.2 per cent (Kimani et al., 2012). In addition, previous studies differ on the ability of CBHI to offer access to health care. For instance, Dror and Jacquier (1999) argue that CBHI can protect low income populations from the impoverishing effect of health expenditure. Gilson et al., (2000) differ by arguing that CBHI exclude the poorest in the community. Yet, Atim (1998), Bennett, Creese, and Monash (1998), and Criel (1998) point out that CBHIs have a small risk pool, experience financial and management insufficiencies and, as a result, are likely to be non-sustainable.

The National Hospital Insurance Fund (NHIF) is mandated through an Act of Parliament, NHIF Act 9 of 1998, to offer health insurance to the public (GoK, 2012). Previously, NHIF covered only the formally employed. The NHIF Act was repealed in 1972 to allow inclusion of those not in formal employment. Households are affiliated to NHIF through the principal member. The cover includes the principal member and one spouse, who can be changed or updated annually with no limit on the number of children.

It has been difficult to enrol and retain the expanding informal sector workers in insurance programmes in Kenya since it is not easy to access their incomes and others do not have consistent sources of income (Mathauer, Schmidt, & Wenyaa, 2008). One challenge is that apart from NHIF which is nationwide, other health insurance schemes are mostly concentrated in urban sites, where the private formal sector is based, whereas most people are far from these areas (Jacobs, Ir, Maryam, Annear, & Wim, 2012). Besides this, community based health insurance schemes are fragmented and not well known, whereas NHIF is still perceived as for workers in the formal sector.
Several countries in Africa including Rwanda, Ghana, and Tunisia have made progress towards achieving universal healthcare. Rwanda operates a system of universal health insurance through the Ministry of Health called Mutuelle de Santé, a system of community-based insurance. Premiums are paid into local health insurance funds based on one’s income level, with those at the lowest income levels being exempted from paying premiums but can still utilize the services of their local health fund (Rosenberg, 2012). Ghana operates the National Health Insurance Scheme (NHIS) and the level of premiums varies according to their level of income like in Rwanda. The National Health Insurance Fund (Caisse Nationale d'Assurance Maladie) of Tunisia ensures all citizens and residents receive treatment in state-run hospitals and clinics free of charge (Cotlear, Nagpal, Smith, Tandon, and Cortez, 2015; Saleh, Alameddine, Natafgi, and Mataria, 2014).

In Kenya, attempts were made towards universal health insurance in 2004 through the introduction of the National Social Health Insurance Fund (NSHIF). The proposed bill on social protection was, considered financially unsuitable and shelved (Kimani, Ettarh, Kyobutungi, Mberu, and Muindi, 2012, Jesse, 2010). There had been strategies to cover the informal sector, the poor and vulnerable. For instance, the National Hospital Insurance Fund (NHIF) was to collaborate with the Ministries of Labour, and Social Protection Services, the World Bank, and International Finance Corporation (IFC) to support roll-out of programmes to cover the poor, vulnerable, and informal worker populations. The Health Insurance Subsidy Programme (HISP) and the Sponsored Programme have so far been rolled out. These two programmes benefit vulnerable groups including orphans and vulnerable children, poor older persons, persons with
disabilities and destitute families. The informal sector workers were not included in these two programmes and this necessitates the need for both public and private insurers to accommodate those in the informal sector in their programmes.

While NHIF has managed to cater for the vulnerable groups and indigent, informal sector workers join NHIF voluntarily by paying a monthly premium of KSh 500 (US$4.8). In order to increase enrolment of the informal sector workers, NHIF has been expanding coverage by introducing the outpatient cover and accrediting more health care facilities. However, 26.6 percent of total health expenditure in Kenya is out of pocket (GoK, 2016). The country’s health insurance coverage stands at 20 percent with the large informal sector population not enrolled in prepaid health schemes.

A study on slum dwellers in Nairobi by Kimani et al. (2012) established that the proportion of slum residents without any type of insurance was high. For example, only 10 per cent of the respondents was covered by NHIF, while one per cent of the respondents had private insurance cover, and 89 per cent did not have any type of health insurance. Even though the statistics are from urban slums in Nairobi, they can predict the current health insurance coverage in Kenya. Similarly, a study by Kamau, Kamau, and Muia (2016), collaborates the results by Kimani et al. (2012) in that out of 398 respondents, they found out that only (28.4 per cent) had enrolled in medical insurance. Of these, (26%) were members of NHIF and less than 1 per cent were covered by the private and community-based health insurance schemes.

One of the causes of disparities in health care in Kenya could be attributed to inability by the health sector to rely wholly on insurance to pool health risks. The current scenario is that the risks are pooled majorly by civil servants and workers in the formal
sector while those in the informal sector join health insurance programmes voluntarily. According to Hsiao et al. (2011), KNBS and ICF Macro (2010), the poor and the less healthy people cannot benefit from these insurance pools. This becomes a barrier to healthcare services for the poor and the vulnerable in the society.

Increasing access to health care for the informal sector and the poor should be an important objective of the Kenyan health sector strategy. Several players in the health insurance industry, including the national insurer (NHIF) and community-based health insurance schemes (CBHIs), have come up with products which accommodate informal sector workers. For instance, NHIF introduced an enhanced cover to include outpatient services in 2015 as well as the SuperCover specifically targeting informal sector workers. Community-based health insurance schemes like Bima ya Jamii, Changamka Microhealth Limited, and Organization for Women in Self Employment (WISE) are meant to address health care challenges faced specifically by the rural poor and informal sector workers. Even so, a relatively bigger proportion of informal sector workers are not enrolled in health insurance schemes. There are opinions from policy discussions that mandatory health insurance would ensure that formal and informal sector workers are covered (Okungu, Chuma, & McIntyre, 2017). It would be difficult though, as these researchers argue, to implement mandatory health insurance. For instance, it is not easy to determine incomes of informal sector workers, set appropriate premium rates or even enforce contributions by the informal sector workers.

Studies have associated voluntary uptake of health insurance by informal sector workers to socio-demographic and economic factors as well as individual factors. Factors like age (Mhere, 2013), marital status (Bourne & Kerr-Campbell, 2010),
household size (Doyle, Panda, van de R, Radermacher, & Dror, 2011), income (Dalaba, Akweongo, Aborigo, & Ataguba, 2012, Sarpong, et al., 2010) and level of education (Akwasi & Joshua, 2013, Gosh, 2013) have been established to influence uptake of health insurance by informal sector workers.

There are divergent opinions on awareness of the importance health insurance and its influence on enrolment into the same. For instance, Bawa (2011) concluded that even though levels of awareness of health insurance were high, it had not improved the levels of subscription. From a study done in Punjab, India, only 19.4 per cent of the respondents had a health insurance cover while a large proportion of the population financed health care through out-of-pocket payments (Bawa, 2011). The conclusion by this author differs with Ombeline and Wouter (2012) who observed that raising awareness of health insurance affects uptake positively. It is against this background that this study examined both demand- and-supply-side factors which affect or increase uptake of health insurance in Nairobi and Machakos Counties. This made it possible to make suggestions on how to include informal sector workers into health insurance programmes.

1.3 Statement of the Problem

The informal sector in Kenya had employed 12.5 million people by 2015 against 2.4 million in the formal sector (KNBS, 2016) thus constituting a bigger percentage of the entire workforce (see figure 5). The sector is characterised by job insecurity, poor working conditions and low incomes. Besides, it does not readily guarantee financial security due to irregular income and insecure employment. The situation is compounded by the increasing rural-urban migration, especially, by the youth. In effect,
informal sector workers are vulnerable to catastrophic health hazards and so suffer financial burdens due to expenditures on ill-health. This implies that they are likely to have limited access to quality health care.

The fact that societies are stratified means that the population is separated into categories that are unequal in social evaluation. Societal members are grouped into categories defined by inequality. Scholars have argued that socio-economic status and wealth distribution in society have an influence on health status. For instance, in a strategic review of health inequalities in England, Marmot, et al. (2010) state that economic inequalities lead to inequalities in health and wellbeing. The idea is shared by Matthews (2015), who claims that poor health correlates with poor material circumstances and that insecure, poorly paid employment has a detrimental impact on health and wellbeing.

The foregoing demonstrates that it is necessary for informal sector workers to have a health insurance cover. Research shows that having health insurance, especially through capitation or reimbursement to the facility, can increase access to health care. A health insurance cover can as well improve financial risk protection. Despite the risks involved in their work, only 16 per of informal sector workers in Kenya had a health insurance cover by 2015 (Mukhwana, Ngaira, & Mutai, 2015). It was important, therefore, to establish why enrolment was low by asking key questions: could it be because of demographics or lack of awareness of health insurance or the premiums charged by insurers? Hence, this study examined how demographic and socio-economic characteristics of informal sector workers related to and determined their uptake of health insurance.
1.4 Objectives of the Study

The general objective of the study was to investigate the determinants of health insurance uptake by urban informal sector workers in Nairobi and Machakos, Kenya

1.4.1 Specific objectives

The specific objectives were to:

(i) Examine enrolment status and patterns into health insurance schemes by informal sector workers.

(ii) Explain the level and source of awareness of health insurance among informal sector workers.

(iii) Establish factors of enrolment into health insurance schemes by informal sector workers.

(iv) Establish the key determinants of enrolment into health insurance by informal sector workers.

1.5 Hypotheses of the Study

There was need to understand how household and individual socio-demographic and socio-economic determinants correlate with health insurance uptake. From this premise, the study tested the following hypotheses:

(i) There is no relationship between awareness of health insurance by informal sector workers and their enrolment into the schemes.

(ii) There is no relationship between source of information and enrolment of informal sector workers into health insurance schemes.
(iii) There is no relationship between the household characteristics of informal sector workers and their enrolment in health insurance.

(iv) There is no relationship between the individual characteristics of informal sector workers and their enrolment in health insurance schemes.

1.6 Justification of the Study

Provision of health presents a challenge for all nations and therefore a study on health insurance was important since effective public health systems are essential for providing care for the sick, and for instituting measures that promote wellness and prevent diseases.

The study findings would inform policy-makers in understanding why informal sector workers do not enrol into health insurance schemes. This would be useful to health insurers in designing innovative models and interventions aligned to the uniqueness of the informal sector. It would also inform them on how to make autonomous and quick decisions on resource mobilization, subsector resource allocation and spending, and management of arising issues.

The findings would present opportunities and challenges to the health sector that determine the effectiveness of overall service delivery through health insurance. Therefore, health insurers would determine appropriate mechanisms to finance health insurance schemes sustainably from the large pool of informal sector workers.

Health professionals and other stakeholders would also benefit from the study findings in that it will have contributed to already existing literature on health insurance in Kenya, thus adding to existing knowledge in health care.
1.7: Scope and limitations of the Study

This study was conducted to establish the determinants of health insurance uptake among urban informal sector workers in Nairobi and Machakos counties, Kenya. The aspects looked into included enrolment status and patterns into health insurance and the source and levels of awareness of health insurance. Another concern for the study was to establish the socio-demographic factors that were key determinants of health insurance uptake by the informal sector workers.

It was not possible for the study to measure how programme reviews affected the demand for health insurance by study population since data was collected at a single point in time. Health insurance practitioners, especially the National Hospital Insurance Fund (NHIF) have constantly been conducting strategic reviews of the scheme, which can affect consumers’ opinions over time. For instance, the NHIF charged a premium of KSh 160 to voluntary contributors, which was revised to KSh 500. In 2015, the scheme had reviewed the benefit package to include outpatient services, a surgical benefit package, and a package for patients with chronic diseases like diabetes, hypertension, and cancer. The review of the NHIF package was likely to affect consumers’ opinions on health insurance, particularly NHIF (NHIF, 2015).

1.8: Chapter Summary

Chapter one has presented the background of the study, which demonstrated that in most nations, health insurance has been used as means towards achieving universal health care. The problem statement, however, shows that informal sector workers lack health insurance, which can improve health care access, thus cushioning them from
adverse effects of out-of-pocket expenditures. The study was therefore significant since providing access to affordable health care for the informal sector remains a considerable challenge to low income countries. Therefore, a study on the determinants of health insurance uptake by informal sector workers was important.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The way in which a health care system operates determines whether people can afford to use health care services when they need them and whether the services exist. Member states of the World Health Organization (WHO) recognized this and, consequently in 2005, committed to develop their health financing systems in order to respond to these concerns (WHO, 2010). The WHO Report (2010) states that governments should address three key issues to ensure that the health care needs of all people are catered for. These are, the way the health care system is financed, and how to protect people from financial consequences of ill health and paying for health services. The third key issue is how to encourage the optimum use of available resources (WHO, 2010).

This study concentrated on the second concern by determining factors that influence informal sector workers in joining health insurance schemes. This was informed by the International Labour Organization (ILO), which claims that workers in the informal economy are much more likely than formal workers to be exposed to poor working environments, low safety and health hazards (Alli, 2008). In addition, they are also subjected to numerous environmental dangers and are likely to suffer poor health or injury as a result. The study examined the determinants of health insurance uptake among informal sector workers in order to shed light into how Kenya can move towards ensuring equity in access to health care.

Health care spending by most low and middle-income countries (LMICs) is through out-of-pocket payments, a health-financing approach widely viewed as inequitable and
inefficient (Panda et al., 2013; Wolfe, McIntyre, Ayako, & Hanso, 2014). In view of this, countries can achieve universal health care (UHC) through risk pooling and prepayment mechanisms unlike point-of-service payments (James & Savedoff, 2010). Two options can be used towards UHC: through subsidies or through voluntary affiliation. Panda et al., (2013) maintain that low-income countries have not managed to implement compulsory membership to health insurance schemes or subsidize entire populations. Instead, low and middle-income countries (LMICs) have adopted voluntary membership, especially for informal sector workers. However, uptake of health insurance by informal sector workers in these countries remains very low (Acharya et al., 2012). For example, in Kenya, only 30 per cent of the 5.2 million workers contributing to the National Hospital Insurance Fund (NHIF) are from the informal sector (see Figure 11, Appendix 2). This is despite the fact that the informal sector constitutes 83 per cent of the 15.2 million workers in Kenya (KNBS, 2016). Consequently, the reviewed literature examined the various factors affecting uptake of health insurance.

2.2 Insuring informal sector workers: a global perspective

Access to services from public and private health care facilities is not always achievable for the poor and informal sector workers. This has been due to, among other factors, significant cost of services. In order to ensure access to health care, governments require additional public funding, which is a challenge to low and middle-income countries (LMIC). This is because a large share of the labour force in LMICs is employed in the informal sector of the economy. As such, informal sector workers lack a work contract and therefore it is not easy to access and tax their incomes.
To reduce the burden of out-of-pocket (OOP) payments as well as increase equity and access to health care, several countries have attempted to expand health insurance schemes, especially in Sub-Saharan Africa (Bitran, 2014). In this section, therefore, the study reviewed literature on challenges and efforts of several countries to provide health insurance covers to informal sector workers.

Some high and low-income countries have so far implemented health insurance schemes for both formal and informal sector workers successfully. Germany, for instance, has one of the world’s oldest social health insurance schemes, which can be traced to Bismarck’s health care reforms of 1883 (Obermann, Müller, Müller, Schmidt, & Glazinski, 2013). Germany devised many systems to assess the incomes of the self-employed. Secondly, informal sector workers organize themselves into occupational cooperatives through which they make monthly contributions. From the contributions, deductions can be made towards health insurance.

Health care in Germany is financed through both state and private health insurance schemes. The Statutory Health Insurance (SHI) programme is for both poor and rich and the contributions are pegged on level of income and benefits (Obermann et al., 2013). It works based on cost transfer. Only those earning more than 56,200 EUROS (KSh 746, 852) per year can join private health insurance and premiums are according to risk and benefits agreed upon. Members are reimbursed when they spend on health care services through out-of-pocket payments.

The social health insurance programme in Germany has not been without challenges, which have led to numerous reforms. Some of the problems experienced include
erosion of revenues and rising of expenses (Obermann *et al.*, 2013). Germany has seen a decrease in the number of persons liable to compulsory insurance while higher income groups have migrated towards private insurance. In addition, there has been a demographic change, which has created an aging society. This has led to reforms with the most recent in 2011, where statutory health insurance (SHI) contributions were split almost equally between employers and employees. Due to rising health care expenditures, the reform froze the employers’ share of SHI contributions. The employer paid 7.3 per cent and the employee 8.2 per cent of pre-tax income into SHI with any cost increases being borne by the insured.

The historical experiences in Germany’s health care system could be relevant to low and middle-income countries (LMICs) (Barnighausen & Sauerborn, 2002). Germany used incremental legislative changes to achieve compulsory health insurance, an approach that could be practical in LMICs. Three transitions took place in the development of health insurance: from informal to formal, voluntary to compulsory, and from small to larger schemes (Criel & Van Dormael, 1999).

While appreciating that each country has unique ways of enrolling the citizenry into health insurance, low and medium-income countries can borrow some aspects towards universal health insurance from the developed ones. Workers in the informal sector can initiate voluntary health insurance schemes with government legislation making them compulsory in due course. Singapore is a case in point, with one of the most successful health care policies (Taylor and Blair, 2003). Singapore emphasizes on the individuals to assume responsibility towards their own health and this has been a milestone towards universal coverage (WHO, 2010). The country has a voluntary private health insurance
scheme, which is government-regulated. The government only acts as a supplementary financing arrangement that complements the public health care system (Fong et al., 2016). The use of compulsory deductions has also helped significantly in private funding for hospital expenses. In the Kenyan context, compulsory membership to health insurance is only for the formal sector employees. Contributions are deducted and remitted to the fund by their employers. Those in the informal sector join the scheme under the voluntary category and pay KShs. 500 per month. For those in formal employment, contributions are graduated according to income.

Some other countries have in place more than one national health insurance scheme to accommodate all groups in society. A case in point is India, whose health care system had placed a financial burden on households in terms of out-of-pocket spending. India had experienced health inequalities due to insufficient state spending and the establishment of a large unregulated private sector (Jain, 2013). Over a quarter of the population in India lived below the poverty line by 2010 and could not afford the costly health care services), thus hindering health access (Iyengar and Viswanathan, 2011, Safi, 2015). Devadasan et al., (2011) show that the Indian health care system is mainly funded by out-of-pocket payments. According to Shetty (2014), health care delivery and financing in India by 2014 was marked by around 72 per cent of out-of-pocket spending, an indication that there was a wide gap in health delivery for the uninsured and for the total population. This led to challenges including inequality of services and fragmented social and regulatory standards.

In 1986, the Indian Government introduced the Voluntary Health Insurance scheme to cater for the informal sector (Reddy et al., 2011). Until then, this vast majority of
population received care from either the public health facilities or fee-for-service private sector. However, the scenario changed when the state government introduced health insurance schemes targeting the poor.

The health insurance industry in India experienced significant growth mainly due to liberalization of the economy and general awareness. According to the World Bank, by 2010, more than 25 per cent of India’s population had access to some form of health insurance (Kumar et al., 2011). The providers were both private and government insurers. When the health insurance industry was opened up to private players, membership quadrupled to 300 million in 2011 and it was expected to be 600 million in 2015 (Devadasan et al., 2011). The government pays premiums for poor people covered by private health insurers. For instance, the Rashtiya Swasthiya Bima Yajana (RSBY) scheme provides coverage for Below Poverty Line (BPL) families and the government pays the insurer premiums for each enrolled household. The insurer is therefore motivated to enrol as many households as possible from the BPL list. This results into better coverage for the targeted beneficiaries. Both private and public hospitals provide services to beneficiaries under the RSBY and payments are per the beneficiary treated.

There are two models through which health insurance is offered - mandatory and voluntary health insurance (Reddy et al., 2011). The mandatory health insurance cover has two schemes. One is the Employees’ State Insurance Scheme (ESIS) which covers employers with more than 10 employees. The cover is for employees earning below Rs 15,000 (USD 240) per month and their dependants. The second model is the Central Government Health Scheme (CGHS) covering another section of the population.
employed in the formal sector. The cover is for all employees – both working and retired – and their families, as well as other representatives associated with the central government.

Community-Based Health Insurers (CBHIs) too offer health insurance under the Voluntary Health Insurance schemes, providing solutions to health expenditures for households. Membership to the CBHIs is voluntary and targetted at lower income populations. In some cases, the schemes evolve around work cooperative or micro-finance groups. The CBHI schemes have demonstrated the ability to cover the informal sector workers. For instance, the Self-Employed Women’s Association (SEWA), a trade union of informal women workers, started in Gujarat, India, in 1972 (Ranson et al., 2005). In 1992, SEWA began an integrated insurance programme, Vimo SEWA, for its members.

Vimo SEWA provides life, hospitalization, and asset insurance as an integrated package. Women are the principal members but can buy insurance for their husbands and children. Vimo SEWA health insurance component covers hospitalization expenses with the member choosing the health care provider, either private-for-profit, private-non-profit or public facilities (Ranson et al., 2005). Despite the capped benefits, evidence shows that the scheme offers considerable financial protection to its members. According to a report by ILO (2015), SEWA had offered its members a comprehensive social security cover, including health care benefits. Amid several challenges, the approach by the design of Vimo SEWA can be adopted by welfare organizations to which numerous informal sector workers belong (ILO, 2015).
In Sub-Saharan Africa, there are various types of approaches that have been used to ensure expansion of health insurance to the population. Rwanda is considered to have made progress towards voluntary insurance cover. Rwanda operates a universal health care system, and is considered to have one of the highest-quality health systems in Africa (Rosenberg, 2012). Despite very high poverty rates, the poor in Rwanda have access to the modern health system. In 1996, Rwanda re-introduced user fees for health care services, which led to a decline in health care utilization. In response, the Ministry of Health successfully implemented alternative health care financing and provider payment methods through community-based health insurance (CBHI) schemes (Schneider, 2004).

By 2010, Rwanda’s community-based health insurance programme (Mutuelle de Santé) had covered more than 90 per cent of the population reducing out-of-pocket spending for health from 28 per cent to 12 per cent (Makaka, Breen, & Binagwaho, 2012). Residents of a particular area pay premiums into a local health fund, and can draw from it when in need of medical care. The poorest members of society are entitled to use the service for free, while the wealthiest pay the highest premiums and must partially pay for their care (Makaka et al., 2012).

In Ghana, the National Health Insurance Scheme (NHIS) pools resources from different sources including the Ministry of Finance with an allocation of over 30 per cent. A second source is the national health insurance levy at the rate of 2.5 per cent on the supply and import of goods and services (Mills et al., 2012). Then there are individual contributions to the Social Security and Pensions Scheme Fund. The Ministry of Finance pays GH₵ 14 per exempted person per annum to the National Health Insurance
Authority as a contribution to the NHIS. There is also funding from specialized agencies and development partners (Durairaj, D'Almeida, & Kirigia, 2010).

Tanzania has four public health insurance schemes. The first was the National Health Insurance Fund (NHIF) established by an Act of Parliament No. 8 of 1989 (Borghi, Mtei, & Ally, 2012). Public formal sector employees contribute 3 per cent of their salary to the fund and the government matches the same. Though intended for public servants, the cover allows private membership (Humba, 2011). Apart from the principal member, the scheme covers the spouse and up to four children below the age of 18.

Other schemes include Social Health Insurance Benefits (SHIB) which covers all members of the National Social Security Fund (NSSF). The benefits for the members is part of 20 per cent contributed to NSSF. The Community Health Fund (CHF), a government voluntary scheme, targets the informal rural population while the urban informal sector is covered by the Tiba kwa Kadi (TIKA) scheme (Borghi et al., 2012). Contributions to the CHF are decided at the council level, and each household contributes the same amount regardless of ability to pay, giving them access to free health care at primary public health facilities (Humba, 2011, Mills et al., 2012). Private health insurance schemes exist as well and they cover corporate employees. They include firms like Strategis, Jubilee Insurance, Africa Air Rescue (AAR), Resolution Health, and Metropolitan Insurance (Jamu, Nduhiye, Macha, Kessy, & Borghi, 2009).

Unlike in Kenya, the unique feature about health insurance in Tanzania is that there are schemes which only cater for informal sector workers, regulated by the government,
through NHIF. However, this has not translated into an increase in medical cover for the informal sector workers. Overall, health insurance cover in Tanzania is still low compared to Kenya. As of June 2013 NHIF was estimated to be covering about 6.6 per cent of the population while CHF covers about 7.3 per cent compared to 16 per cent in Kenya (Gemini et al., 2012, Mukhwana, Ngaira, & Mutai, 2015).

2.3: Accessing Healthcare in Kenya

Kenya, like many other low-and-middle income countries, has faced challenges in providing healthcare to her citizenry particularly the poor and the vulnerable. As already argued, accessing healthcare for most marginalized sections of society is a burden due to financial barriers (Leatherman & Dunford, 2010, Mukhwana, Ngaira, & Mutai, 2015, Mwaura & Pongpanich, 2012). Estimates show that a high proportion of the world’s 1.3 billion poor have no access to health services because they cannot afford to pay at the time they need them (Acharya et al., 2012). The poor and the vulnerable, therefore, need protection since they cannot easily meet their health care expenditures and their dependants. Kimani et al., (2012) propose social health insurance as one form of extending health protection to the poor. In Kenya, attempts were made towards universal health insurance in 2004 through the introduction of the National Social Health Insurance Fund (NSHIF). The proposed Bill of 2004 was considered financially unsuitable and abandoned (Jesse, 2010). It has not been possible to implement social health insurance programmes in Kenya due to lack of sustainable health financing mechanisms (Kimani et al., 2012).
Limited funding by the government leaves that out-of-pocket spending remains a key source for health care, which has negatively affected the populace (Deolitte, 2011). Likewise, high poverty levels among the population have affected health financing negatively. With 46 per cent of Kenyans living on less than a dollar per day, there has been a corresponding relationship between poverty and health status (Deolitte, 2011). In other words, poverty is a major driver of poor health status, a state that leads the poor deeper into poverty. This implies that the poor in Kenya face major financial barriers to accessing healthcare.

Even though a lot of emphasis has been on the effects of fee-for-service, other factors can hinder patients from accessing health care services (Acharya et al., 2012). Doing away with financial barriers (user fees) only helps the poor and vulnerable to obtain health care services, not entirely guaranteeing patients access to care. WHO (2010) indicates that factors like transport costs and lost income can be prohibitive and if services are not available at all or not available close by, people cannot use them even if they were free of charge.

Numerous studies have demonstrated that user fee charging has affected the way people meet their health care needs (WHO, 2010). It has not been possible for most low-income countries to offer financial protection to cushion vulnerable populations from health costs. WHO (2010) notes that approximately 100 million people are pushed below the poverty line each year by payments for health care, and many more will not seek care because they lack the necessary funds (Mills, 2014). Direct payments discourage people from using services, thus encouraging them to postpone health checks. This argument is valid since a person would opt not to seek for health care services when they lack the
ability to pay. As suggested by the Heath Belief Model (HBM), the perceived barriers to health care would deter patients from seeking it (Carolina, 2011). One carries out a cost-benefit analysis against perceptions that seeking for health care services would be expensive. Ultimately, patients might not receive treatment early when prospects of cure are greatest. This is evident since an estimated 1.3 billion poor people worldwide lack health care services since they cannot afford to pay when they need the care (WHO, 2010).

Another drawback in paying for health care services on the spot is that it eats into household finances. The poor experience financial difficulties since they spend almost 50 per cent of household income directly on health care, leaving other basic needs unfulfilled. In a systematic review of 89 countries, Xu et al., (2010) demonstrate that catastrophic health expenses and impoverishment remain high in countries where out-of-pocket (OOP) expenditures represent less than 15 – 20 per cent of the national health expenditure. With high levels of poverty coupled by unemployment in Africa, even small health care payments can result to financial disaster (Xu et al., 2010).

2.4 Health Insurance in Kenya

Health insurance in Kenya is offered through public health insurance, private insurance firms and community-based health insurance (CBHI) schemes. Due to high premiums charged by private health insurers, the schemes only attract high-income earners (PSP4H, 2014). Community-based health insurance schemes are relatively new in Kenya and have limited cover. Community members initiate and manage the schemes in a bid to ensure that their members access health care without financial strain.
According to the Kenya Community-Based Health Financing Association (KCBHFA), there were 38 CBHF schemes, with 100,510 principal members, covering only 1.2 per cent Kenyans by 2011 (Kimani et al, 2012). This is a paltry 1.2 per cent of the total Kenyan population. The National Hospital Insurance Fund (NHIF) covers a bigger population (18 per cent) compared to private, microfinance, and community-based health insurance combined which provide 2 per cent cover (Mwaura et al., 2015).

2.4.1 Public Health Insurance

The National Hospital Insurance Fund (NHIF) is mandated through the NHIF Act No. 9 of 1998 to enable all Kenyans to access quality and affordable health care services (NHIF, 1998). Since its inception, the NHIF has undergone several changes to include more benefits, target informal sector workers, and introduce outpatient care (NHIF, 2015).

The public health insurer offers a cover to households through a principal member. The package covers a whole family and dependants, one spouse and no limit on the number of children below 18 years or in college (NHIF, 2015). Entitlement to healthcare services includes all dependant household members. Children under 18 automatically benefit from NHIF through parental affiliation while those over 18 years must prove their economic dependancy through schooling or college certificates (NHIF, 2015).

The NHIF benefit package includes both inpatient and outpatient covers. Inpatient health care services are in three categories. In public health facilities under contract category A, all services are covered by NHIF except for referral hospitals; contract category B, (small private and faith-based hospitals), all services are covered but the
patient co-pays for surgery. Contract category C is for private hospitals and larger Faith-Based-Organizations (FBOs). The only benefit for this category is a daily bed rebate (Deolitte, 2011). The scheme provides a comprehensive outpatient cover in accredited government facilities, mission health providers and some private health facilities across the country. The cover was extended in 2015 to include dialysis, a comprehensive maternity and Caesarian (CS) package in government hospitals, majority of mission and some private hospitals (NHIF, 2015).

Monthly premiums to the scheme are through formal sector employee deductions through the employers and voluntary contributions by informal sector workers. Contributions for those in formal employment are pegged on income bracket. The lowest premium is of KSh 150 from those earning below KSh 6,000 while the highest is KSh 1,700 for workers earning over KSh 100,000 and above. Members under the voluntary category pay KSh.500 per month (NHIF, 2015).

NHIF has also established partnership with some organizations to finance health insurance for vulnerable groups. For instance, the Health Insurance Subsidy Programme (HISP) is an initiative to extend financial risk protection to Kenya’s poorest by providing them with a health insurance subsidy (Mwaura et al., 2015). The subsidy covers both inpatient and outpatient care in public and private health facilities. The programme is supported by the World Bank Group (WBG)'s the International Finance Corporation (IFC) and the International Development Association (IDA). Other development partners who finance vulnerable groups include UKAid and the Gates Foundation-funded African Health Markets for Equity Programme (NHIF, 2015).
2.4.2 Private Health Insurance

Private health insurance providers operate various health insurance schemes that are considered competitive due to the high premiums. Enrolment into the schemes is voluntary and medical cover is commonly offered to workers and their dependants (usually capped at 4) as an employment benefit (Munge, Mulupi, Chuma, 2016). However, enrolment by most informal sector workers into private health insurance schemes is not possible (Kimani et al., 2014). These authors argue that private health insurance has been a reserve for the middle and higher-income groups due to cost considerations. For example, Jubilee Insurance offers a health insurance cover with optional benefits, which include maternity, dental, outpatient, and optical (see Table 22). The insured selects the plan and options that suit their medical insurance needs and budget (Jubilee Insurance, 2015). The lowest payable plan (Classic) has an annual premium of KSh. 500,000 (US$ 4,854) while the highest (Royal) is KSh 5,000,000 (US$ 48,543). Such premiums cannot compare to the annual premium of KSh. 6,000 (US$ 58) that voluntary contributors pay to the National Hospital Insurance Fund (NHIF). Thus, like Kimani et al., (2014) argue, informal sector workers cannot readily fit into private health insurance programmes.

Folland, Goodman, and Stano (2010) state that private health insurance ensures faster access to health care, thus meeting the gaps in health care services. However, informal sector workers cannot easily buy private health insurance since such schemes make considerations like pre-existing conditions, age, and lifestyle characteristics, as well as ability to pay premiums. For instance, Mandison Insurance has the Alpha Individual and Alpha Family health care policies, which have pre-existing conditions. The
maximum joining age is 60 years while persons over 57 years are required to provide a medical report from the insurer’s recommended service providers (Madison Insurance, 2017). Besides, there is a co-payment of KSh. 500 (US$ 4.8) to the Aga Khan University Hospital, the Nairobi Hospital, the Karen Hospital, and the Gertrude’s Garden Children’s Hospital. Outpatient visits to other service providers attract a co-payment of KSh. 200 (US$ 1.9). In addition, the outpatient cover excludes all dental and optical treatment.

The Apollo Insurance and Pan Africa Insurance (APA Insurance) offers a health cover under two products, Afya Nafuu and Jamii Plus, the difference between the two being provider list and optional benefits and limits. Adults between 18 and 75 years and children between one month and 17 years are eligible for the cover (APA, 2017). APA Insurance has three products: an inpatient cover, optional benefits, the enhanced benefits cover, and a maternity cover with the inpatient cover being the insurer’s core product. The cover has both special conditions and exclusions. For instance, a medical report is required for a member joining at the age of 55, while pre-existing and chronic conditions occurring within the first 12 months are excluded.

Majority of people in low-income countries work in the informal sector that is characterised by low incomes and thus cannot afford premiums charged by private health insurers. For instance, Kenya’s informal sector employed 12.5 million people in 2015 against 2.4 million in the formal sector (KNBS, 2016). Due to this, it is necessary to seek for health care financing options like tax-based financing or social health insurance schemes to ensure equity in health care access (Wang and Pielemeier, 2012).
2.4.3 Community-Based Health Insurance

An alternative cover for the informal sector in Kenya could be through Community-Based Health Insurance (CBHIs) schemes. However, CBHIs are not widespread in Kenya and cover about 470,550 beneficiaries, less than 1 per cent of the Kenyan population (Mulupi, Kirigia, & Chuma, 2013). The benefit packages provided by CBHIs differ, with some offering inpatient and others both inpatient and outpatient care. Several CBHIs exist in Kenya including Kenya Community Based Health Financing Institution (KCBHFA), Bima ya Jamii, Changamka Microhealth Limited, Organization for Women in Self Employment (WISE), and Miliki Afya (CHMI, 2017). Each CBHIs operates uniquely in regard premium payments and cover. The CBHIs identify specific health care facilities in close proximity to their geographical locations to provide health care services to their members. This would make CBHI schemes

Proximity to accredited health care facilities is a major competitive since people at times consider distance travelled to accredited health care facilities. Mulupi et al., (2013) established that low enrolment into the national health insurance scheme by informal sector workers was due to distribution of accredited health care facilities.

This is not without limitations though, since each CBHI scheme operates in its unique way. For instance, Jamii Bora Health Insurance (JBHI) scheme covers the principal member and four children aged 18 and below (Mwaura & Pongpanich, 2012). The principal member can buy insurance for their spouses and/or pay an extra premium for any additional children. JBHI contracts either public or faith-based hospitals in Kenya to provide inpatient services. Compared to the National Hospital Insurance Fund
(NHIF), this CBHI scheme is limiting in that NHIF cover includes the spouse of the principal member and all dependants below the age of eighteen years.

The foregoing presentation demonstrated that compared to private and community-based health insurers, the NHIF programme design could accommodate informal sector workers. This therefore set the stage for this study to investigate why the uptake of health insurance by informal sector workers was low.

2.5 Determinants of health insurance uptake

The main target of the review were primary studies that examined how selected variables (age, sex, marital status, household size, level of education, income, and awareness of health insurance) related to health insurance uptake. The review identified ten studies that met this inclusion criteria.

Three studies (Akwasi & Joshua, 2013; Bending & Arun, 2011; Owusu-Sekyere & Chiaraah, 2014) consider age as associated to health insurance uptake. Akwasi and Joshua (2013) did an inferential analysis of the 2008 Ghana Demographic and Health Survey to determine factors that influenced purchase of health insurance. Bending and Arun (2011) did a household survey in Sri Lanka to establish the determinants of insurance participation. The study by Owusu-Sekyere & Chiaraah (2014) investigated factors that influenced Ghanaians to enrol with the national health insurance scheme.

Owusu-Sekyere and Chiaraah (2014) argue that age was a determinant of awareness and positively predicted literacy and attitude towards health insurance since older individuals were likely to be more knowledgeable about this. Akwasi and Joshua (2013), and Bending and Arun (2011) hold a similar view that though age was postively
related to demand for health insurance, the demand was more likely to increase to a certain age after which it falls with advanced age.

However, age as a precondition for joining a health insurance scheme in Kenya is not a major hindrance to the bigger population in the society. For instance, the lower age limit for one to join NHIF is years and no upper age limit. Jubiliee Insurance, a private health insurer covers those aged 18 – 60 years. This being the case, and with less than 1 per cent of the eligible respondents in this study aged above 50, the rest were eligible for enrolment even in private health insurance schemes. Therefore, this study sought to establish how age of respondents was linked to enrolment into health insurance schemes.

Another set of five articles jointly consider sex to be a determinant of health insurance enrolment (Akwasi & Joshua, 2013, Bending & Arun, 2011, Boateng & Awunyor-Vito, 2013, Kimani et al., 2012, Owusu-Sekyere & Chiaraah, 2014). On one side, two studies investigating the factors that influenced Ghanaians to enrol into health insurance claim that males were more likely to enrol in health insurance than females (Akwasi & Joshua, 2013 and Owusu-Sekyere & Chiaraah, 2014). Owusu-Sekyere and Chiaraah (2014) offer the suggestion that normally men were the breadwinners of their families in Ghana, hence they insured in order to concentrate on other expenses.

Bending and Arun (2011), Boateng and Awunyor-Vito (2013), and Kimani et al., (2012) established that females were more likely to enrol than men. Boateng and Awunyor-Vito (2013) conducted a cross sectional household survey in the Volta region of Ghana. They offered the suggestion that women, as care-givers for children and other
sick members of the household, were likely to have positive attitude towards insurance decisions than do their male counterparts. While acknowledging that gender was associated with enrolment in health insurance in these articles, it was important for this study to establish whether being male or female was a determinant.

Three articles have highlighted level of education as associated with enrolment into health insurance programmes (Bourne and Kerr-Campbell, 2010; Jangati, 2012; and Owusu-Sekyere and Chiaraah, 2014). Both Bourne and Kerr-Campbell (2010) and Owusu-Sekyere and Chiaraah (2014) established a direct link between level of education and enrolment into health insurance schemes. The former claimed that higher levels of education influenced Ghanaians to join health insurance schemes. The suggestion was that they could probably understand the scheme better than those with lower levels of education. The latter claims that an individual who had attained tertiary level education was more likely to purchase health insurance than one with at most primary level education. Jangati (2012) links level of education to awareness of health insurance. He claims that there was less awareness about health insurance among respondents who were less educated and hence they were likely not to enrol in such programmes.

There were five articles that established a relationship between marital status and enrolment into health insurance programmes (Bending and Arun, 2011; Bourne & Kerr-Campbell, 2010, Gosh, 2013, Kimani et al., 2012, Owusu-Sekyere & Chiaraah, 2014). All suggested a significant positive relationship between marital status and enrolment. Kimani et al., (2012) established that marital status was a significant predictor of medical cover through the public health insurance programme in Kenya. Those
formerly married (AOR = 0.46; p < 0.05) and those never married (AOR= 0.57; p < 0.05) were less likely to purchase health insurance from the public insurer than the married. They explained that it was likely those divorced, widowed or separated became financially vulnerable while those never married also experienced financial constraints (Kimani, et al., 2014). As such, they could lack ability to make payments to health insurance programmes unlike those who had spouses. This assertion by Kimani, et al. (2014) can be contested since it is not necessarily the case that being married guarantees one financial security. Similarly, it is likely that an unmarried person has sufficient income and fewer children and hence have the ability to buy health care services through direct payments. It was therefore important for this study to test for significance between marital status and enrolment into health insurance programmes.

Four articles linked income to health insurance uptake (Bourne & Kerr-Campbell, 2010, Gosh, 2013 Jangati, 2012 Mhere, 2013). Bourne and Kerr-Campbell (2010) in a study to model the health insurance cover for Jamaicans and identify its determinants, found out that purchase of health insurance was influenced by income. People in the wealthy-to-wealthiest quartiles were twice as likely to purchase health insurance compared to those in the poor-to-poorest quartiles. The results of their study revealed that the poor and many rural residents were more likely to be employed on a seasonal basis in the informal sector thus earning low incomes (Bourne and Kerr-Campbell, 2010). This category of people were likely to have challenges in paying health insurance premiums. Income was a significant determinant of health insurance uptake and thus the study sought to establish the amount of variance accounted by this variable.
Only one article (Mhere, 2013) established a relationship between household size and enrolment into health insurance. By doing a log linear analysis of factors affecting the usage of Nigeria’s national health insurance scheme, household size was one of the explanatory variables. The results showed a negative significant relationship which was explained by the fact that a large household makes large payments towards health insurance premiums. If families considered the premiums unaffordable, they could choose not to purchase health insurance or if they did not have a prevalence of chronic illnesses, they could opt to buy health care directly. The number of dependants is not a condition for enrolment into the National Hospital Insurance Fund (NHIF) and some private and community-based health insurance schemes. However, there are some like Jamii Bora Health Insurance scheme that only cover up to four children. The principal member pays an extra premium for extra children (Mwaura & Pongpanich, 2012).

The number of dependants can affect enrolment positively or negatively. Rational choice theorists Croanzano and Mitchell (2005), view choice making as a social interaction. The interaction becomes a process of social exchange where an action is dictated by costs and rewards. An individual therefore takes an action according to the constraints facing them. In this case, if one has inefficient income, they would be constrained to buy health insurance against catering for the needs of the many dependants.

Ombeline and Wouter (2012) did a review of demand for health insurance in low-income countries. Some studies reviewed include Tower and McGuinness (2011) who established that there was a 9 per cent increase in listeners’ awareness of insurance terms and products for those who chose to listen to radio business programmes.
Likewise, Cai, De Janvry, and Sadoulet (2011) established that people attending a village meeting about insurance were 12 per cent points more likely to take up insurance than those receiving door-to-door visits. In their review, Ombeline and Wouter (2012) observed that raising awareness and improving the knowledge of the insurance terms could affect uptake positively. They pointed out that in some instances, newly insured people could expect to receive their premiums back when no payout or claim occurred. Hence, the need for intensive insurance literacy training and use of peers to spread information on insurance products. Michal et al., (2013) argue that low demand was often attributed to a lack of understanding of micro insurance concepts and products. These authors state that increasing awareness and knowledge did not necessarily translate into higher levels of demand for health insurance. The difference in the results by Ombeline and Wouter (2012) and Michal et al., (2013) was an opportunity for the study to establish how awareness related to enrolment into health insurance programmes.

The review has shown that past studies primarily focused on establishing how socio-economic and socio-demographic variables related to enrolment to health insurance. In addition, there was no agreement on the variables that explain the determinants of health insurance uptake among informal sector workers. Therefore, there was sufficient justification to conduct this study in order to:

(i) establish which socio-economic and socio-demographic variables were related to health insurance uptake by informal sector workers,

(ii) determine the strength of the relationships for the variables related to health insurance uptake,
(iii) identify the components which accounted for much of the variability in the data as well as variables most strongly correlated with each component.

2.6 Theoretical Framework

The study employed the Health Belief Model, the Weberian Model of Social Stratification and the Rational Choice Theory to explain both individual and contextual determinants of health services use. It was necessary to use the three in order to explain how the various independent variables in the study objectives related to the dependent variable. The Weberian Model of Social Stratification and the Health Belief Model advanced the first objective, which examined the enrolment status and patterns into health insurance schemes by informal sector workers. The Weberian Model of Social Stratification explained the second objective on the level of awareness of health insurance and knowledge on benefits of a health insurance cover. The Rational Choice Theory and the Weberian Model of Stratification advanced the third and fourth objectives on factors and key determinants of enrolment into health insurance. The following section details how each of the two models and theory have been used in this study.

2.6.1 The Health Belief Model

The Health Belief Model (HBM) is a psychosocial approach first proposed by Rosenstock (1966) and elaborated by Becker and Maiman (1975) and Taylor et al., (2007). The basic components of the HBM are derived from a well-established body of Psychological and Behavioural Theory whose models hypothesize that behaviour
depends mainly upon two variables: the value placed by an individual on a particular
goal and the individual’s estimate of the likelihood that a given action would achieve
that goal (Janz & Becker, 1984). When these variables are conceptualized in the context
of health-related behaviour, the correspondences are the desire to avoid illness and the
belief that a specific health action will prevent illness. This means that individuals
estimate the threat of illness, and of the likelihood of being able, through personal
action, to reduce that threat.

Specially, the HBM consists of four dimensions. One is perceived susceptibility, which
means that individuals vary widely in their feelings of personal vulnerability to a health
condition. Another dimension is perceived severity, a dimension which includes
evaluations of both medical consequences (for example, death, disability, and pain),
and possible social consequences (for example, effects of the conditions at work, family
life, and social relations). The third dimension-perceived benefits- implies that a
sufficiently threatened individual would be expected to accept the recommended health
action if it was perceived as feasible and effective (Glanz, Barbara, & Rimer, 2008).

The particular course of action that one is likely to take is hypothesized to depend upon
beliefs regarding the effectiveness of the various actions available in reducing the
disease threat (Rosenstock, 1974).

The fourth dimension, perceived barriers, is considered applicable in this study. The
potential negative aspects of a particular health action may act as an impediment to
undertaking the recommended behaviour. A kind of cost-benefit analysis is thought to
occur whereby the individual weighs the action’s effectiveness against perceptions that
it may be expensive, dangerous, unpleasant, inconvenient, and time-consuming (Janz
and Becker, 1984). Most informal sector workers do not have a regular income and in other cases are paid daily wages. In this case, they are likely to feel that enrolling in a health insurance scheme is expensive and, therefore, beyond their reach. Yet for others, the fact that they have to go through the bureaucracy of enrolment, uptake of health insurance can be considered as an inconvenient and time-consuming exercise. For other informal sector workers, lack of knowledge of health insurance in general could be a barrier to enrolling in any available health insurance schemes. Therefore, in this study, the researcher established the determinants of uptake of health insurance by informal sector workers.

**2.6.2 Rational Choice Theory**

The rational choice theory is a framework for understanding and modelling social behaviour (Abel, 1991). The foundation of rational choice theory is that social behaviour results from the behaviour of individual actors, each of whom is making their individual decisions. From this premise, rational choice theory focuses on what determines the choices that an individual makes, and thus, according to Sen (2004) this makes it possible to predict actual behaviour.

The theory proposes that individuals choose the best action according to their personal preferences and the constraints facing them. This was applicable to informal sector workers considering that most of them are low-income earners. In this regard, though a health insurance cover is important, they would make a choice between the cover and meeting other needs. For instance, a household head with many dependants and a low income is likely to choose meeting their immediate needs like food and clothing than buying health insurance.
Another aspect of the theory that was useful to this study was decision making. According to Lawrence and David (2008), rational decision-making entails choosing among all available alternatives the alternative that the individual most prefers. Alternatives can be a set of actions or a set of objects. In the case of actions, what the individual really cares about are the outcomes that result from each possible action. Actions, in this case, are only an instrument for obtaining a particular outcome.

This argument is supplemented by the proposition by rational choice theorists who view choice making as social interaction. According to Croanzano & Mitchell (2005) interaction is a process of social exchange, that is, the various things that a person might do vary in their costs and rewards. Individual preferences are self-interested and therefore an individual acts as if balancing costs against benefits to arrive at action that maximizes personal advantage.

The rational choice theory was used in this study to demonstrate how informal sector workers are seen as motivated by the wants or goals that express their preferences. They would act within specific constraints and on the basis of the information that they have about health insurance. The relationship between preferences and constraints can be seen in the purely technical terms of the relationship of a means to an end. Since it is not possible for informal sector workers to achieve all of the various things that they want, they must also make choices in relation to having a health insurance cover and their ability to purchase the cover.
2.6.3: The Weberian Model of Social Stratification

Social stratification is a form of differentiation in which societal members are grouped into socioeconomic strata, based on occupation and income, wealth and social status, or derived power (Macionis & Linda, 2010). On their part, Giddens et al., (2009), regard stratification as structured inequalities among different groups of people. This means that people in a stratified society have been separated into unequal categories in as far as social evaluation is concerned.

This study adopted the Weberian Model of Social Stratification which views social stratification in three dimensions: economic class, social status, and political power. This three class system was developed by Max Weber who argues that there is an interplay among wealth, prestige and power with each having a resultant effect and influence over the other areas (Hurst, 2007). The economic dimension of the Weberian Model of Stratification is represented by income and the goods and services which an individual possesses, while the social is represented by the prestige and honour one enjoys. Political power is represented by the power an individual exercises over others. In order to advance the arguments of this study, the economic and social dimensions were considered.

Due to unequal distribution of income, people on lower incomes are likely to buy goods and services that negatively affect their health (Marmot et al, 2010). When this view is applied to the first objective of this study, it means that lower income earners amongst informal sector workers are unlikely to purchase a health insurance cover and consequently opt for alternative health care services. As such, enrolment of informal sector workers would remain low. In addition, the economic dimension of the Weberian
Model of Social Stratification was used to explain the second objective on awareness and knowledge of the benefits of having a health insurance cover. An individual’s economic position greatly influences ability to access education and information through medium like television, radio, internet and newspaper. High levels of education can influence access to information, which in turn influences purchase of health insurance.

Weber further argues that when stratification is perceived as social status, it applies to the positive and negative privilege to social prestige based on the mode of living, a formal process of education and the prestige of birth or of an occupation (Tak & John, 20017). In order to explain the second objective, this study applied social status on the basis of the formal process of education. Those who have acquired higher levels of education are likely to have awareness of health insurance and comprehend its benefits compared to individuals with low levels of education or those with none.

2.7 Conceptual Framework

An understanding of the social determinants of health utilization are critical in explaining uptake of health insurance. In conceptualizing the general and specific objectives as well as the statement of problem the study, the researcher relied on Diderichsen et al., (2001) and Matthews (2015) who interpret the mechanisms of health inequality by considering the concept of social position. There was need to examine the mechanisms that play a role to stratifying health outcomes by determining the patterns of social stratification. In society, social contexts create social stratification, thereby assigning individuals to different social positions. Mathews (2015) underscores
socioeconomic status as a significant social influence on health and wellbeing. At the same time, wealth distribution in society also plays a part. According to Diderichsen et al. (2001), social stratification in turn causes differential exposure to health-damaging conditions and vulnerability in terms of health conditions and material resource availability. Social stratification as well determines discrepancies in ill-health consequences for disadvantaged groups, in economic and social outcomes and in health outcomes. Informal sector workers are assigned different social positions from those in the formal sector, which leads to health inequalities.

The premise of this study was that by understanding the interplay of demographic, socio-economic, and socio-cultural characteristics, one begins to understand the uptake of health insurance. The framework examined independent variables that influence the dependent variable as well as the intervening variables. These variables are presented in Figure 1.
Factors that facilitate the extension and scaling-up of health insurance can be divided into supply and demand. The study sought to examine the demand side. Whether individuals or even households were willing to buy health insurance was a factor of the perceived difference between the level of expected utility, with or without insurance (Kirigia et al., 2006).

The value attached to and demand for health insurance is influenced by knowledge of the full costs of health care and experience or knowledge of how and when health care costs become ‘catastrophic’. If one underestimates the high costs of health care and the likelihood of high-risk events, then uptake of health insurance would be lower compared to someone who is aware of the high costs of health care.
If people have limited understanding and acceptance of health insurance rationale, then uptake of health insurance would be negatively affected. Low-income earners may, therefore, initially be reluctant to join insurance schemes because they do not readily like the idea of ‘paying’ for services they might not use. This means that it is likely that if one joins a health insurance scheme, he/she would expect an equal return from his/her contribution or payment, rather than being guided by the idea of pooling. Individuals will insure if they perceive the benefits of insurance like access to better quality care higher than the cost related to not being insured.

Income provides individuals and families necessary material resources and determines their purchasing power. It can influence a wide range of material circumstances with direct implications for health besides having a cumulative effect over life’s course. Wang and Pielemeier (2012) associated low incomes with access to health care services. The variable income in this study was measured by considering the wage earnings of the informal sector workers. The rationale for considering income was that it allows access to services, which may improve health directly (such as health services) or indirectly (such as education). Considerations of workers’ income link to the statement of the problem in this study on why uptake of health insurance by informal sector workers is very low. It is presented as a likely barrier, thus forming one of the objectives of the study which sought to establish the relationship between income and enrolment into health insurance.

Even though demographic and socio-economic variables influence enrolment into health insurance programmes, certain variables mediate between the dependents and the independent variable. For instance, one could have income or awareness and
knowledge that can influence purchase of health insurance. Policy design and fund management explain the link between these variables. For instance, customer-oriented insurance scheme design features, particularly the benefit package, payment modes, and the enrolment basis can have an influence on people’s expected utility of health insurance. For the informal workers, inflexible collection schedules could constitute barriers to enrolling in health insurance schemes. Lack of credibility and trust in fund managers may negatively affect demand for health insurance. According to Panda et al., (2013), benefit package design, premium, and transparency affect people’s decision to enrol. These authors state that willingness to pay for health insurance can be positively affected if the scheme was transparent and relevant to poor people’s needs.

This study also considered that cultural norms and religious beliefs would affect the dependent variable – enrolment into health insurance. These were of the respondents. A person’s cultural background can have a profound impact on health care outcomes. For example, cultural norms against sex not only determine who can participate in the waged economy, but also what types of labour are considered to be of economic value. According to Dixon (2014), the relations of power between men and women create unequal access to and utilization of resources. Due to these relations, women are unlikely to contribute to household health care payments (Jain, 2012). In some cases, culture can also be a major constraint to accessing health insurance and health care. A study by Fenny, Kusi, Arhinful, and Asante (2016) on factors contributing to low uptake and renewal of health insurance in Ghana identified culture as a major constraint to access. The study findings showed that in some cases women sought for permission from their husbands before accessing health care or paying the premiums to the
National Health Insurance Scheme (NHIS). This is because culture demands that the husband provides the finances needed to access health care.

Religion can as well affect the decisions a person makes on their health care. This is because religious activities often constitute a significant part of individual identity and influence coping mechanisms as well as inform decisions about medical treatments. According to Linda and Christopher (2013), supporting patients’ religious beliefs may actually do harm by inadvertently encouraging a belief that illness is due to moral shortcomings. Irrespective of the health benefit of a certain action, religious convictions may affect health care decision-making, in this regard paying for health insurance.

2.8: Chapter Summary

In this chapter, the review of literature commenced on an examination of health insurance coverage from a global perspective, doing a comparison of both high- and low-income countries. The second section presented a review of how health care is accessed in Kenya and the health insurance approaches the country has adopted. The chapter also reviewed studies that looked at the relationship between socio-economic characteristics and enrolment into health insurance schemes. Too, three theories – the Health Belief Model, the Weberian Model of Social Stratification and the Rational Choice Theory – that guided the study were discussed. The final section was a presentation of the conceptual framework showing how variables in the study related. The next chapter presents the study design, sampling techniques, data collection, management and analysis.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents research design, site selection and the sampling procedures used in the study. It describes how the sample was determined as well as the tools and techniques of data collection. In addition, the chapter explains how data was managed and the analysis techniques used. The final section explains how ethical issues were handled.

3.2 Research Design

Cross-sectional survey design was used to collect data from informal sector workers across various sub-sectors. This design was used since it made it possible to collect data from a cross section of respondents at essentially one point in time (Sedgwick, 2014; Singleton and Straits, 2011). It was therefore possible to collect data from informal sector workers within a relatively short period. The other benefit of using the cross-sectional survey was that it allowed a study of a population with varied characteristics and hence made it possible to register multiple outcomes as well as infer causation (Mann, 2003). In addition, the cross-sectional survey design was suitable since the study was intended to establish the prevalence of certain characteristics amongst informal sector workers. Sedgwick (2014) states that a cross-sectional survey makes it possible to gather data from a pool of participants with varied characteristics and demographics. The design lent itself useful since it was quick, easy and cheap to perform, particularly with regard to interview schedules.
3.3: Site Selection and Description

The study was conducted in Nairobi and Machakos Counties specifically in Utawala and Nasra, and Tala respectively. The effect of an increasing population growth in an era of globalization was compounded by a rapidly increasing migration from rural areas to urban centres (Panwar and Gang, 2015). Urban labour force expanded faster than the employment generated in the urban sector of the economy. As such, urban centres could not provide employment to the whole workforce in the formal sector and so they were forced to look for opportunities in informal sectors of urban settlements. Being urban centres, the two sites attracted many people seeking formal employment. Besides, the two Counties had higher morbidity rates than the other counties. Even though not directly linked to informal sector workers, high morbidity could translate to high health care expenditures. In 2014, the outpatient morbidity rate in Machakos was 1,213,022, while in Nairobi it was 2,418,562, setting them among the counties with the highest morbidity rates (KNBS, 2015).

According to ILO (2017) Kenya’s unemployment rate was 11 per cent of the workforce by 2016 (See figure 6) while that of Nairobi was 18.5 per cent for those aged 15-64 years, while youth unemployment was 17 per cent by 2016. Faced with such high unemployment, most urban dwellers turned to vulnerable jobs in the informal sector. The informal sector witnessed an increase from 664,000 new jobs in 2013 to 859,000 new jobs projected for 2017 (Bogoev et al., 2016).

Nairobi covers 696 km² with a total population of 3,138,369. There are 1,605,219 males and 1,533,150 females (KNBS, 2010). The County is divided into four administrative districts: Nairobi West, Westlands, Nairobi East, and Nairobi North (see Map 1,
Appendix 3). The districts are further divided into eight locations: Kibera and Dagoretti (Nairobi West), Westlands and Central (Westlands), Embakasi and Makadara (Nairobi East), and Kasarani and Pumwani (Nairobi North). Nairobi County borders Machakos in the East and South East, Kiambu in the North, and Kajiado in the South and West (see Map 2, Appendix 3). Two sites (Utawala and Nasra) in Embakasi and Kayole locations respectively were selected through random sampling.

Machakos County has a population of 1,201,443 (KNBS, 2012). The County borders Nairobi and Kiambu Counties to the West, Embu to the North, Kitui to the East, Makueni to the South, Kajiado to the South West, and Murang’a and Kirinyaga to the North West. The County is composed of eleven Sub-counties: Kalama, Kangundo, Kathiani, Machakos Central, Masinga, Matungulu, and Mavoko. The others include Mwala, Ndithini, Yathui, and Yatta.

Out of the eleven sub-counties, Matungulu was purposively selected since it is part urban and part rural. The focus of the study was traders, matatu drivers and conductors, and construction workers. The urban setting was, therefore, ideal since it was where most members of this target group were found. The Sub-county covers an area of 634.3 km², has a population of 124,736 people (Appendix 1, Table 17), and ranked geographical distribution of the poor is 52.1 per cent (NEMA, 2010). The main economic activities are crop farming, sand harvesting, and stone mining. It has five administrative areas: Kyeleni, Matungulu West, Matungulu North, Matungulu East, and Tala. From these five, Tala was selected randomly as the study site. It covers an area of 34.10 km² and has a population of 26,297 people (KNBS, 2010).
3.4 Target Population

The target population comprised informal sector workers, hospital administrators and NHIF officials. Informal sector workers were drawn from six sub-sectors, namely: construction industry (building construction workers); market vendors (hardware sellers, second-hand clothes sellers, vegetable sellers); and the transport industry (matatu conductors and drivers and motorcycle operators). Those working in these sub-sectors had irregular incomes, a factor which could affect health outcomes, especially through access to the formal health sector. A report on informal employment in Kenya by Budlender (2011) indicated that for the country as a whole, the overall monthly income reported average was a little under 12,000 Kenya shillings (US$116.5, while for urban non-agricultural work it was over 18,500 Kenya shillings (US$ 179.6).

3.5 Sampling Procedures and Sample Size

The first part of this section demonstrates how the desired sample size was determined while the second part explains how the sample selection for the sub-sectors was done.

3.5.1 Sample Size Determination

In this study, the sample required was that which would estimate a proportion within an approximate 95 per cent confidence level (Sullivan, 2011). In this case, the formula for determining the sample size is:

\[ n = p(1 - p) \left( \frac{Z}{E} \right)^2 \]  \hspace{1cm} \text{Formula 1} \quad (\text{Sullivan, 2011})

where \( n \) = the sample size
\( Z \) is the appropriate \( z \) value for the desired level of confidence
E is the desired margin of error
\( p = \) is the sample proportion
and \( q = 1 - p \).

the confidence level = 95 per cent and therefore the \( z \) value = 1.96
the margin of error was set 0.05.
In this case,

\[
n = 0 \cdot 5(1 - 0 \cdot 5)\left(\frac{z}{E}\right)^2
\]

\[
n = 0.5(0.5)\left(\frac{1.96}{0.05}\right)^2
\]

\[
n = 384.2
\]

In order to ensure that the 95% confidence interval estimate of the proportion of informal sector workers was within 5% of the true proportion, a sample of 384 was required. The sample was shared equally to the five sub-sectors resulting to 76. This was then shared among the 3 sites, giving 25. Respondents for building construction were drawn from both Nasra and Utawala. Tala was not included since the site had little construction activity. Therefore, thirty-eight respondents were selected for the building construction sector in both Utawala and Nasra. Respondents from the other four sub-sectors were drawn from all the three sites (25 by 3 sites, multiplied by 4 sub-sectors = 300). Therefore, the sample respondents were 376.

The second category of respondents were 8 key informants selected purposively, while the third category was composed of seventy-two focus group participants.
3.5.2 Sample Selection

Sampling was through cluster and simple random sampling, and purposive techniques. To select a representative sample of informal sector workers, a two-stage cluster-sampling scheme was used.

In order to select the sample respondents, the researcher made visits to the sites for familiarization and identification of areas where respondents would be found. Construction workers were concentrated in residential areas while motor cycle riders were stationed at locations with a high number of passengers, that is, close to traders, at bus stops and outside supermarkets. Each point had a designated number of riders with a group leader. Market vendors were found along the main streets. Using the streets as boundaries, the researcher created clusters in each of the three sites (see Appendix 3).

Multi-stage cluster sampling was used to sample motorcycle riders. The designated points for the riders formed the clusters from which to draw the sample. At the first stage, the researcher listed the riders from the identified points with the assistance of the group leaders. There were 13 groups in Tala, 6 in Nasra, and 9 in Utawala. 128 riders were listed in Tala, 47 in Nasra, and 62 in Utawala. Stage two involved selection of clusters from which the sample was drawn. Simple random sampling was used to pick three clusters.

At the final stage, the total number of respondents from the motor cycle riders were selected proportionately in each sampled cluster. Twenty-six respondents were selected from each of the three study sites. The proportion of respondents from selected clusters
were 9, 8, and 9 for Tala; 9, 10, and 7 for Nasra; and 9, 11, and 6 for Utawala (Table 3.1). Individual riders were then selected through simple random sampling. Riders in the selected clusters were assigned numbers. A random number generator software was then used to select the sample.

**Table 3.1: Selection of motor cycle riders in Tala, Nasra, and Utawala**

<table>
<thead>
<tr>
<th>Site</th>
<th>Cluster</th>
<th>Population</th>
<th>Cumulative population</th>
<th>Percent</th>
<th>Selected respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tala</td>
<td>1</td>
<td>36</td>
<td>36</td>
<td>36</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>29</td>
<td>65</td>
<td>29</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>35</td>
<td>100</td>
<td>35</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Nasra</td>
<td>1</td>
<td>16</td>
<td>16</td>
<td>33</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>19</td>
<td>35</td>
<td>40</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>13</td>
<td>48</td>
<td>27</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>Utawala</td>
<td>2</td>
<td>9</td>
<td>9</td>
<td>36</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>10</td>
<td>19</td>
<td>40</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>6</td>
<td>25</td>
<td>24</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>173</td>
<td></td>
<td>75</td>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

Source: Field data (2015)

The sample for building construction sector was drawn from two sites, Nasra and Utawala. This was because there was very little building construction in Tala compared to Nasra and Utawala. Through simple random sampling, cluster 2 and 3 and 4 and 7 were selected in Nasra and Utawala respectively. The researcher traversed Utawala and Nasra estates to establish the active construction sites. Three construction sites were selected randomly and individual respondents selected proportionately as shown in Table 3.2.
Table 3.2: Selection of building construction workers in Nasra, and Utawala

<table>
<thead>
<tr>
<th>Site</th>
<th>Cluster</th>
<th>Sampled construction site</th>
<th>Population</th>
<th>Percent</th>
<th>Selected respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasra</td>
<td>2</td>
<td>2</td>
<td>10</td>
<td>15</td>
<td>6</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>8</td>
<td>12</td>
<td>5</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>21</td>
<td>32</td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>12</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>14</td>
<td>21</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>5</td>
<td>8</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utawala</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>11</td>
<td>4</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>11</td>
<td>15</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>18</td>
<td>25</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>2</td>
<td>10</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>23</td>
<td>32</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>138</td>
<td>76</td>
<td>76</td>
<td></td>
</tr>
</tbody>
</table>

Source: Field data (2015)

The primary sampling units for the market vendors were sides of market streets along the sampled clusters in Tala, Nasra, and Utawala. The interviewers went to the selected side of the clusters and drew a list of the vendors on the streets. This was during early morning when the vendors were setting their merchandise. The respondents were then selected proportionately as shown in Table 3.3.
Table 3.3: Selection of market vendors Tala in Nasra, and Utawala

<table>
<thead>
<tr>
<th>Site</th>
<th>Vendor</th>
<th>Cluster</th>
<th>Population</th>
<th>Percent</th>
<th>Selected respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tala</td>
<td>Vegetable Sellers</td>
<td>1</td>
<td>21</td>
<td>34</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>8</td>
<td>13</td>
<td>3</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>33</td>
<td>53</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hardware sellers</td>
<td>1</td>
<td>12</td>
<td>31</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>9</td>
<td>24</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>17</td>
<td>45</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second Hand Clothes</td>
<td>1</td>
<td>11</td>
<td>22</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>9</td>
<td>18</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>31</td>
<td>61</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Nasra</td>
<td>Vegetable Sellers</td>
<td>1</td>
<td>18</td>
<td>43</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>15</td>
<td>36</td>
<td>9</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>9</td>
<td>21</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hardware sellers</td>
<td>1</td>
<td>16</td>
<td>47</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>11</td>
<td>32</td>
<td>8</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>7</td>
<td>21</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second Hand Clothes</td>
<td>1</td>
<td>12</td>
<td>39</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>14</td>
<td>45</td>
<td>12</td>
<td>26</td>
</tr>
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<td></td>
<td></td>
<td>3</td>
<td>5</td>
<td>16</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Utawala</td>
<td>Vegetable Sellers</td>
<td>2</td>
<td>11</td>
<td>19</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>18</td>
<td>31</td>
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<td>26</td>
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<td>6</td>
<td>29</td>
<td>50</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hardware sellers</td>
<td>2</td>
<td>9</td>
<td>24</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>13</td>
<td>35</td>
<td>9</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>15</td>
<td>41</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second Hand Clothes</td>
<td>2</td>
<td>10</td>
<td>21</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>17</td>
<td>35</td>
<td>9</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>21</td>
<td>44</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>401</td>
<td></td>
<td>234</td>
<td>234</td>
</tr>
</tbody>
</table>

Source: Field data (2015)
Eight key informants were selected purposively (Table 3.4). They included the Operations Manager (NHIF headquarters), two NHIF branch managers (Machakos and
Buruburu), 2 benefits’ officers, and two officers in charge of Information Technology (Machakos and Buruburu), and the Human Resource Manager (Mama Lucy Kibaki Hospital).

Table 3.4: Selected Key Informants

<table>
<thead>
<tr>
<th>S/N</th>
<th>Key Informant</th>
<th>Station</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Operations Manager</td>
<td>NHIF Headquarters – Nairobi</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Branch Manager</td>
<td>Nairobi (Buruburu) and Machakos</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Benefits’ Officers</td>
<td>Nairobi (Buruburu) and Machakos</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>Information Technology Officer</td>
<td>Nairobi (Buruburu) and Machakos</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>Human Resource Manager</td>
<td>Mama Lucy Kibaki Hospital</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

Source: Field data (2015)

Seventy-two respondents for the Focus Group Discussion were also selected purposively in each of the three study sites. They were drawn from building construction, market vendors and the transport industry. At each site, there were three groups: those enrolled into health insurance schemes, those not enrolled, and a group of those enrolled and not enrolled. Each focus group had 8 participants.

3.6 Operationalization of Key Variables of the Study

This section presents the key variables of the study, their definition and how they were measured. The level of measurement of each variable is also spelled out in order to determine the method of analysis as represented in Table 3.5.
Table 3.5 Key Variables and Measurement Type

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable definition</th>
<th>Value</th>
<th>Level of measurement</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Number of years since respondent’s first birthday</td>
<td>Actual number of years at the time of survey</td>
<td>Interval</td>
<td>Mean, mode, chi-square, Cramer’s V, Principal Component Analysis</td>
</tr>
<tr>
<td>Sex</td>
<td>The state of being male or female</td>
<td>Male, Female</td>
<td>Nominal</td>
<td>Chi-square, Cramer’s V, Principal Component Analysis</td>
</tr>
<tr>
<td>Marital status</td>
<td>The condition of being married or unmarried</td>
<td>Married, single, divorced, separated, and widowed</td>
<td>Nominal</td>
<td>Chi-square, Cramer’s V, Principal Component Analysis</td>
</tr>
<tr>
<td>Level of education</td>
<td>The highest level of education successfully completed</td>
<td>Highest educational qualification</td>
<td>Ordinal</td>
<td>Chi-square, Cramer’s V, Principal Component Analysis</td>
</tr>
<tr>
<td>Income</td>
<td>Amount of money accumulated monthly</td>
<td>Estimated monthly disposable funds</td>
<td>Interval</td>
<td>Mean, chi-square, Cramer’s V, Principal Component Analysis</td>
</tr>
<tr>
<td>Dependants</td>
<td>The number of persons for whom the respondent is</td>
<td>Total number of people</td>
<td>Interval</td>
<td>Chi-square, Cramer’s V, Principal Component Analysis</td>
</tr>
<tr>
<td>Variable definition</td>
<td>Value</td>
<td>Level of measurement</td>
<td>Analysis</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>-------</td>
<td>----------------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>financially responsible</td>
<td>residing together</td>
<td></td>
<td>Component Analysis</td>
<td></td>
</tr>
</tbody>
</table>

**Dependent variable**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Level of measurement</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health insurance uptake</td>
<td>Use of prepayment financing mechanisms to protect against financial risk; improve access to healthcare</td>
<td>Nominal</td>
<td>Chi-square, and Principal Component Analysis</td>
</tr>
</tbody>
</table>

## 3.7 Data Collection Procedures

This section explains the tools and procedures that were used in data collection.

### 3.7.1 Tools of Data Collection

Two instruments were used for data collection – a structured interview schedule, a focus group discussion guide. The structured interview schedule targeted sample respondents and key informants. It was administered face-to-face and was therefore appropriate since it made it possible to examine the level of awareness and knowledge that the respondents had about health insurance. The focus group discussion guide was used in focus groups discussions.

Secondary data included review of relevant reports, theses, dissertations, books, and journals. Relevant government reports and policy documents were also reviewed to supplement the primary sources of data.
3.7.2 Data Collection Process

Five enumerators collected data. The criterion was that they needed to have previously participated in population-based surveys. They were trained for the surveys. The researcher and the five enumerators collected data from respondents by asking them questions and recording the responses. This was because some respondents had low levels of education hence there was need to clarify issues and record the responses.

The eight key informants were interviewed through an interview guide. The researcher recorded their responses through note taking and audio recording. The interview guide gave the researcher the opportunity to do in-depth questioning as well as use probes thus making it possible for the respondents to express their knowledge about health insurance in Kenya.

There were nine focus discussion groups of 8 participants. The discussions were done in order to do a detailed investigation on whether subscription to health insurance improved access to healthcare for those enrolled. Focus group discussions made it possible to capture lived experiences by the research participants as well as uncover aspects of understanding that otherwise would not have been possible through conventional in-depth interviewing method (Kitzinger, 1994, Lindlof and Taylor, 2002, Madriz, 2003). The focus groups were composed of both those enrolled and not enrolled in health insurance schemes. The discussions were held in hotel conference rooms in the study sites to avoid disruptions as well as create a relaxed and natural situation for the participants. The researcher collected the data through note taking and audio recording.
3.8 Validity and Reliability

A pilot study was conducted to establish whether the data collected met the objectives of the study. Data was collected from thirty-seven participants from two sectors: building construction and motorcycle riders in Ruiru, Kiambu County. This was guided by Hertzog (2008) who indicated that a pilot sample should be 10 per cent of the sample projected for the study. Data collected was analyzed to detect any flaws in order to revise the structured interview schedule appropriately.

Two reliability tests were conducted through SPSS: Cronbach’s Alpha and test-retest reliability test. For the first test for Cronbach’s Alpha statistics, the reliability coefficient was .5, which was a low level of internal consistency. After revision of the question items, the reliability coefficient was .7, an acceptable level of consistency (Christmann and Van Aelst, 2006; Fawcett, 2006; Field, 2009; Sijtsma, 2009). The test-retest reliability test had a strong positive correlation coefficient (r = .758) which was acceptable for this study.

To ensure validity of findings, the study used methodological triangulation by using different methods of data collection (Cohen, Morrison, & Manion, 2007). This was beneficial since it made it possible to collect more comprehensive data and provided confirmation of findings, ultimately increasing validity. Data was collected through interviews and Focus Group discussion. The sources of data were sample respondents, key informants, and three focus groups in each of the three sites. The first focus group included enrolled participants, the second unenrolled and the third one those enrolled and unenrolled. A blended qualitative and quantitative approach of data analysis was
used. The collected qualitative data complemented and clarified the quantitative findings by helping to identify common themes.

### 3.9 Data Management and Analysis

Enumerators submitted completed interview schedules to the researcher on a daily basis. Open-ended questions were coded and entered. Cleaning of data was done to check for completeness. At the end of each week, the research team entered collected data into the Statistical Package for the Social Sciences (SPSS) software version 21.0 for analysis. The final sample was 376.

The data from focus group discussions (FGDs) was recorded in fieldwork notebooks and audio-visual devices. Where necessary, transcription was done and then data was typed verbatim in the MS Word Computer software. This data were then subjected to thematic analysis. It was used to supplement data obtained through interviews.

Quantitative data was analyzed through descriptive and inferential statistics. Descriptive statistics were used to organize, summarize, and convey distribution of key variables. The statistics used were percentages, frequency distributions and contingency tables. The effect of the independent variables on the dependent ones was tested using inferential statistics - Pearson’s chi-square test of independence, Cramer’s V and Principal Component Analysis (PCA). The first step in quantitative data analysis was computing frequencies for the background and personal characteristics of the respondents in order to establish the various patterns that emerged. This made it possible to respond to the objectives of the study.
The second step in data analysis was hypotheses testing. The starting point involved establishing whether there was any association between the dependent variable (health insurance uptake) and the independent variables: gender, marital status, place of residence, media exposure and level of education. These variables were measured at both nominal and ordinal levels and therefore transformed into dummy variables with “1” indicating the presence of the characteristic being measured and “0” indicating absence. Age, monthly income, and number of dependants were measured at interval level. A cross-tabulation analysis was done. The Chi-square test of independence was used to test for relationships between variables while Cramer’s V was used to establish the direction and strengths of relationships between variables. The strength of the relationships was pegged on Cohen’s typology in which Cramer’s V values of .1 – .2 = very weak; .2 - .3 = weak; .3 - .5 = medium; .5 - .7 = strong; >.7 = very strong (Cohen, 1988). A Principal Component Analysis was performed to reduce the variables that were related to health insurance uptake to components that accounted for most of the variance in these variables.

Qualitative data were collected from focus group discussions and in-depth interviews. Reference was done to the interview guide to identify and differentiate between the questions and topics that would respond to research objectives. All the data from the transcript were organized and displayed into a chart in order to look at the responses to each specific question.

The second stage involved picking out ideas and concepts and organizing them into codes and categories. Various responses for a particular question were considered in order to identify the words or ideas that were in common. In the third stage, each of the
response categories was hinged to one or more associated themes. Different categories were discussed under one main over-arching theme.

During the fourth stage, the researcher used triangulation method. The first type of triangulation of data was from different sources (nine focus groups with a total of 72 participants; combining those enrolled and not enrolled in health insurance). The second triangulation was from different methods, that is, blending qualitative and quantitative methods. The same questions for the focus group discussions were answered through in-depth interviews and survey data. This was meant to corroborate the findings or establish whether there were inconsistent or conflicting findings. The final stage of analyzing qualitative data was to find possible and plausible explanations for the findings. The findings and themes were summarized and a comparison made to establish whether there were any differences or similarities with other related studies.

3.10 Ethical Considerations

The study was authorized by Kenyatta University Graduate School via reference C82/21363/10 (see Appendix 10) on 18th January 2014. The Kenyatta University Ethics Review Committee granted ethical approval for the study in February 2015, through protocol reference KU/R/COMM/51/399 (see Appendix 11). The National Council for Science and Technology and Innovation (NACOSTI) gave approval for the study on 29th February 2015 through a research permit number NACOSTI/P/15/1340/4602 (see Appendix 9). The research team members were also given a copy of the research permit and an introduction letter for use during fieldwork (Appendix 5).
Since the study involved human participants, it was conducted in accordance with the Declaration of Helsinki (The World Medical Association, 2008), and local regulations. There were no invasive procedures carried out and all the participants provided voluntary, written, informed consent before participation. Participants signed the consent forms after due explanation in a comprehensible language. The participants were assured of anonymity and confidentiality. Participants' privacy was duly respected and identities of people were protected (see consent form in Appendix 4). Confidentiality during the research process as well as in data management and storage was maintained. Only the persons involved in this study had access to the data. Individual names or identifiers were not used during data collection. This study targeted respondents and participants aged 18 years and above.

3.11 Chapter Summary

The chapter presented the study design, site selection, and target population. Sample size was determined through confidence level, which yielded 376 respondents. The respondents were selected through cluster and simple random sampling. Key informants and focus group participants were selected purposively. The tools for data collection were a structured interview schedule and an interview guide. Quantitative data was analyzed using SPSS through the Chi square test of independence, Cramer’s V, and Principal Component Analysis (PCA). Analysis of qualitative data was through thematic analysis. The following chapter presents data analysis and interpretation.
CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the background characteristics of the respondents. In the first section of the chapter, survey data were summarized and organized using descriptive statistics. The chi-square test of independence was used to test the study hypotheses while the strength of the association between variables was tested using Cramer's V. A Principal Component Analysis (PCA) was done to isolate the variables that accounted for the largest variation, thus best explaining health insurance uptake among informal sector workers. Qualitative data was analyzed to supplement the quantitative data. The following section presents the demographic and background characteristics of the respondents.

4.2 Demographic Characteristics of Respondents

This section presents and discusses the demographic characteristics of the respondents, which are presented in Table 4.1.
Table 4.1: Background and demographic characteristics of respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 – 24</td>
<td>84</td>
<td>22</td>
</tr>
<tr>
<td>25 – 29</td>
<td>67</td>
<td>18</td>
</tr>
<tr>
<td>30 – 34</td>
<td>89</td>
<td>24</td>
</tr>
<tr>
<td>35 – 39</td>
<td>48</td>
<td>13</td>
</tr>
<tr>
<td>40 – 44</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>45 – 49</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td>50 – 54</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>55 – 59</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>60 – 64</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>376</td>
<td>100</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>253</td>
<td>67</td>
</tr>
<tr>
<td>Female</td>
<td>123</td>
<td>33</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>376</td>
<td>100</td>
</tr>
<tr>
<td><strong>Educational Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary and below</td>
<td>128</td>
<td>34</td>
</tr>
<tr>
<td>Secondary</td>
<td>166</td>
<td>44</td>
</tr>
<tr>
<td>Tertiary College</td>
<td>79</td>
<td>21</td>
</tr>
<tr>
<td>University</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>376</td>
<td>100</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>237</td>
<td>63</td>
</tr>
<tr>
<td>Single</td>
<td>122</td>
<td>32</td>
</tr>
<tr>
<td>Divorced</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Separated</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Widowed</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>376</td>
<td>100</td>
</tr>
<tr>
<td><strong>Number of dependants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 - 2</td>
<td>246</td>
<td>67</td>
</tr>
<tr>
<td>3 - 5</td>
<td>113</td>
<td>31</td>
</tr>
<tr>
<td>6 - 8</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>9 and above</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>*366</td>
<td>100</td>
</tr>
<tr>
<td><strong>Monthly income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 – 9,999</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>10,000 – 19,999</td>
<td>186</td>
<td>50</td>
</tr>
<tr>
<td>20,000 – 29,999</td>
<td>129</td>
<td>35</td>
</tr>
<tr>
<td>30,000 – 39,999</td>
<td>32</td>
<td>10</td>
</tr>
<tr>
<td>40,000 – 49,999</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>*368</td>
<td>100</td>
</tr>
<tr>
<td><strong>Enrolment into health insurance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>55</td>
<td>15</td>
</tr>
<tr>
<td>No</td>
<td>321</td>
<td>85</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>376</td>
<td>100</td>
</tr>
<tr>
<td><strong>Type of health insurance scheme enrolled in</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>37</td>
<td>67</td>
</tr>
<tr>
<td>Private</td>
<td>18</td>
<td>33</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>55</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field data (2015)  *The difference in N was due to nonresponse
Out of the 376 respondents, 67 per cent (253) were male while 33 per cent (123) were female. The finding does not reflect the national demographic trend from the 2009 census. In all administrative units of Kenya, census data indicates that male: female ratio was almost 1:1. According to KNBS and ICF Macro (2010), in Nairobi, males were 1,605,230 (51%) and females 1,542,366 (49%).

The large difference within sex in this study was as a result of some male-dominated sub-sectors in the sample like building construction, hardware, and motorcycle operators. Mitullah and Wachira, (2003:26) established that the construction sector in Kenya was dominated by males. They stated that “women’s role on construction sites is limited to selling affordable food to workers.”

As shown in Table 4.1, the range of the respondents’ age was 44 years with the youngest at 20 and the oldest at 64 years while the mean age was 29. In order to show patterns in respondents’ age, the data were organized in a frequency distribution of nine clusters. Twenty-four percent of the respondents were in the 30-34-year age category (89 respondents) and constituted the bulk of the sample. Two hundred and forty of the three hundred and seventy six respondents (64%) were below the age of thirty-four years.

This is typical of Kenya’s age structure, which has a young population (see Figure 8, Appendix 2). This finding compares with the national figures drawn from the 2009 census. For instance, the Kenya National Health Accounts 2009/2010 Report (KNBS and ICF Macro, 2010) indicates that individuals under 20 years of age account for about 60 per cent of the population. A young age structure implies high dependency ratio for low-income countries (Lori, 2007). According to a UN Report (United Nations, 2013:
18), “…the younger population accounts for the large majority of the world dependent-age”. When this scenario is coupled with high levels of poverty in Kenya, it could affect uptake of health insurance.

The study collected data on respondents’ marital status by offering them five choices to select one: married, divorced, separated, never married, and widowed. Frequencies in Table 4.1 show that out of the 376 respondents, 63 per cent were married, 32 per cent single, 1 per cent divorced, 2 per cent separated, and 2 per cent widowed. Marital status had a significant influence on enrolment in health insurance as established by Boateng and Awunyor-Vito (2013) that being married was associated with having a health insurance cover compared to not being married and formerly married. A plausible suggestion was that having a spouse or partner was beneficial possibly because of the financial support resulting from being in a dual-income household. Marriage offered more opportunities for accessing health insurance cover or a spouse or partner could be insured through the other’s insurance cover.

Respondents’ level of education was captured by asking them to state the highest level of education achieved. For analysis purposes, this was treated as a categorical variable and it was coded into: primary and below, secondary, tertiary college and university levels. The modal class on respondents’ level of education was secondary school level (44%) while 34 per cent had primary level of education and below. This picture is not very different from the national outlook since the 2012/2013 Kenya National Housing Survey Report indicates that the proportion of those whose highest level of education at primary level was 32 per cent (GoK, 2014).
Results from the 2012/2013 Housing Survey show that 23 per cent of the urban population had post-secondary level of education; a proportion similar to the study sample (22 per cent). Matthieu (2014) established similar trends in Kirinyaga County of Central Kenya, the average years of school at 8 years of education among the respondents. In addition, a report by KIPRA (2013) established that access rates at secondary and tertiary education were still low. The report revealed that learning outcomes at the secondary school level were still weak, with about 70 per cent of KCSE candidates failing to achieve C+, while transition to university was below 40 per cent.

Level of education had implications on other social characteristics like income and ability to purchase health insurance. Higher levels of education would guarantee higher incomes and better understanding and appreciation of health insurance. Limited understanding and acceptance of health insurance could make the informal sector workers reluctant to enrol in health insurance schemes (Mathauer, Schmidt, and Wenyaa, 2008).

In order to measure income levels, respondents were asked to estimate their monthly earnings. Their estimates on monthly income ranged between KSh 6,000 and KSh 48,000, with half (50%) earning between KSh 10,000 – KSh 20,000. The monthly income for the respondents did not vary widely since the mean monthly income was KSh 19,619. Majority of the respondents’ income was positioned close to the mean monthly earning of KSh 19,619. The incomes for the sub-sectors is presented in Table 4.2.
Table 4.2: Income distribution within sub-sectors

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Monthly Income (in KSh)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 - 9,000</td>
<td>10,000 - 19,000</td>
<td>20,000 - 29,999</td>
<td>30,000 - 39,999</td>
<td>40,000 - 49,999</td>
<td></td>
</tr>
<tr>
<td>Hardware</td>
<td>1</td>
<td>42</td>
<td>27</td>
<td>2</td>
<td>3</td>
<td>75</td>
</tr>
<tr>
<td>Vegetable sellers</td>
<td>7</td>
<td>36</td>
<td>21</td>
<td>10</td>
<td>1</td>
<td>75</td>
</tr>
<tr>
<td>Second hand clothes</td>
<td>4</td>
<td>46</td>
<td>18</td>
<td>7</td>
<td>0</td>
<td>75</td>
</tr>
<tr>
<td>Motor cycle operators</td>
<td>4</td>
<td>50</td>
<td>18</td>
<td>2</td>
<td>1</td>
<td>75</td>
</tr>
<tr>
<td>Building construction</td>
<td>1</td>
<td>11</td>
<td>48</td>
<td>16</td>
<td>0</td>
<td>76</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>185</td>
<td>132</td>
<td>37</td>
<td>5</td>
<td>376</td>
</tr>
</tbody>
</table>
The distribution in Table 4.2 reveals that incomes among the sample respondents was not evenly distributed. Workers in the building construction sector earned more than the rest. Twenty-one percent of those in this sector earned between KSh 30,000 – 40,000 and 63 per cent KSh 20,000 – 30,000. There were more workers from the other sub-sectors earning between KSh 10,000 – 19,000 compared to those in building construction. For instance, 61 per cent were selling second hand clothes, 48 per cent vegetables, 67 per cent of the motor cycle riders, and 56 per cent selling hardware.

This unequal distribution of incomes reflects the economic dimension of the Weberian Model of Social Stratification. The distribution determines the relationship between individuals and public services. Those on lower incomes are likely to buy goods and services that negatively affect their health. Income was an important variable in this study since it influenced health insurance uptake. The fact that societal members were stratified, variations in health and wellbeing exist, which were significantly influenced by social and economic inequality.

Other studies have also found that income influenced enrolment into health insurance schemes. For instance, Kimani et al., (2012) established that low participation of individuals in the informal sector in health insurance programmes was attributed to a number of factors, including low and non-regular incomes. Adebayo et al., (2015) conducted a study on factors affecting uptake of health insurance and established that low levels of income and lack of financial resources were some of the major factors affecting enrolment in health insurance programmes. Ability to pay monthly premiums influenced demand for health insurance. Lack of purchasing power and low incomes inhibited many people from enrolling in health insurance schemes. Mathauer et al.,
(2008) established disparities in influence of income on demand for health insurance. Though higher income quartiles were more likely to be covered by a health insurance scheme, some schemes, especially community-based ones, attracted low-income earners (Waekens in Mathauer et al., 2008, Xu et al., 2010).

The number of dependants a respondent had was considered important since it could either influence or be a barrier to enrolment. In this study, respondents were asked to state the number of dependants they had. Responses were tabulated through a frequency distribution of four classes as presented in Table 4.1. The modal category for respondents’ number of dependants was 0 - 2 (67%) followed by that with 3 - 5 dependants (31%). Each of the last two categories (6 – 8 and 9 and more) had 1 per cent of the respondents. Households with many dependants were likely to have their resources strained and this could imply that households did not insure due to high health costs. In other words, families with many dependants and low income could find it hard to put money aside to pay for health insurance premiums. This was explained from the perspective of the Rational Choice Theory whereby one makes a choice between buying health insurance and meeting the needs of dependants against a low income. The number of dependants has been positively correlated with health insurance uptake. Bending and Arun (2011) found that in Sri Lanka, the number of dependants influenced enrolment into health insurance schemes. Dror et al. (2016) established that, among other factors, household size was positively associated with health insurance member renewal decisions in low-and middle-income countries.
Data on gender was gathered from respondents in five sub-sectors of the informal sector: building construction workers, hardware sellers, second-hand clothes sellers, vegetable sellers, and motorcycle operators. The findings are presented in Figure 2.

Figure 2: Respondents’ Sub-Sector and Gender

Out of a total of 76 respondents in building construction sub-sector, 65 per cent (49) were male while 35 per cent (27) were female. The study findings, however, differ with Mitullah and Wachira (2003) who stated that the building construction industry was male-dominated. Women were increasingly undertaking jobs previously dominated by men. This could be explained by the fact that the family setup had been changing over time with one-parent households on the increase (Marilyn and Lawrence, 2014). These authors established that by the 20th century, family demographics had shifted,
especially with the rise in single-parent households, with 16 percent of children under the age of 18 by 2010 living in single-parent households worldwide. In both Nasra and Utawala, women respondents in building construction industry were limited to paintwork and window pane fittings, construction activities which were less strenuous compared to those undertaken by men. Male respondents operating motorcycles were 73 while female operators were only two. The hardware sub-sector had 68 per cent (51) males while 32 per cent (24) were females. The second-hand clothes sellers had more males than females – 67 per cent and 33 per cent respectively while males were fewer (38 per cent) among the vegetable sellers compared to females (62 per cent).

Cultural norms about sex not only determined who could participate in the waged economy, but also what types of labour were considered to be of economic value. According to Dixon (2014: 91), “the relations of power between men and women…may create asymmetry in economic outcomes, which in turn creates unequal access to and utilization of resources”. In many cases, men were still regarded as household decision-makers and, at times, the husband had access to his wife’s financial income. Due to these relations between men and women within the household, women were unlikely to contribute to household health care payments (Jain, 2013). These gendered social relations had major implications for health outcomes since women had greater need for health care services, more so due to reproductive related functions. This view was advanced by Wheeler, Foreman, and Rueschhoff (2013) who stated that women accessed the health care system more than men, both for themselves and on behalf of their children. Material deprivation would, therefore, mean poor access and utilization of health care services for women.
4.3 Status and patterns of enrolment into health insurance schemes by informal sector workers

This section responds to the first objective, which was to examine enrolment status and patterns into health insurance schemes by informal sector workers. Data were collected on enrolment status of informal sector workers in health insurance schemes by establishing how many of the respondents were enrolled and if enrolled, the type of scheme (public or private) they had enrolled in.

From Table 4.1, enrolment in health insurance was low within the target population since only 55 respondents (15 per cent) out of 376 were enrolled in health insurance schemes while 321 (85 per cent) were not. This finding was similar to past studies. For instance, Kimani et al., (2012) established that 10 per cent of slum dwellers in Nairobi were enrolled in NHIF while 0.08 per cent had private health insurance. Slum dwellers are highly comparable to informal sector workers in terms of socio-economic characteristics (UN-HABITAT, 2006).

The National Hospital Insurance Fund (NHIF) was popular compared to private insurers. Sixty-seven per cent of the enrolled respondents were in public health insurance schemes while 33 per cent had private health insurance. Most of the study findings were therefore based on respondents’ opinions regarding NHIF since even respondents with a private health insurance cover were not principal members. Out of the total enrolled, 78 per cent were the principal contributors to the insurance scheme.

Higher enrolments in NHIF compared to private health insurers were not unusual since the monthly premiums paid to public health insurance schemes were comparatively
lower than those charged by private health insurance ones. For instance, the monthly premiums paid by informal sector workers to the public health insurance scheme (NHIF) was KSh 500 per month. Jubiliee Health Insurance (a private health insurer) had a range of products with the lowest in-patient category known as “Classic” attracting a premium of KSh13,600 and KSh 11,400 for the principal and spouse respectively per annum (see Table 21, Appendix 1). For this private insurer, a member paid separately for the outpatient cover at the rate of KSh 18,800 per person for those aged 40 years and below with higher premiums as a member’s age advanced.

The low enrolment rates observed in Table 4.1 mirrors the wider global picture more so in low income countries. Doorslaer, O'Donnell, and Wagstaff (2013) argued that in Philliphines the informal sector accounted for more of the uninsured than any other group. In their study on challenges to extending universal health cover, only 33 per cent of eligible persons in the informal sector were covered by 2012 under the Individually-Paying Programme (IPP). This finding was supported by a key informant who indicated that NHIF had not enrolled many informal sector workers:

*Enrolment of informal sector workers into NHIF is still low. One of the challenges is lack of knowledge on NHIF and health insurance in general. Besides, there is the perception that NHIF is meant for salaried people. These, among other challenges, has made it difficult for us in NHIF to meet our enrolment targets (Key Informant, NHIF headquarters)*

According to the Health Belief Model adopted in this study, individual characteristics including structural variables could affect perceptions of health related actions (Carpenter, 2010). Structural variables include lack of knowledge about health insurance benefits, which could increase perceived barriers towards enrolment into health insurance by informal sector workers.
This study sought to find out why some participants were enrolled while others were not enrolled into health insurance schemes. Results presented in Table 4.3 show varied reasons for enrolment into health insurance programmes.

Table 4.3: Reasons for enrolling in health insurance

<table>
<thead>
<tr>
<th>Reasons for enrolling into health insurance schemes</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>24</td>
<td>44</td>
</tr>
<tr>
<td>Cushion from health care expenditures</td>
<td>15</td>
<td>27</td>
</tr>
<tr>
<td>Affordable</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Many dependants</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Field data 2015

Out of the 55 respondents enrolled in health insurance, 44 per cent indicated that the schemes made it convenient for them to seek for health care services. This was because they were assured of receiving health care services as long as they belonged to a health insurance scheme. Another 27 per cent stated that health insurance cushioned them from the effects of out-of-pocket expenditures. A further 16 per cent indicated that they had enrolled in health insurance since the premiums charged by the scheme were affordable. This category was enrolled in the National Hospital Insurance Fund (NHIF), and preferred paying the monthly premium to paying for health care services at the point of service.

The study established that though enrolment into health insurance schemes by informal sector workers was low, there was willingness to enrol. Unenrolled sampled respondents and those from focus groups were asked whether they were willing to enrol
into health insurance schemes. Sixty-eight percent of the sampled respondents were willing to buy health insurance as long as they were made aware of the benefits of a health insurance cover.

Participants in the focus group discussions gave varied reasons for not enrolling in health insurance programmes. Both enrolled and unenrolled participants from Tala said that they did not get value for their money from accredited health care facilities. They observed that at times when they sought for health care, some services were unavailable. Lack of drugs was a major concern by participants. An insured participant stated thus:

*I was required to buy some theatre requirements including drugs. The hospital informed me that they could not operate me until I bought them. As a member of NHIF, I had expected that all the costs would be catered for by the insurer (Insured participant from Tala).*

Another insured participant stated thus:

*Even though NHIF enables me to access health care services, the monthly contribution I make should enable me get any service that I require. I could as well pay (meaning paying at point of service) to be treated in a hospital that has all the services (Insured participant from Tala).*

A key informant from Mama Lucy Kibaki Hospital confirmed that at times both insured and uninsured patients raised concerns on access to health care services. He however pointed out that more often than not, some cases like delayed supplies of drugs were beyond the control of the health care facility. The Kenya Medical Supplies Authority (KEMSA) at times failed to supply drugs to public health care facilities. He offered the following:

*When health care in Kenya was devolved, the relationship between health care facilities and KEMSA has not been smooth as it was with the national government. Various counties still owe KEMSA and this has made (KEMSA)*
stop supplying drugs regularly. We are supposed to get supplies four times a year but then at times a hospital gets one supply per year due to factors beyond their control. After consultation with the doctor, a patient who fails to get drugs from the pharmacy then rates our services as poor. This can deter patients from enrolling into NHIF or fail to renew.

All participants felt that when the accredited health care facility did not offer certain services, there was no need to own health insurance. Two issues emerged from the participants statements. Respondents lacked knowledge on health insurance cover. More importantly, lack of certain health care services covered by the health care insurer, especially in public health care facilities, discouraged informal sector workers from enrolling.

Participants felt that procedures for enrolment and uploading of monthly contributions were cumbersome. These processes had hindered some participants from enrolling into health insurance programmes. Enrolled participants explained that they paid their contributions either through depositing in the funds bank account or through a check-off system. Only matatu conductors from two Savings and Credit Co-operative Organizations (SACCO) in Tala used the check-off system since they were paid on monthly basis.

Participants paying monthly premiums through direct banking claimed that sometimes they lacked time to visit the bank due to their busy schedules, especially for the motorcycle taxi riders. They stated that the nature of their work could not allow them time to make deposits, thereby occasioning default in NHIF monthly contributions. A motorcycle taxi rider explained thus:

*Our work is very competitive since we are very many (riders). Every minute you are on the lookout for passengers. We hardly have time to spare...otherwise, you are paid on commission basis at the end of the day. It is difficult for me to spend*
This sentiment is supported by the Health Belief Model whereby perceived inconveniences in terms of time and lost earnings can deter informal sector workers from buying a health insurance cover (Glanz & Bishop, 2010). Besides, those already enrolled were likely to default on monthly contributions and risk paying penalties or missing out health care services.

The study established that religion and cultural norms hindered enrolment into health insurance schemes for some informal sector workers. Some participants in the focus groups indicated that they could not buy health insurance since their religion did not advocate seeking for health care. They sought for divine intervention when they or either of their family members fell ill.

*I do not require a health insurance cover since I do not have to go to hospital when I am sick. My faith does not allow us to seek for health care from the hospital or any other source. When a member of my church falls sick, we are prayed for since we believe that healing comes from God* (Uninsured participant from Utawala)

This finding compares with Adams and Leverland (2006) who did a study on the effects of religious beliefs on the health care practices of the Amish. The study established that the religious and cultural beliefs of the Amish resulted in many health care beliefs and practices significantly different from the dominant American culture. For example, the Amish are exempted from social security and they reject health insurance coverage.

Participants lacked information about how to enrol, what fees would be charged, and how to make payments. Some participants noted that there were difficulties in obtaining
clear information about health insurance and particularly from the insurers. According to participants, this led to low enrolment into health insurance programmes:

*Health insurance is not easily available to those willing to enrol and this could be a reason why most people do not pay (meaning enrolling); you ask some of my colleagues and they don’t know where to do it (registration) or with whom to do it. I think there needs to be more publicity...* (Enrolled participant in Utawala)

This was a surprising finding considering that health insurers have been conducting awareness campaigns through media advertisements. This finding does not augur well for the efforts by health insurers to target informal sector workers. For instance, in 2015, the National Hospital Insurance Fund (NHIF) targeted to increase enrolment of informal sector workers to 12 million subscribers (NHIF, 2014).

Monthly premiums to health insurance schemes could be made through mobile money banking. The study found that not all enrolled participants in Utawala and Nasra were aware that monthly premiums to NHIF could be done this way, which was an easier and convenient option available to them. This service attracted a transaction charge of KSh 22 for voluntary contributors and the self-employed. Besides, one could contribute upfront for any number of months. This was yet another indication of lack of knowledge on health insurance schemes and this could deter those in the informal sector from enrolling in health insurance. This was not an unusual finding since public knowledge on basic health insurance concepts seemed to be low globally even among the insured (Linder, Sharon, Genevieve, & Dana 2013).

Some respondents and participants alike were skeptical about management of health insurance fund. Others were not comfortable with entrusting their money to health insurance schemes citing a low probability of seeking for healthcare services through
health insurance or possibilities of fund embezzlement. This discouraged some informal sector workers from enrolling into health insurance programmes.

Though the National Hospital Insurance Fund (NHIF) was popular compared to private and community-based health insurance schemes, lack of knowledge had implications towards enrolling the informal sector into health insurance. This is bearing in mind that the Kenyan government by then had not initiated social protection programmes to ensure access to affordable and quality health care for all citizens irrespective of their socio-economic status. In this regard, health insurance remained one of the key approaches to achieving universal health care.

In addition, perception about fund management was a factor that affected enrolment into health insurance schemes, particularly the National Hospital Insurance Fund (NHIF). Respondents’ confidence in the scheme would greatly make it more attractive to those unenrolled as well as those enrolled to continue paying their monthly premiums. This outcome is congruent with the Health Belief Model that perceived barriers (lack of knowledge and perceptions on the inconveniences of the process of enrolment) affect health insurance uptake.

In the next sub-section, the study sought to establish respondents’ level and source of awareness of health insurance.

**4.4 Awareness of Health Insurance Benefits by Informal Sector Workers**

The second objective of this study was to measure the level of awareness of informal sector workers of the benefits of having a health insurance cover. Awareness of health
insurance is a significant determinant of the demand for health insurance products by informal sector workers (Bhavesh, Rani, Gaurang, Kenan, & Bansal, 2013). According to Acharya et al., (2012), lack of awareness of health insurance could lead to very low participation among the informal sector workers.

The study sought to establish whether the targeted respondents had the basic understanding of health insurance and the knowledge of insurance benefits. Out of the 376 respondents, 84 per cent had awareness of health insurance. Despite the high levels of awareness, only 17 per cent of them had a health insurance cover. The study sought to find out if respondents knew the specific services for which they were covered. Respondents who reported having a health insurance cover in the survey were asked whether the policy provided benefits for each of four services: hospitalization, outpatient physician visits, outpatient prescription drugs, and dental services.

The study established that respondents were accurate in reporting their hospital care cover but were less knowledgeable about their cover for outpatient services. From the respondents who had reported that they had a health insurance cover, 98 per cent were accurate in reporting that their insurance provider covered hospitalization, the service mostly covered by health insurance. The respondents, however, were not knowledgeable about outpatient physician visits and outpatient prescription drugs with 41 per cent and 29 per cent respectively reporting correctly. All insured respondents lacked knowledge on dental cover.

An analysis of the association between respondents’ background characteristics and awareness of health insurance was done. Awareness of health insurance within gender
showed there was no difference between male and female respondents since 85 per cent and 82 per cent of males and females were aware of health insurance. Levels of awareness were also high for both males and females at the three study sites. For males, it was 67 per cent, 93 per cent, and 95 per cent in Utawala, Nasra, and Tala. For females, levels of awareness were 78 per cent in Utawala, 77 per cent in Nasra, and 95 per cent in Tala. The findings collaborated those by Namuhisa (2014) that gender, among other variables, was not a significant factor influencing awareness of the respondents about health insurance.

Awareness within the sub-sector and by marital status was similarly high. Levels of awareness of health insurance within the sub-sector, were 91 per cent for respondents in hardware, 89 per cent for building construction workers and 87 per cent for motorcycle taxi riders. Respondents in the second-hand clothes and vegetable sub-sector had their levels at 76 per cent and 77 per cent respectively. Awareness across marital status was 87 per cent for married respondents, 79 per cent for single, 70 per cent for separated and 83 per cent for widowed.

These results reflect the findings of a study done by Mulupi et al., (2013) on community perceptions of health insurance in the central part of Kenya. The study established that there was high awareness of health insurance schemes. The situation seemed remarkably different from that of other developing countries. For instance, Jangati (2012) conducted a study of awareness of health insurance among residents of Hyderabad City in India’s Telagana State. The findings showed that 65.5 per cent of respondents had no awareness of health insurance while 22 per cent and 11.5 per cent of males and females respectively were aware about health insurance. Bappenas (2013)
reported that about a quarter of the informal workers in Indonesia had never heard of any of their country’s health protection programmes.

This study tested the first hypothesis, that there was no relationship between awareness of health insurance and enrolment into health insurance. The results are presented in Table 4.4:

**Table 4.4: Enrolment into health insurance through awareness**

<table>
<thead>
<tr>
<th>Enrolled</th>
<th>Awareness of health insurance</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aware</td>
<td>Not aware</td>
</tr>
<tr>
<td>Yes</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>No</td>
<td>81.2%</td>
<td>18.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>84.0%</strong></td>
<td><strong>16.0%</strong></td>
</tr>
</tbody>
</table>

**Pearson Chi-Square**  \(\chi^2 (1, n = 376) = 12.97, p < .001\)

**Cramer's V**  \(.183\)

The results from Table 4.4 show that the relationship between awareness and enrolment was significant, \(\chi^2 (1, n = 376) = 12.97, p < .001\). However, the association was weak, \(V = .183\). This finding was congruent with other studies which demonstrated that low participation in health insurance schemes by individuals in the informal sector was attributed to, among other factors, lack of awareness (Kimani et al., 2012). Meng et al., (2011) conducted a descriptive scoping review to identify the strategies implemented for expanding health insurance cover, increasing awareness of schemes and their benefits through mass media being a key strategy. Jean, Walburga, Joel, and Jean (2013) argued that low involvement in health insurance schemes by informal sector workers in Douala, Cameroon, was due to low levels of awareness. Acharya et al.,
claim that there is strong evidence to suggest that awareness of health insurance was one of the non-financial barriers to health care.

This study went further to establish the level of awareness of the benefits of a health insurance cover from insured respondents in the focus groups by comparing responses to questions about the services covered by their insurance scheme and the benefits. Some participants were not aware that the scheme was meant for people in permanent employment as well as those in informal sector. In particular, it emerged that knowledge on NHIF was very limited:

*The knowledge on NHIF by the public is very limited...the understanding of health insurance by Kenyans is not very good. At one point, we used community health workers and community leaders to sensitize the public on the benefits of having a health insurance cover. We cannot turn away patients even when they have no money (Key informant, Mama Lucy Kibaki Hospital).*

Participants admitted that many informal sector workers, even amongst their peers, lacked knowledge of health insurance:

*There are so many colleagues here at Tala who do not know the benefits of health insurance. It was a requirement for us to join NHIF through our SACCO and therefore some of us do not understand much about health insurance...others are not even aware about its existence and these are the majority not enrolled in health insurance. We have others interested but do not know how to enrol (male participant from group of enrolled- Tala)*

Key informants supported the view by participants of the focus groups that informal sector members lacked knowledge of health insurance:

*The knowledge of Kenyans about NHIF and health insurance in general is very low...Besides, there is the perception issue...people feel that NHIF is meant for salaried people. These, among other challenges, has made it difficult to meet our enrolment targets (NHIF manager).*
Lack of knowledge on health insurance was common in many other parts of the globe. Linder et al., (2013) conducted a study on public understanding of basic health insurance concepts and established that knowledge was particularly low among the currently uninsured. Even among the insured, only 40 per cent were somewhat confident that they understood all the insurance terms that the survey asked them about. Low levels of knowledge were noted in Indonesia (Bappenas, 2013) where only about 38 per cent of the informal workers were aware of the enrolment procedures into a health protection programme. Even members of health protection programmes showed significant knowledge gaps regarding the benefit packages (outpatient services, inpatient care) that they were entitled to. In Kenya, Mulupi et al., (2013) established that there was very limited understanding of health insurance among community members, particularly related to the concept of riskpooling.

Some participants did not understand the concept of health insurance in general. This was so because some of them had expectations of getting a refund of the contributions they have made at the end of a year in the event that they did not seek for health care services:

*Health insurance is good since when members of my family or I fall sick, I am assured of healthcare services. At times one has no money to spend when they fall sick. However, what happens when I do not get sick within a year? I should be paid back the money I have contributed at the end of the year whenever I do not fall sick (Insured participant, Tala)*

*If I have been contributing as self-employed and I happen to get a job (meaning formal employment), should I be submitting my contribution through my employer. What would happen to my earlier contributions? Can I request for a refund? (Insured participant, Nasra)*.
There was very limited knowledge about benefit packages among participants. They did not understand why there was a need for exclusion of healthcare services from the benefit packages. They felt that unless health insurance providers offered a comprehensive cover, there was no need of having a health insurance cover:

*It does not matter what I am suffering from. I do not understand why I should be told by the hospital that there are certain diseases not covered by my insurer. It would be better to pay myself (meaning out-of-pocket) when I need health care. I can go to the provider of my choice and get the services to my satisfaction* (insured respondent, Utawala)

Knowledge on healthcare benefits which participants were entitled to was very limited. During the study period, NHIF paid a rebate to service providers who had provided services to members. The rebate was a reimbursement rate payable to contracted providers based on their types of contracts. Up to June 2015, hospitals were reimbursed for providing in-patient services to members. In government - public health facilities under contract category A, all services were covered by NHIF except for referral hospitals; in contract category B, (Small private and Faith-based hospitals), all services were covered but the patient co-paid on surgery. Contract category C was for private hospitals and larger Faith-Based-Organizations (FBOs). The benefit package for contract category C was a daily bed rebate only (Deolitte, 2011). Participants were not familiar with these contract categories since they felt that the health insurer should cater for all bills incurred at any visit to a healthcare facility. One participant said:

*...even though having a health insurance is useful, NHIF should cover for all services without exclusion...I was involved in an accident and admitted at a private hospital in Machakos (a contract B accredited NHIF facility) for 13 months. NHIF catered for some bills including the bed...I was however required to pay when I was taken to theatre to have my leg operated yet I contribute to NHIF* (Insured participant from Tala)
These sentiments demonstrated that there was lack of knowledge on the type of contract categories that NHIF entered with specific hospitals. This finding reflects other studies that had established that it was not only informal sector workers but also those in formal employment that had limited knowledge on health insurance (Jean et al., 2013). Warren and Bellows (2014) established that in low-income countries, lack of awareness was one among other non-financial barriers to enrolment in health insurance. A study by the Rockefeller Foundation (2013) also observed that enrolment–uptake declined with less awareness and trust in public programmes. Mathauer et al., (2008) stated that in Kenya, the most important factor preventing enrolment was informal workers’ lack of awareness about health insurance. Matthieu (2014) established that by 2014, only 10 per cent of the Kenya population was covered by the NHIF. Results from other studies also confirmed that Kenya has a very large uninsured population (see Chacha, 2012) – with only 18 per cent of the population enrolled in health insurance schemes.

Information dissemination and sensitization of informal workers is critical to influencing their willingness to pay the premiums. This argument is supported by the Health Belief Model, which suggests that a cue is necessary for engagement with health-promoting behaviour. Carpenter (2010) argued that an external cue like information from those close to one, or the media or a health care provider could promote engagement in health-related behaviour. In Ghana, it was common that district mutual insurance schemes organized sensitization exercises in the communities to increase enrolment (Chankova, Atim, & Hatt, 2010). For rural residents in China, media advertising had provided an incentive to enrol in the voluntary health insurance - New Rural Cooperative Medical Scheme (NRCMS). Reimbursement of claims for
individual patients was even posted on village bulletin boards to publicize tangible monetary benefits of the health insurance programme (Lilin and Langenbrunner, 2013).

In Indonesia, a study on challenges in expanding social health protection for informal workers found that the main barrier to accessing health protection was the lack of information about the health protection options (Bappenas, 2012). This prevented people from enrolling and from utilizing the services to which they were entitled. Nearly a quarter of the target informal sector workers stated that they had never heard of any of the Indonesian health protection programmes. Thirty-eight per cent did not know how to enrol in a health protection program. When informed about health and social protection programmes, non-members explicitly stated that their willingness to enrol would increase if they had more access to information and if they developed confidence in the benefits.

This study also sought to establish the sources of information of health insurance. The findings are presented in Figure 3:
The largest percentage of respondents (46%) had known about the existence of health insurance from family and friends. While television was second at 30 per cent. Other sources of awareness were radio (14%) and newspapers (9%). Respondents reporting source of awareness from doctors were a paltry 2 per cent of the total.

Different studies have reported different findings on source of awareness for health insurance. Some indicate that the media (radio, television, and newspapers) were the leading sources of awareness. For instance, Mukhwana, Ngaira, and Mutai (2015) established that “the main source of information about the NHIF scheme was the media for both enrolled (72%) and non-enrolled (73%). Reshmi, Sreekumaran, Sabu, and Unnikrishnan, (2007) did a study in India to assess the awareness of health insurance amongst residents of Surat City, India. The results showed that awareness of health
insurance was 64 per cent out of which 45 per cent knew about health insurance from the media. Other studies, however, differed with this finding. Bhavesh et al., (2013) in India established that 39 per cent of the respondents had taken health insurance due to advice from an insurance agent. The major source of awareness (93%), however, was recommendations from those with health insurance.

Findings from the focus groups also indicated that the major source of health insurance awareness was the media. Television and radio were the most popular media sources of health insurance information with very few participants reporting newspapers as the source of information. Very few of the participants had known about health insurance from doctors. In Tala, an unenrolled participant stated that her sources of awareness were radio and family members:

*I have heard about health insurance from radio and family members who are enrolled (unenrolled participant from Tala).*

When probed, this participant lacked knowledge of health insurance:

*To me, health insurance is free healthcare services offered by the government in public hospitals...a patient only pays for the card (meaning attendance card given to patients on first visit) at the healthcare facility then receives whatever healthcare services they require. The government has paid for them.*

In all focus groups, none of the participants had known about health insurance from insurance agents, which likely contributed to low enrolments into health insurance schemes by informal sector workers. This was the argument fronted by Carpenter (2010) who argued that the Health Belief Model could be used to develop effective interventions to change health-related behaviours. Such intervention could be NHIF agents to act as external cues to the informal sector workers. A key informant from
NHIF contrasted the opinions from the focus group discussions by claiming that agents, through branch managers, had recruitment targets to meet at the end of each year:

Since the time NHIF embraced performance contracting, we are given targets by the parent Ministry (Ministry of Health) through our board of management...the CEO signs the general managers, and the same is signed by the branch managers. Individual staff at the branches have targets to meet in recruiting informal sector workers to NHIF. The staff draw work plans...for instance the market centres to visit, attend AGMs for cooperative movement. We have entered into strategic agreements with cooperative movement. We pay co-operatives a 5 per cent commission of the amounts paid by those they recruit. We have also drawn memorandum of understanding with especially women involved in table banking. For instance, we have collaborated with JOYWO women group and so far have registered 3,000 from this women group (key informant from NHIF headquarters).

Another source of health insurance awareness was family and friends. In Tala, two participants knew about health insurance through friends while another one was through parents. A participant stated thus:

I had accompanied a friend to pick the wife who had been admitted for delivery in Jamaa Hospital (a private healthcare facility). The total bill was KSh 140,000. Since he was enrolled in NHIF, he was relieved of bed charges at a rate of KSh 2,500 daily for the entire period the wife had been admitted. I was interested and enrolled in NHIF.

A comparison was done between respondents’ source of awareness and enrolment into health insurance as presented in Table 4.5:
Table 4.5: Enrolment into health insurance by source of awareness

<table>
<thead>
<tr>
<th>Enrolled</th>
<th>Source of awareness</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Radio</td>
<td>Television</td>
</tr>
<tr>
<td>Yes</td>
<td>14.0%</td>
<td>29.8%</td>
</tr>
<tr>
<td>No</td>
<td>18.5%</td>
<td>22.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17.7%</td>
<td>23.9%</td>
</tr>
</tbody>
</table>

**Pearson Chi-Square** \( \chi^2 (4, n =376) = 7.37, p < .379 \)

Source: Field data (2015)

The highest enrolment into health insurance was amongst respondents whose source of awareness was family and friends. This category accounted for 46 per cent of those enrolled in health care. None of the respondents indicated that their source of awareness was health insurers or their agents. This finding raises questions about the activities carried out by insurers in sensitizing the public about their products. It was expected that respondents would have received awareness from the insurers but the data in the study annulled this assumption. Raising awareness of health insurance of the people through such channels as health care settings and the media would increase its uptake appropriately. Even though awareness of health insurance was related to enrolment, there was no relationship between the source of awareness and enrolment into health insurance, \( \chi^2 (4, n =376) = 7.37, p < .379 \). This means that enrolment into health insurance programmes was independent of the source of awareness, whether through friends and family, the media or health insurers and their agents.
4.5 Factors of Enrolment into Health Insurance by Informal Sector Workers

This section responds to the third objective of the study which was to establish the factors associated with enrolment into health insurance schemes by informal sector workers. The study used the Chi-square test of independence to establish the factors that influenced enrolment of informal sector workers into health insurance. This was done by establishing existence of relationship between the dependent variable and the independent ones. For the variables that were related to health insurance uptake, Cramer’s V was used to establish the strength of the relationship.

The study tested if there was any relationship between age, gender, income, level of education, number of dependants, exposure to media, place of residence, and marital status of informal sector workers and enrolment into health insurance. Apart from gender, place of residence, sub-sector and listening to radio, all the other variables were related to enrolment into health insurance programmes. The results are presented in subsequent tables.

Table 4.6: Enrolment into health insurance by number of dependants

<table>
<thead>
<tr>
<th>Enrolled</th>
<th>1 – 2</th>
<th>3 – 5</th>
<th>6 – 8</th>
<th>9 – 11</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>37.9%</td>
<td>56.9%</td>
<td>1.2%</td>
<td>5.2%</td>
<td>100% (55)</td>
</tr>
<tr>
<td>No</td>
<td>70.2%</td>
<td>28.0%</td>
<td>0.0%</td>
<td>0.6%</td>
<td>100% (311)</td>
</tr>
<tr>
<td>Total</td>
<td>63.3%</td>
<td>32.4%</td>
<td>1.1%</td>
<td>1.3%</td>
<td>100% (366)</td>
</tr>
</tbody>
</table>

\[ \chi^2 (3, n = 366) = 27.23, p < .000 \]

Cramer's V .272

* The valid cases were 366 and 10 missing cases due to nonresponse

Source: Field data (2015)
The results in Table 4.6 show that the highest enrolment (56.9 per cent) was for respondents with between 3 – 5 dependants. Out of 311 respondents without a health insurance cover, 70.2 per cent had between 0 – 2 dependants.

There was a relationship between the number of dependants and enrolment to health insurance, $\chi^2 (3, n = 366) = 27.23, p < .001$. However, the relationship was weak, $V = .276$. Looking at the percentages in Table 4.5, a higher percentage of those enrolled had fewer dependants. The conclusion was that the number of dependants one had was likely to influence enrolment into health insurance programmes. This finding agreed with findings by Gosh (2013) that a bigger household size could lead to higher per month medical expenditure, which could influence the respondent to enrol into health insurance schemes. The rationalization was that health care expenditures were high for households with many dependants and therefore a health insurance cover could cushion them from these expenditures. This view was supported by Olaniyan and Sunkanmi (2012) who argued that the number of dependants raised the need for health care services.

Studies on enrolment into health insurance programmes gave findings that differed on whether the number of dependants influenced one’s decision to enrol in health insurance. Ozawa, Grewal, and Bridges (2016) suggested that gaps remained in insurance enrolment and service utilization, where the impact of household size was debatable. Some studies claimed that number of dependants had been associated with health insurance uptake. For instance, Adebayo et al., (2015), found out that in India and Nigeria larger households (six members and above) were more likely to enrol in health insurance schemes than relatively smaller households. Bending and Arun (2011)
found that in Sri Lanka, number of dependants influenced enrolment into health insurance programmes.

Other studies showed that larger households were unlikely to enrol in health insurance schemes. Jehu-Appiah, Aryeetey, Agyepong, Spaan, and Baltussen (2011) found out that in Ghana, larger households were less likely to be enrolled in health insurance plans. De Allegri, Sanon, Bridges, and Sauerborn (2006) stated that in Burkina Faso, household size was an obstacle to enrolment since having many dependants was a financial burden in insuring them.

This study also analysed the relationship between income and enrolment into health insurance. This tested the second hypothesis that the income of informal sector workers did not influence their enrolment in health insurance. The frequencies from crosstabulation between income and enrolment into health insurance are presented in Table 4.7:

**Table 4.7: Enrolment into health insurance by monthly income**

<table>
<thead>
<tr>
<th>Enrolled</th>
<th>Income 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1.8%</td>
<td>25.0%</td>
<td>32.1%</td>
<td>37.5%</td>
<td>3.6%</td>
<td>100% (55)</td>
</tr>
<tr>
<td>No</td>
<td>5.27%</td>
<td>50.3%</td>
<td>35.0%</td>
<td>8.0%</td>
<td>1.5%</td>
<td>100% (313)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4.7%</td>
<td>46.6%</td>
<td>34.6%</td>
<td>12.3%</td>
<td>1.8%</td>
<td>100% (368)</td>
</tr>
</tbody>
</table>

| Pearson Chi-Square | $\chi^2 (4, \text{n} = 368) = 43.52, p < .000$ |
| Cramer's V         | .340 |

1 = KSh 0 – 9,999   2 = KSh 10,000 – 19,999   3 = KSh 20,000 – 29,999   4 = KSh 30,000 – 39,999   5 = KSh 40 – 49,999
The results in Table 4.6 show that the proportion of respondents not enrolled into health insurance schemes decreased as income increased. For instance, 50 per cent of those earning between KSh 10,000 – KSh 19,999 did not have a health insurance cover compared to only 8 per cent earning between KSh 30,000 – KSh 39,999. Enrolment into health insurance increased with higher incomes. For example, 38 per cent of those earning between KSh 30,000 – 39,000 had a health insurance cover compared to only 2 per cent of those earning below KSh 10,000.

The relationship between income and enrolment into health insurance was significant, $\chi^2 (4, n = 368) = 43.52, p < .000$. The association was moderate, $V = .340$. This finding could be explained from the point of view of the Health Belief Model and the Rational Choice Theory. Individual characteristics like income could negatively and postively affect the perceived benefits and barriers of health-related actions like enrolment into health insurance (Glanz et al., 2008). If one had high income, they could either enrol or not enrol into health insurance programmes. High incomes guaranteed one access to health care as well as ability to pay health insurance premiums. Low income earners are likely not to have disposable incomes to pay monthly health insurance premiums. According to the Rational Choice Theory, individuals with low incomes would make a choice between the cover and meeting other needs.

This finding supports findings by Brugiavini and Pace (2010) that respondents in the highest wealth quartile were more likely to be covered by a health insurance scheme than those in lower wealth quartiles. Atinga, Abiiro, and Kuganab-Lem (2015)
conducted a study on the factors influencing the decision to drop out of health insurance enrolment in Ghana. Their findings showed that income levels, measured by access to employment or regular income, increased the tendency to remain insured. The possible explanation for this was that enrolled informal sector workers with limited income were unlikely to spend on insurance renewals which could divert resources for other pressing needs.

A study on factors affecting uptake of health insurance by Adebayo et al., (2015) established that low levels of income and lack of financial resources were some of the major factors affecting enrolment in health insurance programmes. Kimani et al., (2012) established that low and non-regular incomes led to low participation in health insurance programmes among residents of urban slums in Nairobi. Mwaura and Pongpanich (2012) studied the role of community-based health insurance programmes on access to health care among the urban poor. Their study found out that the proportion of households in the moderate and higher income quartiles was higher among the insured (33%) than the non-insured (23%).

Other studies, however, differed on whether income was a major influence for enrolment in health insurance. For instance, Mathauer et al., (2008) established disparities in influence of income on demand for health insurance. Though higher income quartiles were more likely to be covered, health insurance schemes, especially community-based ones, attracted low-income earners (Xu et al., 2010).
Overall, the discussion has demonstrated that ability to pay monthly premiums influences demand for health insurance. Lack of purchasing power and low incomes inhibit many people from enrolling in health insurance schemes.

This study further did an analysis of the respondents’ individual factors so as to test the fourth hypothesis that there was no relationship between the personal characteristics of informal sector workers and their enrolment in health insurance schemes. These factors were: age, gender, marital status, level of education, and media exposure. The frequencies for age and enrolment into health insurance are presented in Table 4.8.

**Table 4.8: Enrolment into health insurance by age**

<table>
<thead>
<tr>
<th>Enrolled</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Yes</td>
<td>1.7%</td>
</tr>
<tr>
<td>No</td>
<td>26.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>22.5%</td>
</tr>
</tbody>
</table>

**Pearson Chi-Square**  
\( \chi^2 (4, n = 376) = 22.80, p < .000 \)

**Cramer's V**  
.247

Source: Field data (2015)

The results in Table 4.7 indicate that as age increases, enrolment into health insurance increases to a certain point and then decreases. High enrolments were observed for those aged between 30 – 34 (43%), 35 – 39 (28%), and 40 – 44 (16%). Low enrolments were observed for respondents aged between 20 – 24 (1.7%), 25 – 29 (3.4%), and 45 – 49 (8.6%). None of those aged 50 and above had a health insurance cover. Younger and
older people were likely to have fewer or no dependants and therefore did not consider having a health insurance cover necessary.

Age and enrolment into health insurance were statistically related, $\chi^2 (6, n = 376) = 22.80, p < .000$. The relationship was, however, moderate, $V = .247$. These findings were supported by Schultz, Metcalfe, and Gray (2013) who established that older adults were more likely to be both registered and enrolled. Kimani et al., (2014) confirmed that the probability of having health insurance tended to increase with age. The findings were also consistent with Wang, Temsah, and Mallick (2014) who established that those aged 15-24 were less likely to have a health insurance cover than older people. The findings by Wang et al., (2014) established that in five countries (Albania, Burundi, Gabon, Ghana, and Namibia) the oldest group(s) amongst the respondents reported the highest level of health insurance cover. In Namibia, for example, 40 per cent of men aged 40-49 were covered by health insurance, more than double the rate among men under age 30.

This is explained by the fact that health care costs rise with age. This means that young people pay for health insurance without using much of the health care benefits until later in life. Therefore, the young would not enrol in big numbers since they did not see the value of health insurance. This was evident with the introduction of the new health insurance in the USA under the Affordable Care Act (ACA) in 2013. A report by Deloitte (2014) on young adults and enrolment into health insurance found that it was a challenge for insurers to convince them to buy health insurance. The report indicated that of the 8 million Americans who signed up for health insurance under the ACA, only 28 per cent were aged 18 – 34. What mattered to the young adults was overal cost
and perceived value for money. In the Kenyan situation, the National Hospital Insurance Fund (NHIF) has to understand the young adults if they have to enrol and retain them. With many old members in the health insurance scheme, there would be an imbalance between medical costs and premiums thus straining the health insurance scheme.

Another variable considered was marital status of the respondent. The frequencies from crosstabulation between marital status and enrolment into health insurance are presented in Table 4.9:

<table>
<thead>
<tr>
<th></th>
<th>Enrolled</th>
<th>Marital status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Married</td>
<td>Single</td>
</tr>
<tr>
<td>Yes</td>
<td>91.4%</td>
<td>6.9%</td>
</tr>
<tr>
<td>No</td>
<td>57.6%</td>
<td>36.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>62.6%</td>
<td>32.2%</td>
</tr>
</tbody>
</table>

Pearson Chi-Square \( \chi^2 (4, n = 376) = 22.95, p < .000 \)

Cramer's V \( .247 \)

Source: Field data (2015)

The results indicate that married respondents reported the highest level (91%) of enrolment into health insurance. In addition, there were more married unenrolled respondents (58%) compared to the other categories. The explanation for this was that being married was likely to offer financial support by being in a dual-income household. On the other hand, one who was widowed, divorced, or separated could be financially burdened and hence the inability to pay health insurance premiums.
There was a significant relationship between marital status and enrolment into health insurance, \( \chi^2 (4, n = 376) = 22.95, p < .000 \). The strength of the association was weak, \( V = .247 \). This finding compares to Boateng and Awunyor-Vito (2013) who established that marital status of respondents in Ghana significantly influenced their decision to enrol and remain in the national health insurance scheme. Likewise, Kimani, et al., (2012 and 2014) established that being married was associated with having health insurance. Atinga et al., (2015) found out that in the Kassena Nankana District of Ghana, marital status significantly determined household enrolment in the National Health Insurance Scheme (NHIS). They established that households headed by widows were 0.5 times less likely to participate in insurance as compared to married-household heads.

Wang et al., (2014) found out that there was no clear pattern in health insurance cover by marital status for both women and men. The study established that in four countries (Burundi, Ghana, Namibia, and Rwanda) married women and men reported the highest levels of cover. In three countries (Albania, Cambodia, and Gabon), however, never-married women had the lowest cover. Woldemichael and Shimeles (2015) in a study to measure the impact of micro-health insurance on health care utilization found out that married household heads were more likely to enrol in community-based health insurance schemes.

The frequencies on level of education and enrolment into health insurance indicate a trend for both those enrolled and unenrolled. The results are presented in Table 4.10:
Table 4.10: Enrolment into health insurance by level of education

<table>
<thead>
<tr>
<th>Enrolled</th>
<th>Level of education</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary &amp; below</td>
<td>Secondary</td>
</tr>
<tr>
<td>Yes</td>
<td>25.8%</td>
<td>27.6%</td>
</tr>
<tr>
<td>No</td>
<td>37.1%</td>
<td>45.0%</td>
</tr>
<tr>
<td>Total</td>
<td>35.4%</td>
<td>42.4%</td>
</tr>
</tbody>
</table>

Pearson Chi-Square $\chi^2 (3, n = 376) = 29.45, p < .000$  Cramer’s $V = .280$

Source: Field data (2015)

Enrolment into health insurance increased with higher levels of education apart from those with university level of education. The highest enrolment was 41 per cent for respondents with tertiary level of education. There were more unenrolled respondents with secondary level of education (41%) than any other level of education.

The relationship between respondents’ level of education and enrolment into health insurance schemes was significant, $\chi^2 (3, n = 376) = 29.45, p < .000$. This provided sufficient evidence to reject the null hypothesis that there was no relationship between level of education and enrolment into health insurance programmes. This means that if one has a low level of education, they were likely not to enrol into health insurance.

The results in table 4.9 show that respondents with primary level of education and below were 11 per cent more likely to enrol into health insurance programmes. Even though the Chi-square statistic was sufficient to retain the alternative hypothesis, the association between the level of education and the decision to enrol or not was weak (Cramer’s $V = .280$). There is a probability that those with higher levels of education
were likely to understand the operation of health insurance programmes and therefore register.

Level of education has implications on other social characteristics like income and ability to purchase health insurance. Higher levels of education would guarantee higher incomes and better understanding and appreciation of health insurance. Limited understanding and acceptance of health insurance can make informal sector workers reluctant to enrol in health insurance schemes (Mathauer, Schmidt, and Wenyaa, 2008).

This finding was congruent with Jean et. al., (2013) and Kimani et al., (2012) who established that awareness of health insurance schemes was significantly associated with a high level of education. Silfverberg (2014) conducted a study on determinants of enrolment into the Philippine Health Insurance Voluntary Schemes and established that among six variables, education had the biggest impact on the decision to enrol in health insurance programmes. Brugiavini and Pace (2010) studied the effects of the National Health Insurance Scheme (NHIS) of Ghana on extending health insurance and found out that participants with secondary or higher education, were more likely to be covered by the national health insurance scheme than those with no education. Atinga et al. (2015) too, established that education significantly influenced household enrolment in the national insurance scheme of Ghana. Ahmed et al., (2016) studied the willingness to pay for community-based health insurance among informal workers in Urban Bangladesh and found out that educational level was a key factor.

Wang et al., (2014) however, claim that enrolment into health insurance programmes was not correlated to education. These authors found out that in Cambodia, health
insurance rates were highest among women and men with no education, and lowest among those with a secondary education or higher. Findings by Woldemichael and Shimeles (2015) from a study to measure the impact of micro-health insurance on health care utilization showed that education had no statistically significant impact on enrolment decisions. These authors found out that households headed by uneducated heads were as much likely to enrol as those head by educated ones.

This study also sought to establish whether exposure to media was related to uptake of health insurance by informal sector workers. The frequency of reading newspapers, listening to the radio and watching television was used to measure media exposure. The frequency of listening to the radio was, however, not related to enrolment. The frequencies for television viewing are presented in Table 4.11:

**Table 4.11 Enrolment into health insurance by frequency of television viewing**

<table>
<thead>
<tr>
<th>Enrolled</th>
<th>Frequency of television viewing</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Daily</td>
<td>Periodically</td>
</tr>
<tr>
<td>Yes</td>
<td>82.1%</td>
<td>10.7%</td>
</tr>
<tr>
<td>No</td>
<td>62.0%</td>
<td>15.6%</td>
</tr>
<tr>
<td>Total</td>
<td>64.9%</td>
<td>14.9%</td>
</tr>
</tbody>
</table>

| Pearson Chi-Square | $\chi^2 (3, n = 376) = 8.16, p < .000$ | Cramer's V .1487 |

Source: Field data (2015)

The results show that as the frequency of television viewing decreased, so did enrolment into health insurance. The highest enrolment (82%) was observed amongst respondents who watched television daily compared to only 11 per cent of those who
watched periodically. This can be explained from the premise that health insurers advertised their products through television thereby raising viewers’ awareness. This was likely to influence one to buy health insurance. A contingency table analysis of frequency of television viewing and enrolment into health insurance revealed a significant relationship between these two variables, $\chi^2 (3, n = 376) = 8.16, p < .001$. The Cramer’s V statistic was .148, which is an indication that association between television viewing and enrolment was weak.

The frequencies of reading newspapers did not display the same patterns observed in television watching. The results are presented in Table 4.12:

Table 4.12: Enrolment into health insurance by frequency of reading newspapers

<table>
<thead>
<tr>
<th>Enrolled</th>
<th>Frequency of reading newspapers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Daily</td>
</tr>
<tr>
<td>Yes</td>
<td>39.3%</td>
</tr>
<tr>
<td>No</td>
<td>13.1%</td>
</tr>
<tr>
<td>Total</td>
<td>17.0%</td>
</tr>
</tbody>
</table>

| Pearson Chi-Square | $\chi^2 (3, n = 376) = 21.39, p < .001$ | Cramer's V .240 |

Source: Field data (2015)

The frequencies in Table 4.12 show that 39 per cent of those enrolled in health insurance read newspapers daily while 9 per cent read periodically. Those who never read newspapers and were enrolled in health insurance were more (13%) than those who read periodically. A Chi-square test of independence was performed to examine the relationship between the frequency of reading newspapers and enrolment into health
insurance programmes. The relationship between these two variables was significant, \( \chi^2 (3, n = 376) = 21.39, p < .000 \). This test suggests that enrolment into health insurance differs depending on the frequency of reading newspapers. Those who read newspapers daily were 27% more likely to enrol into health insurance programmes than not enrol. On the other hand, those who read newspapers periodically, rarely and those who never read were more likely not to enrol than enrol by 7 per cent, 10 per cent and 8 per cent respectively. Cramer’s \( V \) was .240 and this represents a weak association between the frequency of reading newspapers and whether informal sector workers enrolled into health insurance programmes or not.

The mass media has been used as a means of advertisement by insurance companies and therefore such exposure could affect enrolment into health insurance. The study findings suggested that media offered variation on the influence of health insurance enrolment outcomes. Media coverage can raise public awareness of the existence of health insurance programmes, their cover options and thus lead people to seek information regarding medical cover. This is likely to influence them into enrolling. This view conforms to the Health Belief Model which suggests that a cue is necessary to prompt engagement in health promoting behaviour. The media becomes an external cue to action to promote health-related behaviour, in this case enrolment into health insurance.

This is comparable to Meng et al. (2011) who conducted a descriptive scoping review to identify the strategies implemented for expanding health insurance cover. The study established that in three low and medium-income countries, one of the strategies used was to increase awareness of schemes and their benefits. Governments and insurance
schemes took steps to make people aware of the health insurance schemes and their eligibility through the media or other channels. The review by Meng et al. (2011) found out that among other interventions, awareness through media was positive in expanding the coverage of the health plans.

Out of the eleven variables, respondents’ marital status, income, age, and level of education were associated with enrolment to health insurance. There was also a relationship between enrolment into health insurance and a respondent’s number of dependants, reading of newspapers, awareness of health insurance, and television viewing. Gender, place of residence, sub-sector, and listening to the radio were not related to enrolment into health insurance. From this set of variables, this study conducted a principal component analysis (PCA) to isolate the components which accounted for most of the variance. The analysis of the PCA is presented in Section 4.6.

4.6 Key Determinants of Health Insurance Enrolment among Informal Sector Workers in Kenya

Besides testing for existence and strength of relationships, this study used Principal Component Analysis (PCA) to create index variables (components) through reduction from a set of nine variables. This made it possible to identify the variables that accounted for most of the variance in enrolment into health insurance by informal sector workers. These factors were the determinants of health insurance uptake among the respondents. The study computed the component loadings, which were the correlation coefficients between the variables and factors.
The PCA determined the underlying structures for measures on the following nine variables: age, income, marital status, and level of education. The other variables were number of dependants, awareness of health insurance, television viewing, reading of newspapers, and household income.

The first consideration in running the principal component analysis was to check for intercorrelation between variables. Variables with correlations less than .3 were removed from the analysis (see Field, 2009). In this study, income, age, and awareness of health insurance did not meet this criterion and were excluded from the analysis (see Table 22 in Appendix 1).

After the second run of the Principal Components Analysis, the data was tested for sampling adequacy. Three methods were used, namely the Kaiser - Meyer - Olkin (KMO) measure of sampling adequacy for the overall data set, the KMO measure for each individual variable, and Bartlett’s Test of Sphericity. The results for the overall KMO measure and Bartlett’s test are presented in Table 4.13:

**Table 4.13: KMO and Bartlett's Test**

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</th>
<th>.520</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. Chi-Square</td>
<td>202.548</td>
</tr>
<tr>
<td>Bartlett’s Test of Sphericity</td>
<td>df 10</td>
</tr>
<tr>
<td></td>
<td>Sig .000</td>
</tr>
</tbody>
</table>

Source: Field data (2015)

The overall KMO measure was .520 and it fell within the recommended bare minimum value of .5 (see Field, 2009). This was an indication that there was a linear relationship between the 5 variables and that it was appropriate to run a principal component
analysis. The KMO measures for individual variables had values which were all above the bare minimum of .5: number of dependants = .857, television viewing = .855, reading newspapers = .691, level of education = .767, and marital status = .877 (see Table 23, Appendix 1).

Bartlett’s Test of Sphericity tested the null hypothesis that there was no correlation between any of the variables. As presented in Table 4.12, the test was statistically significant ($\chi^2 (10) = 202.548, p < .000$), indicating that there were large correlations between variables for PCA.

After extracting all the principal components, two statistical considerations were used to determine the number of components to retain for rotation and interpretation: the eigenvalue-one criterion and percentage of variance explained. The results are presented in Table 4.14.

**Table 4.14: Eigenvalues and percentage of variance explained by the factors**

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
<th>Rotation Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
<td>Cumulative %</td>
</tr>
<tr>
<td>1</td>
<td>1.729</td>
<td>34.58</td>
<td>34.58</td>
</tr>
<tr>
<td>2</td>
<td>1.305</td>
<td>26.09</td>
<td>60.67</td>
</tr>
<tr>
<td>3</td>
<td>.819</td>
<td>16.39</td>
<td>77.06</td>
</tr>
<tr>
<td>5</td>
<td>.448</td>
<td>8.97</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis

Source: Field data (2015)
An eigenvalue less than one indicates that the component explains less variance than a variable would and hence should not be retained (Yong & Pearce, 2013). Using this criterion, the first component in Table 4.13 has an eigenvalue of 1.729 while the second one has an eigenvalue of 1.305. Therefore, these two components are retained. Using the second consideration, it had been suggested that components to be retained were those explaining at least 60 per cent or 70 per cent of the total variance (Vines, 2000). Using the lower criterion of 60 per cent once more led to the retention of the first two components.

PCA revealed two components that had eigenvalues greater than one (Table 4.14). After rotation, the two components explained the 34.58 per cent, and 26.09 percent of the total variance respectively (see Table 4.14). The two-component solution explained the 60.67 per cent of the total variance. The component loadings of the variables are presented in Table 4.15:

**Table 4.15: Component loadings**

<table>
<thead>
<tr>
<th>Rotated component Matrix</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Frequency of Reading Newspapers</td>
<td>.844</td>
</tr>
<tr>
<td>Level of Education</td>
<td>-.747</td>
</tr>
<tr>
<td>Frequency of Television Viewing</td>
<td>.848</td>
</tr>
<tr>
<td>Number of Dependents</td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
</tbody>
</table>

Source: Field data (2015)

Considering the rotated loadings (Table 4.15), it was observed that component 1 included items with both negative and positive loadings. Positive loadings included
reading of newspapers, and television viewing and a negative loading for education level. Based on the variables loading highly onto component 1, they were named “knowledge”. Component 1 had heavy loading on the three variables with regard to the reading of newspapers, education level and television viewing. Likewise, component 2 had a positive loading for marital status as well as a negative loading for number of dependants (see also Figure 3, Appendix 2). The component had heavy loadings on marital status and the number of dependants. They seemed to indicate population characteristics or structure, so they were named “demographics”.

In Section 4.5, nine variables were associated with enrolment into health insurance programmes by informal sector workers. However, through principal component analysis (PCA), from the variables, a set of 2 components was extracted which accounted for most of the variance in the 9 variables. It was likely that level of education, watching television, and reading of newspapers (component 1 factors) influenced informal sector workers to enrol into health insurance programmes. In other words, one who was educated was better informed through the media and was likely to make decisions on whether to enrol in health insurance or not.

Component 2 factors (number of dependants and marital status) were also likely to influence uptake of health insurance by informal sector workers either positively or negatively. Recall that the relationship between these components and enrolment to health insurance was significant \( \chi^2 (3, n = 376) = 29.015, p < .000 \) and \( \chi^2 (4, n = 376) = 24.521, p < .000 \) respectfully. This was congruent with Kirigia et al., (2005) who established that marital status was associated with ownership of health insurance, the plausible reason being that those married and with children were more concerned about
high health expenditures. The number of dependants could influence enrolment into health insurance positively or negatively. When the dependants were many, medical expenditures were higher hence, the need to enrol. Consequently, with many dependants, one could choose not to enrol since they had to meet other expenses like food and housing.

The component loadings in Table 4.15 gave a measure of importance of each variable to the components. An equation describing the components is formulated as follows:

\[ Y_i = b_1X_{1i} + b_2X_{2i} + \ldots + b_nX_{ni} + \varepsilon_i \]

(1: Field, 2009)

where  
Y = component  
\( b \) = component loadings  
X = variable

There were two components underlying this analysis: knowledge and demographics, therefore, two equations describing each component in terms of the variables was constructed as follows:

Knowledge\(_i\) = \( b_1 \)Reading Newspapers \(_1\i\) + \( b_2 \)Television Viewing \(_2\i\) + \( b_3 \)Level of Education \(_3\i\) + \( \varepsilon_i \)

Demographics\(_i\) = \( b_1 \)Dependants \(_1\i\) + \( b_2 \)Marital Status \(_2\i\) + \( \varepsilon_i \)

The resulting equations are as follows:

Knowledge\(_i\) = .844Reading Newspapers \(_1\i\) + .848Television Viewing \(_2\i\) + -.747Level of Education \(_3\i\) + \( \varepsilon_i \)

Demographics\(_i\) = -.818Dependants \(_1\i\) + .815Marital Status \(_2\i\) + \( \varepsilon_i \)

The variance explained by each component after the rotation (see Table 4.13) was 34.58 per cent (component 1), and 26.09 percent (component 2). After rotation, the two components together account for 61 percent of the total variance. The study concluded
that enrolment into health insurance by informal sector workers was determined by frequency of reading newspapers, level of education, and frequency of television viewing. The number of dependants and marital status were the other determinants of enrolment into health insurance.

4.7: Chapter Summary

In chapter four, the findings show low enrolment into health insurance schemes by urban informal sector workers. Even so, enrolment was higher for the National Hospital Insurance Fund (NHIF) compared to both private and Community-Based Health insurers. Though informal sector workers were typically stratified, the study established that there was unequal distribution of incomes amongst the sub-sectors. Another highlight was that the high levels of awareness of health insurance did not influence the respondents to buy health insurance. In addition, knowledge of health insurance benefits was lacking in the informal sector. The study established that though several factors influenced health insurance uptake, the key determinants were knowledge and certain demographic attributes. The summary of study findings, conclusions, and recommendations are presented in chapter five.
5.1 Introduction

The main objective of the study was establish the socio-economic determinants of health insurance uptake by urban informal sector workers. This chapter summarized the study findings and made an overall conclusion on the status of health insurance uptake by informal sector workers. The section made recommendations towards the inclusion of informal sector into health insurance schemes. The final part of the chapter made suggestions for further study on areas that were beyond the scope of the study.

5.2 Summary of Findings

Enrolment status and patterns into health insurance schemes

Enrolment in health insurance was low within the target population since only 15 per cent had a health insurance cover. The National Hospital Insurance Fund (NHIF) was popular among informal sector workers compared to private insurers. Sixty-seven per cent were with NHIF and 33 percent were in private health insurance schemes. There were no respondents enrolled in community based health insurance schemes. Principal members in NHIF were 78 per cent and 22 per cent were dependants while all those enrolled in private health insurance schemes were the principal members. Unavailability of services in accredited public health care facilities deterred some respondents from enrolling or renewing membership into NHIF.
The level and source of awareness of health insurance

The study established that there were high levels of awareness (84%) among informal sector workers though they had low knowledge of health insurance benefits. Though insured respondents were accurate in reporting that their insurance provider covers hospitalization, they lacked knowledge on other benefit packages they were entitled. Family and friends were the popular source of awareness (43 per cent) while none of the respondents reported health insurers or their agents as sources of awareness. The study established that there was a significant relationship between awareness and enrolment into health insurance, though the association was weak.

Factors of enrolment into health insurance schemes

The study tested for factors associated to enrolment into health insurance schemes by informal sector workers. Such factors thus influenced the uptake health insurance. There was significant relationship between a respondent’s number of dependants, income, age, and marital status and enrolment into health insurance. Level of education, television viewing, and reading of newspapers were also significantly related with enrolment into health insurance schemes.

Key determinants of enrolment into health insurance

The seven variables that were related to health insurance uptake were reduced to two components. Component 1 factors were related to knowledge (frequency of reading newspapers, television viewing and level of education). Component 2 factors were related to demographic aspects (number of dependants and marital status). These were therefore the determinants of health insurance uptake among informal sector workers.
5.3 Conclusion

The government of Kenya has not so far come up with comprehensive programmes towards achieving universal health care; hence, health care was purchased through out-of-pocket payments. This denied certain members of the society adequate access to quality health care, for instance, those working in the informal sector. The informal sector was characterized by job insecurity, poor working conditions and did not guarantee financial security. This scenario made it difficult for them to access quality and affordable health care and thus a health insurance cover would cushion them from being impoverished by health care expenditures.

The theoretical underpinning of this study was that perceived barriers would act as impediments to enrolling into health insurance schemes. Besides, informal sector workers would do a cost-benefit analysis whereby the individual weighed the effectiveness in health care access when one had a health insurance cover against perceptions that it could have been expensive thus being out of reach. Theory has also shown that individuals choose the best action according to their personal preferences and the constraints facing them. The study established that only 15 per cent of the informal sector population had a health insurance cover by 2015. This means that those without a cover in the informal sector would continue to make out-of-pocket payments for their health care.

This study established that even though enrolment among informal sector workers was low, they were willing to buy health insurance though this was hindered by lack of knowledge of the benefits of health insurance. The study concluded that unless
appropriate action were taken, many informal sector workers would remain without a health insurance cover and continue to suffer the numerous consequences of ill health.

5.4 Recommendations

Based on the findings, the study suggests the following recommendations in order to include more informal sector workers into health insurance programmes. Key among reasons for not enrolling was that some accredited health care facilities did not offer certain health care services and therefore some respondents did not find it worthwhile to own a health insurance cover or continue paying the monthly premiums. The study suggested inclusion of informal sector workers into health insurance programmes by:

(i) Enhancing the benefit package to cover a wide range of health care services. The National Hospital Insurance Fund (NHIF) for instance covered health care services for the insured depending on the contract type.

(ii) Making the monthly premiums affordable through subsidies. For instance, the government could set-up a fund to pay monthly premiums to health insurance schemes for the poor. Those in the informal sector could be encouraged to buy health insurance from both the private and public health insurance schemes through tax incentives. The government could levy goods and services as well as imports and exports; a levy that would fund the National Hospital Insurance Fund (NHIF).
Another finding was that awareness of health insurance among informal sector workers was high. However, basic understanding of health insurance and knowledge of insurance benefits was limited. Government agencies and health insurers could increase awareness of health insurance schemes and their benefits through:

(i) Intensifying mass media campaigns through televisions, radio, print advertisements as well as the internet. Media campaigns could be done through the local languages in order to reach many informal sector workers.

(ii) Health insurers could employ marketing experts to conduct campaigns in areas that attract many people like churches, market centres, hospitals, and learning institutions.

The study also established that eight demographic and socio-economic factors influenced enrolment into health insurance by informal sector workers. Out of these variables, two components accounted for most of the variance in enrolment into health insurance. The study therefore recommended that:

(i) Health insurers and government agencies should have competent staff who could be engaged in effective outreach programmes.

(ii) Insurers should conduct health insurance education through print and electronic media.

(iii) Health insurers should set different premium levels based on the social and economic status of the members of society.
5.5 Areas of further study

a) There is need for further research to establish the effect of health insurance education on enrolment into health insurance schemes.

b) Another area for further research is the role of public versus private health insurance providers in ensuring health care access for low-income earners. Though a key concern, the scope of this study was on the determinants of health insurance uptake among informal sector workers.

c) More research needs to be done to measure the impact of health insurance on quality of health care in accredited health care facilities. Lack of certain services and perceived poor health care by the respondents was an emerging factor for failure and willingness to enroll into health insurance programmes.

d) The literature review indicated that health insurance has a positive impact on use of health care services. However, this study could not establish certain pertinent issues related to health care use. Thus, further study would be useful to find out which services of a health insurance cover increase usage and the reasons behind the increase.

e) Further research could be done to establish the influence of a health insurance cover on access of health care services.
References


Akwasi, K., & Joshua, A. (2013). Effects of Spacial location and Household wealth on health insurance subscription among women in Ghana. BMC Health Service Research, 13(221).


Kitzinger, J. (1994). The methodology of foucs groups: the importance of interaction between research participants. Sociology of Health and Illness, 16(1), 104-121.


Kumar, R., & Sigh, A. (2013). Empowering the street vendor in changing Indian Cities: A case study of Bhubaneswar (Orissa).


Mukhwana, E. S., Ngaira, J. K., & Mutai, C. (2015). Determinants of uptake and utilization of National Hospital Insurance Fund medical cover by eople in the


### Appendix 1: List of Tables

#### Table 16: Employment by Industry in Kenya, 2008-2011

<table>
<thead>
<tr>
<th>Activity</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>1,893.0</td>
<td>1956.4</td>
<td>2,124.1</td>
<td>2,364.9</td>
<td>2,544.7</td>
</tr>
<tr>
<td>Construction</td>
<td>251.7</td>
<td>270.3</td>
<td>277.9</td>
<td>307.3</td>
<td>320.5</td>
</tr>
<tr>
<td>Wholesale &amp; Retail Trade, Hotels &amp; Restaurants</td>
<td>5,787.6</td>
<td>6,130.9</td>
<td>6,364.9</td>
<td>7,120.4</td>
<td>7,509.3</td>
</tr>
<tr>
<td>Transport and Communications</td>
<td>651.6</td>
<td>747.4</td>
<td>875.5</td>
<td>369.5</td>
<td>392.5</td>
</tr>
<tr>
<td>Community, Social, and Personal Services</td>
<td>932.1</td>
<td>985.2</td>
<td>1,031.0</td>
<td>1,152.1</td>
<td>1,219.2</td>
</tr>
<tr>
<td>Others</td>
<td>432.6</td>
<td>438.2</td>
<td>476.7</td>
<td>531.8</td>
<td>573.4</td>
</tr>
<tr>
<td>Total</td>
<td>9,948.6</td>
<td>10,528.5</td>
<td>11,150.1</td>
<td>11,846.0</td>
<td>12,559.6</td>
</tr>
<tr>
<td>Urban</td>
<td>3,245.3</td>
<td>3,405.5</td>
<td>3,973.7</td>
<td>4,208.1</td>
<td>4,458.0</td>
</tr>
<tr>
<td>Rural</td>
<td>6,703.3</td>
<td>7,123.0</td>
<td>7,176.4</td>
<td>7,637.9</td>
<td>8,101.6</td>
</tr>
</tbody>
</table>

Source: GoK, 2012

#### Table 17: Overall Employment by Education Levels in Nairobi County

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Work for pay</th>
<th>Family Business</th>
<th>Family Agricultural Holding</th>
<th>Intern/Volunteer</th>
<th>No work</th>
<th>Number of Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>47.1</td>
<td>16.2</td>
<td>5.0</td>
<td>1.4</td>
<td>11.3</td>
<td>2,100,926</td>
</tr>
<tr>
<td>None</td>
<td>33.7</td>
<td>16.2</td>
<td>7.6</td>
<td>3.9</td>
<td>20.7</td>
<td>93,362</td>
</tr>
<tr>
<td>Primary</td>
<td>44.6</td>
<td>17.4</td>
<td>6.4</td>
<td>1.1</td>
<td>12.7</td>
<td>610,597</td>
</tr>
<tr>
<td>Secondary+</td>
<td>49.1</td>
<td>15.7</td>
<td>4.3</td>
<td>1.4</td>
<td>10.1</td>
<td>1,396,96</td>
</tr>
</tbody>
</table>

Source: Extracted from KNBS & SID, 2013

#### Table 18: Overall Employment by Education Levels in Machakos County

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Work for pay</th>
<th>Family Business</th>
<th>Family Agricultural Holding</th>
<th>Incapacitated</th>
<th>No work</th>
<th>Number of Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>29.1</td>
<td>11.3</td>
<td>22.9</td>
<td>0.7</td>
<td>6.8</td>
<td>603,316</td>
</tr>
<tr>
<td>None</td>
<td>22.9</td>
<td>10.1</td>
<td>28.5</td>
<td>4.6</td>
<td>6.4</td>
<td>25,604</td>
</tr>
<tr>
<td>Primary</td>
<td>26.7</td>
<td>10.7</td>
<td>26.6</td>
<td>0.6</td>
<td>6.8</td>
<td>318,701</td>
</tr>
<tr>
<td>Secondary+</td>
<td>32.7</td>
<td>12.0</td>
<td>17.8</td>
<td>0.3</td>
<td>7.0</td>
<td>259,011</td>
</tr>
</tbody>
</table>

Source: extracted from KNBS & SID, 2013
Table 19: Population density and distribution of poverty per division in Machakos County

<table>
<thead>
<tr>
<th>Division</th>
<th>Population</th>
<th>Estimated Poor</th>
<th>% of Poor</th>
</tr>
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<tr>
<td>Masinga</td>
<td>74478</td>
<td>70100</td>
<td>94.1</td>
</tr>
<tr>
<td>Matungulu</td>
<td>124,736</td>
<td>64990</td>
<td>65.2</td>
</tr>
<tr>
<td>Mwala</td>
<td>89211</td>
<td>63270</td>
<td>70.9</td>
</tr>
<tr>
<td>Kathiani</td>
<td>95096</td>
<td>62240</td>
<td>64.5</td>
</tr>
<tr>
<td>Yathui</td>
<td>65567</td>
<td>60860</td>
<td>92.8</td>
</tr>
<tr>
<td>Yatta</td>
<td>76748</td>
<td>51785</td>
<td>67.5</td>
</tr>
<tr>
<td>Kangundo</td>
<td>91238</td>
<td>50985</td>
<td>55.9</td>
</tr>
<tr>
<td>Central</td>
<td>143274</td>
<td>43640</td>
<td>30.5</td>
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<tr>
<td>Katangi</td>
<td>49007</td>
<td>42140</td>
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<tr>
<td>Kalama</td>
<td>41000</td>
<td>36840</td>
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<tr>
<td>Athi River</td>
<td>48936</td>
<td>32160</td>
<td>65.7</td>
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<tr>
<td>Ndithini</td>
<td>32358</td>
<td>21130</td>
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<td>Total</td>
<td>906644</td>
<td>600140</td>
<td>66.2</td>
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Source: NEMA, 2010
### Table 20: Health care facilities accredited by NHIF for provision of in-patient services in the Eastern Region of Kenya

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<thead>
<tr>
<th>Hospital</th>
<th>Postal Address</th>
<th>Beds</th>
<th>Dealing Branch</th>
<th>Cat.</th>
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<tbody>
<tr>
<td>AIC GATAB HEALTH CENTRE</td>
<td>21028 NAIROBI</td>
<td>11</td>
<td>MARSABIT</td>
<td>B</td>
</tr>
<tr>
<td>AL-BILAL NURSING HOME</td>
<td>210 60700 MOYALE</td>
<td>25</td>
<td>MOYALE</td>
<td>B</td>
</tr>
<tr>
<td>ATHI RIVER HEALTH CENTRE</td>
<td>PVT BAG MACHAKOS</td>
<td>14</td>
<td>MACHAKOS</td>
<td>B</td>
</tr>
<tr>
<td>BISHOP U KIOKO CATHOLIC HOSPITAL</td>
<td>2240 MACHAKOS</td>
<td>140</td>
<td>MACHAKOS</td>
<td>C</td>
</tr>
<tr>
<td>CONSOLATA HOSPITAL CHUKA (MERU)</td>
<td>33 MERU</td>
<td>54</td>
<td>CHUKA</td>
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<tr>
<td>CONSOLATA HOSPITAL KIENI (EMBU)</td>
<td>6038 RUNYENJIE'S</td>
<td>157</td>
<td>EMBU</td>
<td>B</td>
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<tr>
<td>CONSOLATA HOSPITAL NKUBU (MERU)</td>
<td>206 MERU</td>
<td>257</td>
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<tr>
<td>COTTOLENGO MISSION HOSPITAL</td>
<td>1426 MERU</td>
<td>30</td>
<td>MERU</td>
<td>B</td>
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<tr>
<td>COUNTY MEDICAL CENTRE</td>
<td>558-801 EMBU</td>
<td>25</td>
<td>EMBU</td>
<td>B</td>
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<tr>
<td>COUNTY MEDICAL CENTRE</td>
<td>558-801 EMBU</td>
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<td>EMBU</td>
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<td>EMALI NURSING HOME</td>
<td>1362 MACHAKOS</td>
<td>15</td>
<td>WOTE</td>
<td>B</td>
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<td>EMBU CHILDREN'S HOSPITAL</td>
<td>1365 EMBU</td>
<td>20</td>
<td>EMBU</td>
<td>C</td>
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<tr>
<td>EMBU CHILDREN'S HOSPITAL</td>
<td>1365 EMBU</td>
<td>50</td>
<td>EMBU</td>
<td>C</td>
</tr>
<tr>
<td>EMBU PROVINCIAL HOSPITAL</td>
<td>33 EMBU</td>
<td>199</td>
<td>EMBU</td>
<td>A</td>
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<td>GABARTULLA DISTRICT HOSPITAL</td>
<td>20 GARBATULLA</td>
<td>60</td>
<td>ISIOLO</td>
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<tr>
<td>GIAKI SUB DISTRICT HOSPITAL</td>
<td>8 MERU</td>
<td>8</td>
<td>MERU</td>
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<tr>
<td>IKUTHA HEALTH CENTRE</td>
<td>110-902 IKUTHA</td>
<td>2</td>
<td>MWINGI</td>
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<tr>
<td>ISHIARA DISTRICT HOSPITAL EMBU</td>
<td>125 ISHIARA</td>
<td>90</td>
<td>EMBU</td>
<td>A</td>
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<td>ISIOLO COUNTY NURSING HOME</td>
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<td>ISIOLO DISTRICT HOSPITAL</td>
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<td>ISIOLO</td>
<td>A</td>
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<tr>
<td>ISIOLO DISTRICT HOSPITAL (AMENITY)</td>
<td>42 ISIOLO</td>
<td>26</td>
<td>ISIOLO</td>
<td>A</td>
</tr>
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<td>JORDAN HOSPITAL</td>
<td>1143 KITUI</td>
<td>30</td>
<td>KITUI</td>
<td>C</td>
</tr>
<tr>
<td>JOY KIM NURSING HOME</td>
<td>1050 EMBU</td>
<td>30</td>
<td>EMBU</td>
<td>C</td>
</tr>
<tr>
<td>KANGUNDO DISTRICT HOSPITAL</td>
<td>1002 KANGUNDO</td>
<td>128</td>
<td>MACHAKOS</td>
<td>A</td>
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<tr>
<td>KANYAKINE SUB-DISTRICT HOSPITAL</td>
<td>76 KANYAKINE</td>
<td>80</td>
<td>MERU</td>
<td>A</td>
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<td>KATHIANI HOSPITAL MACHAKOS</td>
<td>PRBAG KATHIANI</td>
<td>180</td>
<td>MACHAKOS</td>
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<td>KATSE HEALTH CENTRE</td>
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<td>MWINGI</td>
<td>A</td>
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<td>KATULANI SUB-DISTRICT HOSPITAL</td>
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<td>33</td>
<td>KITUI</td>
<td>A</td>
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<tr>
<td>KIKIKOKO MISSION HOSPITAL (MACHAKOS)</td>
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<td>52</td>
<td>WOTE</td>
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</table>

Source: Adopted from NHIF homepage http://www.nhif.or.ke/healthinsurance/
Table 21: Health care facilities accredited by NHIF for provision of out-patient services

<table>
<thead>
<tr>
<th>NHIF SERVICE</th>
<th>ACCREDITED FACILITY NAME</th>
<th>ADDRESS</th>
<th>COUNTY</th>
<th>REGION</th>
</tr>
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<tbody>
<tr>
<td>NHIF Service</td>
<td>MACHAKOS COUNTY GENERAL HOSPITAL</td>
<td>Machakos Town, Machakos County</td>
<td>Machakos</td>
<td>Machakos</td>
</tr>
<tr>
<td>NHIF Service</td>
<td>KIALEA HEALTH CENTRE</td>
<td>Kialea, Machakos County</td>
<td>Machakos</td>
<td>Machakos</td>
</tr>
<tr>
<td>NHIF Service</td>
<td>HIGH VILLAGE HEALTH CENTRE</td>
<td>High Village, Machakos County</td>
<td>Machakos</td>
<td>Machakos</td>
</tr>
<tr>
<td>NHIF Service</td>
<td>FARMERS HOSPITAL</td>
<td>Farmers, Machakos County</td>
<td>Machakos</td>
<td>Machakos</td>
</tr>
<tr>
<td>NHIF Service</td>
<td>MUCURUMU MEDICAL CENTER</td>
<td>Mucurumu, Machakos County</td>
<td>Machakos</td>
<td>Machakos</td>
</tr>
<tr>
<td>NHIF Service</td>
<td>KIALEA HEALTH CENTRE</td>
<td>Kialea, Machakos County</td>
<td>Machakos</td>
<td>Machakos</td>
</tr>
<tr>
<td>NHIF Service</td>
<td>MUKHUMBA HEALTH CENTRE</td>
<td>Mukhumba, Machakos County</td>
<td>Machakos</td>
<td>Machakos</td>
</tr>
<tr>
<td>NHIF Service</td>
<td>KIAMBU COUNTY GENERAL HOSPITAL</td>
<td>Kiamaranga, Kiamaranga</td>
<td>Kiamaranga</td>
<td>Kiamaranga</td>
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<tr>
<td>NHIF Service</td>
<td>KIAMBU COUNTY GENERAL HOSPITAL</td>
<td>Kiamaranga, Kiamaranga</td>
<td>Kiamaranga</td>
<td>Kiamaranga</td>
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<td>NHIF Service</td>
<td>KIAMBU COUNTY GENERAL HOSPITAL</td>
<td>Kiamaranga, Kiamaranga</td>
<td>Kiamaranga</td>
<td>Kiamaranga</td>
</tr>
<tr>
<td>NHIF Service</td>
<td>KIAMBU COUNTY GENERAL HOSPITAL</td>
<td>Kiamaranga, Kiamaranga</td>
<td>Kiamaranga</td>
<td>Kiamaranga</td>
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</table>

Source: Adopted from NHIF website http://www.nhif.or.ke/healthinsurance/
Table 22: Jubilee Medical Insurance Rates

<table>
<thead>
<tr>
<th>J CARE</th>
<th>MEDICAL INSURANCE RATES</th>
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<tbody>
<tr>
<td></td>
<td>CLASSIC</td>
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<tr>
<td><strong>INPATIENT</strong></td>
<td></td>
</tr>
<tr>
<td>Limit per family per annum</td>
<td>500,000</td>
</tr>
<tr>
<td>Individual Premiums per annum</td>
<td></td>
</tr>
<tr>
<td>Principal (18-30yrs)</td>
<td>13,600</td>
</tr>
<tr>
<td>Spouse</td>
<td>11,400</td>
</tr>
<tr>
<td>Child (1 month - 17yrs)</td>
<td>7,200</td>
</tr>
<tr>
<td>Principal (31-40yrs)</td>
<td>14,200</td>
</tr>
<tr>
<td>Spouse</td>
<td>11,900</td>
</tr>
<tr>
<td>Child (1 month - 17yrs)</td>
<td>7,200</td>
</tr>
<tr>
<td>Principal (41-50yrs)</td>
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</tr>
<tr>
<td>Spouse</td>
<td>14,500</td>
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<tr>
<td>Child (1 month - 17yrs)</td>
<td>7,200</td>
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<tr>
<td>Principal (51-59yrs)</td>
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<td>Spouse</td>
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<td>Child (1 month - 17yrs)</td>
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<tr>
<td>Principal (60-65yrs)</td>
<td>37,500</td>
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<tr>
<td>Spouse</td>
<td>31,500</td>
</tr>
<tr>
<td>Child (1 month - 17yrs)</td>
<td>7,200</td>
</tr>
<tr>
<td><strong>OUTPATIENT</strong></td>
<td></td>
</tr>
<tr>
<td>Limit per person per annum</td>
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<tr>
<td>Premium per person per annum</td>
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<tr>
<td>(4yrs and below)</td>
<td>18,800</td>
</tr>
<tr>
<td>Premium per person (41-50yrs)</td>
<td>22,500</td>
</tr>
<tr>
<td>Premium per person (51-59yrs)</td>
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<tr>
<td>Premium per person (60-65yrs)</td>
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<tr>
<td><strong>MATERNITY</strong></td>
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</tr>
<tr>
<td>Maternity Limit</td>
<td>80,000</td>
</tr>
<tr>
<td>Premium per principal/spouse per annum</td>
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</tr>
<tr>
<td><strong>DENTAL</strong></td>
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</tr>
<tr>
<td>Limit per person per annum</td>
<td>5,000</td>
</tr>
<tr>
<td>Premium per person per annum</td>
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<tr>
<td><strong>OPTICAL</strong></td>
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<tr>
<td>Limit per person per annum</td>
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</tr>
<tr>
<td>Premium per person per annum</td>
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</tr>
<tr>
<td><strong>LAST EXPENSE</strong></td>
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<tr>
<td>Premium per person per annum</td>
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<td><strong>PERSONAL ACCIDENT</strong></td>
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<tr>
<td>Limit per person per annum</td>
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</tr>
<tr>
<td><em>Premium per adult (18yrs and above)</em></td>
<td>500</td>
</tr>
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</table>

Source: Adopted from Jubilee Insurance website - [https://www.jubileeinsurance.com](https://www.jubileeinsurance.com)
Table 23: Correlation Matrix

<table>
<thead>
<tr>
<th>Correlation</th>
<th>Individual income</th>
<th>Age</th>
<th>Awareness of health insurance</th>
<th>Number of dependants</th>
<th>Television Viewing</th>
<th>Reading Newspapers</th>
<th>Marital Status</th>
<th>Education Level</th>
<th>Household income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual income</td>
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<td>.135</td>
<td>.097</td>
<td>-.020</td>
<td>-.039</td>
<td>.044</td>
<td>-.085</td>
<td>-.085</td>
<td>.039</td>
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<tr>
<td>Age</td>
<td>.135</td>
<td>1.000</td>
<td>.068</td>
<td>-.075</td>
<td>-.136</td>
<td>-.090</td>
<td>-.043</td>
<td>.025</td>
<td>-.008</td>
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<td>1.000</td>
<td>.098</td>
<td>.005</td>
<td>-.076</td>
<td>-.052</td>
<td>.204</td>
<td>-.039</td>
</tr>
<tr>
<td>Number of dependants</td>
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<td>-.075</td>
<td>.098</td>
<td>1.000</td>
<td>.092</td>
<td>-.003</td>
<td>-.340</td>
<td>-.110</td>
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</tr>
<tr>
<td>Television Viewing</td>
<td>-.039</td>
<td>-.136</td>
<td>.005</td>
<td>.092</td>
<td>1.000</td>
<td>.361</td>
<td>-.010</td>
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<td>Reading Newspapers</td>
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<td>-.090</td>
<td>-.076</td>
<td>-.003</td>
<td>.361</td>
<td>1.000</td>
<td>-.069</td>
<td>-.460</td>
<td>-.191</td>
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<tr>
<td>Marital Status</td>
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<td>-.043</td>
<td>-.052</td>
<td>-.340</td>
<td>-.010</td>
<td>-.069</td>
<td>1.000</td>
<td>.019</td>
<td>-.184</td>
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<td>Education Level</td>
<td>-.085</td>
<td>.025</td>
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<td>-.110</td>
<td>-.185</td>
<td>-.460</td>
<td>.019</td>
<td>1.000</td>
<td>.112</td>
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<td>Household income</td>
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<td>-.008</td>
<td>-.039</td>
<td>.009</td>
<td>-.159</td>
<td>-.191</td>
<td>-.184</td>
<td>.112</td>
<td>1.000</td>
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</table>
Table 24: Anti-image correlation matrix

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<th></th>
<th>Number of dependants</th>
<th>Television viewing</th>
<th>Reading newspapers</th>
<th>Level of education</th>
<th>Marital status</th>
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<tr>
<td>Anti-image Covariance</td>
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<td>.110</td>
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<td>.855</td>
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<td>.006</td>
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<tr>
<td></td>
<td>Reading newspapers</td>
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<td>.691</td>
<td>.323</td>
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<td></td>
<td>Level of education</td>
<td>.110</td>
<td>.006</td>
<td>.323</td>
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<td>Anti-image Correlation</td>
<td>Number of dependants</td>
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<td></td>
<td>Television viewing</td>
<td>-.117</td>
<td>.591a</td>
<td>-.327</td>
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</tr>
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<td></td>
<td>Reading newspapers</td>
<td>.117</td>
<td>-.327</td>
<td>.520a</td>
<td>.444</td>
</tr>
<tr>
<td></td>
<td>Level of education</td>
<td>.135</td>
<td>.008</td>
<td>.444</td>
<td>.549a</td>
</tr>
<tr>
<td></td>
<td>Marital status</td>
<td>.346</td>
<td>-.054</td>
<td>.099</td>
<td>.060</td>
</tr>
</tbody>
</table>

a. Measures of Sampling Adequacy (MSA)
Appendix 2: List of Figures

Figure 4: Employment Creation by Sector in Kenya

Source: Economic Survey 2016
Figure 5: Unemployment rate in Kenya

Source International Labour Organization (2017)

Figure 6: Population pyramid, Machakos County

Source: KNBS & SID, 2013
Figure 7: Population pyramid, Nairobi County

Source: KNBS & SID, 2013
Figure 8: Kenya’s population pyramid 2014

Source: PMA & ICRHK, 2014

Figure 9: Health Financing for selected Sub Saharan African countries

Source: Adapted from Baris, Baeza, and Chawla, 2010
Figure 10: Wheel chairs at Mama Lucy Kibaki Hospital, Nairobi County.

Source: Field data (2015)

Figure 11: Formal and informal sector NHIF membership, 2010 - 2015

Source: KNBS, 2016
Appendix 3: Maps

Map 1: Map of Kenya
Map 2: Nairobi County

Map 3: Embakasi and Kayole Locations

Source: Kenya National Bureau of Statistics
Map 4: Matungulu District

Source: Kenya National Bureau of Statistics
Appendix 4: Informed consent

My name is Bernard Munyao Muiya. I am a PhD student from Kenyatta University, Department of Sociology. I am conducting a study on “Determinants of health insurance uptake among informal sector workers in Kenya: a study of Nairobi and Machakos counties.” The information will be used by the National Health Insurance Fund and other health insurance providers to increase enrolment of informal sector workers’ access to health insurance as a way of achieving universal healthcare in Kenya.

Procedures to be followed

Participation in this study will require I ask you some questions. I will record the information from you in a questionnaire.

You have the right to refuse participation in this study. Please remember that the participation in the study is voluntary. You may ask questions related to the study at any time. You may refuse to respond to any question and you may stop an interview at any time. You may also stop being in the study at any time without any consequences.

Discomfort and risks

Some of the questions you will be asked are on intimate subject and may be embarrassing or make you uncomfortable. If this happens, you may refuse to answer these questions if you so choose. You may also stop the interview at any time.

Benefits

If you participate in this study, you will help us understand what makes informal sector workers not to enrol in health insurance schemes in large numbers. This information will enable the researcher make recommendations to health insurance providers.

Reward

There are no monetary benefits for participating in this study but lunch will be provided and a small token to compensate you for the time we will spend on this research.

Confidentiality

Your name will not be recorded on the interview schedule which will be will be kept secured by the researcher and everything will be kept private.

Contact information

If you have any questions, you may contact Dr. Lucy Maina on 0722768104 or Dr. Anne Kamau on 0711966332 or the Kenyatta University Ethical Review Committee
Secretariat on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke, ercku2008@gmail.com.

Participants’ statement

The above information regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is voluntary. I understand that my records will be kept private and that I can leave the study at any time.

Name of Participant __________________________________________________________

Signature or Thumbprint ____________________________________________

Date ___________________

Investigator's statement

I, the undersigned, have explained to the volunteer in a language s/he understands the procedures to be followed in the study and the risks and benefits involved.

Name of interviewer __________________________________________________________

Interviewer’s signature ____________________________________________

Date ___________________
Appendix 5: Introductory Letter

TITLE: DETERMINANTS OF HEALTH INSURANCE UPTAKE BY URBAN INFORMAL SUB-SECTOR WORKERS IN NAIROBI AND MACHAKOS, KENYA

Serial Number: __________________

Start Time: __________________ End Time: __________________

My name is Bernard Munyao Muiya, a PhD candidate in the Sociology Department, Kenyatta University. I am researching on determinants of health insurance. This is an important study targeting the informal sector.

The exercise is currently taking place in Nairobi and Machakos counties. The discussion will take approximately 15 minutes. The information you provide will help us to understand about uptake of health insurance in Kenya by informal sector workers.

The information you provide is confidential and will not be disclosed to anyone. It will be used only for research purposes. Your participation is voluntary and you are free to refuse to answer any question in the interview schedule. If you have any questions about the survey, you may ask me (0722980511) or contact the Chairman, Sociology Department, Kenyatta University (P. O Box 42844-00100 Nairobi; Tel: 0208710901/19 Ext: 57540 Email address chairman-sociology@ku.ac.ke). There are no monetary rewards for participating in the exercise but you may benefit since the study will help in determining how best enrolment in health insurance in Kenya can be structured to include workers in the informal sector. You are free at any time to withdraw from participating in the exercise.
Appendix 6: Interview schedule for informal sector workers

RA: Please provide responses to the following questions by either ticking or filling in the required information.

**BACKGROUND INFORMATION OF RESPONDENTS**

1. Age __________

2. Gender  
   - Male  
   - Female

3. Marital status  
   (i) Married  
   (ii) Single  
   (iii) Divorced  
   (iv) Separated  
   (v) Widowed

4. Education  
   1) Primary and below  
   2) Secondary  
   3) Tertiary college  
   4) University

5. Residence  
   i) Rural  
   ii) Urban

6) Among the following choices, which one best describes your health status?  
   1. Very good  
   2. Good  
   3. Fair  
   4. Poor  
   5. Very poor

7) Do you have any specialized training or skill?  
   1. Yes  
   2. No

8) How best can you describe the work that you do?  
   1. Skilled (Explain)  
   2. Semi-skilled (Explain)  
   3. Unskilled (Explain)  
   4. Other (Specify)
9) How many dependants do you have? _______. *(RA list each person mentioned and indicate their relationship with the respondent)*

<table>
<thead>
<tr>
<th>Number of household members</th>
<th>Age of household member</th>
<th>Nature of employment of household member</th>
<th>Estimate salary of household member(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10) What type of paid work are you involved in?

________________________________________________________________________

11) Indicate whether you are:


12) For how long have you been in this job?

________________________________________________________________________

13) Average earnings/mode of payment/hours worked

<table>
<thead>
<tr>
<th>Payment period</th>
<th>Piecework</th>
<th>Daily</th>
<th>weekly</th>
<th>Monthly</th>
<th>Other (specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours worked per day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average earnings (KSh)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment mode (Cash, cheque) *</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* RA indicate in appropriate cell mode of payment

14) (a) Apart from this work, do you engage in any other paid work?

1. Yes □ 2. No □

(b) If yes, what kind of work? Specify ______________________________________

(c) What are your collective earnings per month? __________

**RISK PERCEPTION**

15) (a) Do you think any of the work you do has any risks involved?

1. Yes □ 2. No □

(b) Explain your answer ____________________________________________
16) (a) Do you think it is important to ensure safe working conditions?
   1. Yes
   2. No

(b) Explain your answer ____________________________________

17) Are you a member of any union or organisation?
   1. Yes
   2. No

18) If yes, please specify ____________________________________

19) What benefits do you get from membership to the above organisation?
   (i) Loans
   (ii) Training
   (iii) Medical expenses
   (iv) Other. Please specify ________________________________

HEALTH INSURANCE AWARENESS, KNOWLEDGE & UPTAKE

20) Are you aware of the existence of health insurance?
   Yes
   No

21) If your answer to 20 is ‘Yes’, which provider(s) do you know?
    ______________________________________________________

22) What, in your own understanding, is health insurance?
    ______________________________________________________

23) How did you get to know about health insurance?
   (i) Radio
   (ii) Television
   (iii) Newspaper
   (iv) Family/Friends
   (v) Doctor
   (vi) Insurer/Agent
   (viii) Other. Specify__________________

22) Please briefly describe what you have heard or provide examples.
24) Indicate whether you are familiar with the following issues related to health insurance.

<table>
<thead>
<tr>
<th>Health-insurance-related issues</th>
<th>Familiar</th>
<th>Not Familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process of enrolling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where to enrol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eligible family members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditions when enrolling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Premiums charged (public/private)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When health insurance premiums are paid (public/private)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mode of payment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penalties for non-payment of premiums</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When to use HI services after enrolling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthcare services covered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outpatient physician visits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outpatient prescription drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dental services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health insurance schemes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explain the comprehensive family based cover – Contract A, B, and C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Which hospitals to seek for healthcare services</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25) What health services do you utilize often?

1. Private healthcare providers  
2. Public healthcare providers

26) Indicate your ability to pay for healthcare.

1. Pay with ease  
2. At times with difficulties
3. Always with difficulties  
4. Unable to pay

27) How do you fund your healthcare?

1. Out-of-pocket payments  
2. Individual private insurance  
3. Employment based insurance  
4. Group private insurance  
4. Assisted
28) On average, how many times have you or your dependants sought for healthcare services in the last twelve months?

<table>
<thead>
<tr>
<th>Type of facility</th>
<th>Uninsured</th>
<th>Insured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private doctor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public health center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private clinic/hospital</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

29) On average, how much do you spend on healthcare services for yourself and dependants in one year?

30) Are you a member of a health insurance scheme?
   1. Yes
   2. No [Go to 41]

31) If your answer to 26 is yes, name health insurance scheme(s)

32) Did you join the insurance scheme voluntarily? Explain

33) When did you join this health insurance scheme(s)?

34) Why did you enrol in this particular health insurance scheme(s)?

35) Who is covered?

36) Who contributes towards the health insurance scheme(s) you are a member?
   1. Self
   2. All household members

37) How much do you contribute? (*RA indicate as appropriate*)
   1. Weekly (KSh) 
   2. Monthly (KSh) 
   3. Quarterly (KSh) 
   4. Semi-annually (KSh) 
   5. Annually (KSh)
38) What does the health insurance scheme cover?
   1. ________________________________
   2. ________________________________
   3. ________________________________
   4. ________________________________

39) Does this health insurance scheme have any conditions for joining?
   1. Yes ☐ 2. No ☐

40) If your answer to 35 is yes, explain
  _____________________________________________________________________

42) Do you have any other health insurance?
   1. Yes (specify)_____________________ 2. No __________________

42) If your answer to 37 is yes, do you ever use this health insurance?_______

43) If yes, when was the last time you used it?______________

44) Are you aware of the existence of any other health insurance scheme besides the one you belong to?
   1) Yes ☐ Name _______________________ 2. No ☐

45) If your answer to 26 is no, explain why you have not enrolled in a health insurance scheme? ________________

46) Are you willing to enrol in a health insurance scheme? Explain_____________________________________________________________

47) Tick the appropriate choice that best describes your exposure to media.

<table>
<thead>
<tr>
<th>Read a newspaper</th>
<th>Listen to radio</th>
<th>Watch television</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Almost daily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sometimes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

48) Do you have anything else that you would like to share with us?
   ___________________________________________________________________
Appendix 7: Focus Group Interview Guide for informal sub-sector workers

Introductory remarks

Greetings and welcome to our session. Thanks for taking the time to join us to talk about health insurance in the County. My name is Bernard Muiya from Kenyatta University, Department of Sociology.

We are seeking for some information from informal sector workers about your perceptions of health insurance schemes in Kenya. We are having discussions like these with several other groups in Nairobi County.

Please feel free to share your point of view even if it differs from what others have said. Keep in mind that we are just as interested in negative comments as positive comments.

We are tape-recording the session because we do not want to miss any of your comments. People often say very helpful things in these discussions and we cannot write fast enough to get them all down. We will not use any names in our reports and therefore be assured of complete confidentiality.

i) How do you pay for your healthcare and that of your dependants?

ii) Are you aware of any health insurance scheme?

iii) Are you aware of any health insurance product available to you?

iv) How did you get to know about health insurance?

v) Knowledge of benefits cover and payment.

i) Among your dependants, who is covered by your health insurance scheme?

ii) What kinds of diseases are covered by the health insurance scheme?
iii) What mode of payment do you use to make contributions to the health insurance scheme in which you are enrolled? Direct bank deposit?, Mobile phone banking?

iv) When do you make such payments? Daily? Weekly?, Monthly?, Annually?

v) Have you ever delayed making your contributions to the scheme?

vi) If yes, for how long? Was there a penalty imposed on you?

vi) Do you find health insurance useful?

1. If yes, how?

2. If no, why?

vii) Do you approve of the way health insurance schemes in Kenya operate?

(i) If yes, why?

(ii) If no, why?

viii) Do you have any suggestions on the way health insurance schemes should operate?
Appendix 8: Interview Guide for Key Informants

Thank you for agreeing to do this interview. My name is Bernard Muiya, a PhD candidate from the Department of Sociology, Kenyatta University. I am doing a study on the determinants of health insurance uptake among informal sector workers in Kenya. The purpose of this interview today is to learn more about how NHIF goes about enrolling informal sector workers in the health insurance scheme.

The interview will last about 30 minutes.

Everything you tell us will be confidential. To protect your privacy, we will not connect your name with anything that you say.

At any time during our conversation, please feel free to let me know if you have any questions or if you would rather not answer any specific question. You can also stop the interview at any time for any reason.

1. What category of workers does NHIF cover?
2. How many dependants per contributing member does the scheme cater for?
3. Are there categories of diseases that are not included in the scheme?
4. What does the cover include?
   a) In-patient
   b) Out-patient
   c) Both in-patient and out-patient
   d) Laboratory services
   e) Other?_______
5. From the total membership of NHIF, how many are from the informal sector?
6. Do you think members’ contributions are sufficient to offer health coverage to members?
7. How is enrolment for informal sector workers done?

8. How do informal sector workers make their contributions?

9. What are the challenges of enrolling informal sector workers to NHIF?

10. Does NHIF have any outreach programmes to sensitize community members on health insurance?

11. In your opinion, which is the best approach to enrol informal sector workers to NHIF?

12. Which category of health facility can members seek for healthcare services? - private or public? Explain

13. What healthcare services does NHIF cover? Are there some limited to public or private healthcare facilities? (NB: Cite different rates for bed charges in private and public hospitals).

14. Are there any penalties on delayed remittance of contributions by members in the informal sector?

15. What are the procedures when members seek for healthcare in accredited healthcare facilities?
Appendix 9: Research Permit from NACOSTI

THIS IS TO CERTIFY THAT:

MR. BERNARD MUNYAO MUIYA of KENYATA UNIVERSITY, 0-90115 kagundu, has been permitted to conduct research in Machakos, Nairobi Counties on the topic: DETERMINANTS OF HEALTH INSURANCE UPTAKE AMONG INFORMAL SECTOR WORKERS IN KENYA: A STUDY OF NAIROBI AND MACHAKOS COUNTIES for the period ending 31st December, 2017.

Permit No.: NACOSTI/P/15/1340/4602
Date Of Issue: 29th January, 2015
Fee Received: Ksh 1,000

Applicant's Signature

National Commission for Science, Technology & Innovation
Appendix 10: Research Authorization by Graduate School – Kenyatta University

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke
OUR REF: C82/21363/10

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530
DATE: 18th January 2014

The Permanent Secretary,
Ministry of Higher Education, Science & Technology,
P.O. Box 30040,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MR. BERNARD M. MUIYA REG.
NO.C82/21363/10

I write to introduce Mr. Muiya who is a Postgraduate Student of this University.
He is registered for Ph.D. Degree programme in the Department of Sociology in
the School of Humanities & Social Sciences.

Mr. Muiya intends to conduct research for a proposal entitled, “Determinants of
Health Insurance Uptake among Informal Sector Workers in Kenya: A Case of
Nairobi and Machakos Counties”.

Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBABBI
DEPUTY DIRECTOR, GRADUATE SCHOOL
RM/czo
Appendix 11: Research Protocol Approval by Kenyatta University Ethics Review Committee

Kenyatta University Ethics Review Committee

Email: chairman.kuer@knu.ac.ke
secretary.kuer@knu.ac.ke
erck02008@gmail.com
Website: www.ku.ac.ke

P. O. Box 43844 - 00100 Nairobi
Tel: 8710907/12
Fax: 8711242/8711575

Ref: KU/R/COMM/51/899

Date: 9th February, 2015

Bernard Munya Muia
Kenyatta University,
P.O. Box 43844,
Nairobi

Dear Munya,

RE APPLICATION NUMBER PKU/288/1 264 – “DETERMINANTS OF HEALTH INSURANCE UPTAKE AMONG INFORMAL SECTOR WORKERS IN KENYA: A STUDY OF NAIROBI AND MACHAKOS COUNTIES”

1. IDENTIFICATION OF PROTOCOL

The application before the committee is with a research topic “Determinants of health insurance uptake among informal sector workers in Kenya: A study of Nairobi and Machakos Counties” received on 20th November, 2014.

2. APPLICANT

Bernard Munya Muia, Department of Sociology

3. STUDY SITE

Nairobi and Machakos Counties (Utuwala, Nasra & Tala), Kenya

4. DECISION

The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines AND APPROVED that the research may proceed for a period of ONE year from 9th February, 2015.

5. ADVICE/CONDITIONS

i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
ii. Serious and unexpected adverse events related to the conduct of the study are reported to this board immediately they occur.
iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
iv. Submit an electronic copy of the protocol to KU-ERC.

When replying, kindly quote the application number above.

If you accept the decision reached and advice and conditions given, please sign in the space provided below and return to KU-ERC a copy of the letter.

[Signature]

PROF. NICHOLAS K. GIKONYO
CHAIRMAN ETHICS REVIEW COMMITTEE

[Signature]

1. I accept the advice given and will fulfill the conditions therein.

Dated this day of __________________________ 2015.

cc. Vice-Chancellor
Appendix 12: Research Authorization by National Commission for Science, Technology and Innovation (NACOSTI)

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254 20 2213471, 2261349, 310571 2219420
Fax: +254 20 316240, 3108240
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

Ref: No.

NACOSTI/P/15/1340/4602

Bernard Munyao Muiya
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Determinants of health insurance uptake among informal sector workers in Kenya: A study of Nairobi and Machakos Counties,” I am pleased to inform you that you have been authorized to undertake research in Nairobi and Machakos Counties for a period ending 31st December, 2017.

You are advised to report the County Commissioners and the County Directors of Education, Nairobi and Machakos Counties before embarking on the research project.

On completion of the research, you are required to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

DR. S. K. LAMBAT, OGW
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.