

FACTORS INFLUENCING HEALTH INSURANCE UPTAKE IN NYERI COUNTY.

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DECLARATION

This project is my original work and has not been submitted for examination in any academic institution.

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APPROVAL

This project has been undertaken and submitted for examination with my approval as university supervisor.

Signature: _____ Date _____

DR. PETER MURIU

DEDICATION

To my parents and siblings for according me overwhelming encouragement throughout my academic journey.

To my wife Dorothy for her unwavering moral and spiritual support!

To my daughter Melissa for being such a great source of inspiration!

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I sincerely appreciate the support offered by my supervisor, Dr.Peter Muriu. He was always available and provided invaluable insights throughout the research project. He allowed me to fully own this project yet gave me strategic guidance and direction.

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ABSTRACT

Out-of-pocket payments are an inefficient and inequitable system of health financing. It leads many people into poverty and poses a barrier to access to healthcare since it drives the poorer households quickly into poverty. Kenya has identified Universal Health Coverage as a critical element in transforming the country into middle-income under the Vision 2030 and the Big Four Agenda.

This study explored the factors that influence health insurance uptake among residents of Nyeri County using cross sectional data. The study employed probit model to carry out estimations. Estimation results reveals that marital status, age, income, level of education, size of household, employment status, financial literacy, location of health insurance provider and the distribution channels positively influence health insurance uptake. However, literacy campaigns conducted in the county have not been effective in influencing the uptake of health insurance.

The study recommends that insurance providers including the health ministry should continuously plan for health insurance products and conduct targeted literacy campaigns for each demographic especially informal workers, low income and unmarried youth population.

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LIST OF ABBREVIATIONS

AKI	Association of Kenya Insurers
CBHF	Community Based Health Financing
CHMT	County Health Management Team
KNBS	Kenya National Bureau of Statistics
KHHEUS	Kenya Household Health Expenditure and Utilization Survey
MOH	Ministry of Health
NHIF	National Hospital Insurance Fund
OOP	Out Of Pocket
THE	Total Health Expenditure
SSPH	System of Social Protection in Health
UHC	Universal Health Coverage
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

According to Abebe (2013), countries use social health protection systems to provide health services by addressing the obstacles to obtaining treatment, especially for the low-income population. There are households in low-income countries that still cannot access health services due inadequate finances and as a result, suffer adverse health shocks (Kusi et al., 2015). Since this population does not have health insurance, almost the entirety of medical expenses is paid out of pocket (OOP), causing further financial strain and increasing barriers to health care in developing nations (Kimani et al., 2012).

The World Health Organization (WHO) views risk-pooling schemes such as risk pooling prepayment approach as the only way to reduce the strain of OOP medical payments and increase coverage and health service utilization in countries like Kenya (Carrin et al., 2010). Social health insurance schemes, including the National Health Insurance Fund (NHIF), enables Kenyans even in rural areas to access healthcare on need basis instead of the ability to pay. Such schemes are also emerging as a global panacea for breaking the poverty cycle and vulnerability to ill health (WHO, 2010).

The Big four Agenda currently being pushed by the government focuses on extending healthcare to all population strata including the marginalized. The Kenya policy framework and strategic plan is set out in Vision 2030 and the Big Four Agenda. Government sponsored health insurance intends to subsidize the high cost of health care that prevents individuals from accessing treatment when they are ill, thereby promoting their citizen's access to healthcare. This is the reason revitalization of the NHIF in Kenya is a crucial focus for the government in providing Universal Health Coverage.

1.1.1 Health Insurance in Kenya

There exist three classes of health insurance schemes in Kenya, community –based health insurance, public/social health insurance, and private health insurance. Community-based health (CBHI) insurance was established in Kenya in 1999. Therefore it is relatively still new and has a limited scope of cover. There are 38 CBHF schemes with 470,550 beneficiaries. This translates to only 1.2% of the entire Kenyan population (Muiya,

2013). Private health insurance is mostly only afforded by the middle to upper classes in Kenya given their cost (Kimani et al., 2014).

Kenya boasts of one public scheme, the National Health Insurance Fund (NHIF) incepted as a nonprofit institution in 1966. When it started, NHIF was meant to offer salaried formal sector employees with health insurance for those earning a thousand shillings or more per month (Ministry of Health, 2014, MoH 2009). There are, however, many changes that have been done to the fund since its inception, including expanded benefits, outpatient coverage, surgical packages and specific efforts targeting informal sector households.

In 1998, the NHIF Act No. 9 of 1999 was passed to transform the fund into a Board managed autonomous state corporation and covered informal sector households.

The Fund provides a household cover that includes the whole family and department relatives in an insurance unit. The scheme places no limit on the dependents list; however, it restricts the number of spouses to one. The scheme requires contribution only from the breadwinner in the house. In a household where two or more members are in formal employment, each has to contribute individually to the fund. The NHIF automatically insures children under 18 if their parents are members. Children over 18 have to provide proof of their economic dependency using school certificates.

1.1.2 Uptake of Membership with NHIF

NHIF is widely available in Kenya as a voluntary public health insurance program, and it includes private, faith-based, and government in its 1200 accredited hospitals across the state (NHIF, 2012). By 2015, the NHIF had covered 5.2 million Kenyans or 19% of the population, but a majority of them live in urban areas. Kenya Household Health Expenditure and Utilization Survey done in 2013 revealed an household's income was positively correlated with health insurance. Among the highest wealth quintile, participants reported 41.5% coverage compared to 2.9% coverage reported in the most deprived quintile.

Additionally, the survey showed coverage deviation with highest insurance coverage registered in Kiambu (34.0%), Nyeri (32.9%), Nairobi (31.9%) and Kericho (31.5%), while Turkana (3.0%), Marsabit (1.8%) Samburu (6.7%), recorded the lowest. Among the uninsured group, the level of healthcare service utilization was comparatively low. Both insured and uninsured participants recorded comparable per capita visits (3.2 and 3.0 visits, respectively) for outpatient services. However, the insured had a higher utilization for inpatient services, (75 admissions per 1,000 population) as opposed to the uninsured (30 admissions for every 1,000 populace), showing that insurance promotes healthcare access (MoH, 2014).

1.1.3 Nyeri County

The study is based on data collected from Nyeri County, given that the county suffers a high burden of chronic diseases, has high literacy levels, and is among the pilot counties for universal health coverage.

Nyeri County is County number 19 under schedule 1 of the Constitution of Kenya (article 6). It is among the four pilot counties for Universal Health Coverage (UHC) under Kenya's Big Four Agenda meant to transform the country by 2022. UHC will employ Primary Health Care Approach to guarantee all Kenyans gain access to all health service levels of health care comprising preventive, curative, palliative, and promotive services at a negligible cost. The program will have special focus expanding immunization coverage, and scaling up maternal and newborn health.

1.2 Statement of the Problem

Out-of-pocket payments are an inefficient and inequitable system of health financing. This has negatively impacted health services utilization in Kenya (Mathauer, Schmidt &Wenyaa, 2008). The amount of OOP spending on healthcare remains high. Currently, 26.6 percent Kenya's total health expenditure (THE)is out –of- pocket. This leads many people into poverty and posing a barrier to access to healthcare since it drives the poorer households quickly into poverty. Statistics indicate that more than 46.6 percent of the Kenyans are poor, according to the WHO definition of poverty as surviving on less than a dollar per day (World Bank, 2010). The MOH observed that 15% of the poor don't seek care because of monetary reasons, while 38% of them generally dispose assets or borrow to settle medical expenses. This has additionally pushed 1.5% of the family units beneath the poverty line (Health Systems 2020 Project, 2009). Uptake of health insurance is slowly progressing from 9.8% in 2009 to 19% of the total Kenyan population in 2015. Only 2.9 percent of the poorest have some a cover as opposed to 41.5 percent among rich. This is still low, bearing in mind that health insurance is among the financing pillars and purchasing reforms set to steer the country towards realizing Universal Health Coverage (Mwaura, Barasa, Ramana, Coarasa&Rogo, 2015).

In in 2016, the Health Management Team noted that utilization of public health care services had risen. However, waiver volumes due to lack of funds had also increased at a higher proportion compared to 2014 and 2015. The number of those insured and accessing healthcare within the County facilities remained constant, as reflected by the volume of scheme reimbursements, for the preceding two years. This highlighted the challenge that a

significant amount Health Sector allocation was being spent towards the cost recovery of waivers per quota. This in turn translated to reduced strategic investments in human resources as well as infrastructure for the overall health subsector.

Given that risk pooling is a key societal concept in health resource mobilization towards attainment of UHC (McIntyre et al. 2008); this study looks to pinpoint factors that impact Health Insurance uptake in Nyeri County. Consistent with the research problem, this study intends to address the research questions namely; how do demographic factors influence health insurance uptake in Nyeri County? What is the degree of influence of awareness on health insurance uptake in Nyeri County? To what extent do socioeconomic factors influence health insurance uptake in Nyeri County? How does accessibility of health insurance services influence health insurance uptake in Nyeri County?

1.3 Objectives of the Study

The broad objective is to investigate the factors influencing health insurance uptake in Nyeri County. Specifically, this study seeks;

- i. To determine the influence of level of awareness on health insurance uptake in Nyeri County.
- ii. To examine the influence of demographic factors on health insurance uptake in Nyeri County.
- iii. To determine the influence of socioeconomic factors on health insurance uptake in Nyeri County
- iv. To examine the influence of accessibility on health insurance uptake in Nyeri County
- v. To draw policy implications from the results.

1.4 Significance of the Study

Vision 2030 and the Big Four Agenda give a sense of the importance of providing universal health care coverage and utilization as a critical element in transforming Kenya into a middle-income country by 2030. The study findings are meant to guide the government and other policy stakeholders, especially in adapting health insurance services to formal as well as informal workers across rural Kenya. The study also aims to sensitize stakeholders in the insurance, including the Association of Kenya Insurers (AKI), regarding the barriers slowing down health insurance penetration.

Policymakers in health financing, especially the NHIF Board and MoH Kenya, may use the study findings to assist in pricing premiums, enhance contribution collection

mechanisms, and the benefits of the fund and implement the proposed universal health coverage. Understanding health insurance uptake will help in planning marketing approaches that can be used to communicate benefits and access to health insurance to the rural populations.

Other researchers may also use this study to qualitatively investigate barriers to uptake of health care financing. The medical insurance industry may likewise utilize the results to address the barriers to penetration of medical micro-insurance products.

1.5 Organization of the Study

This chapter presents the reviewed literature. It is categorized into theoretical and empirical literature with a summary or overview as the last section of the chapter. Chapter three outlines the methods applied to estimate study results in both theoretical and model specifications, definition of variables and the data sources. Chapter four of the paper discusses the results. It presents descriptive statistics and results from the model estimation. The final chapter of the paper summarizes the findings, gives policy implications and areas for further studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section consists of documented literature relating to the study objectives so as to give a theoretical and empirical framework on the problem area. The body of knowledge analyzed will also assist in developing a conceptual framework for this study.

2.2 Theoretical Literature

The Diffusion theory

Lionberger (1960) theorizes that there are five stages through which people process and accept information. These stages are: the awareness stage, whereby the individual knows the idea but does not know its benefits; the interest stage where an individual is attracted to the idea and explores how they can use it; the evaluation stage whereby the person considers the specific benefits of the concept to themselves; in the trial stage the individual tests out the idea on themselves and others around them to see the benefits; the final adoption stage depicts acceptance and its continued use depending on the individuals continued gratification.

Social exchange theory

In this theory, Thibaut and Kelley (1959) applied cost and benefit economic metaphors to forecast consumer habits. The theory assumes that consumers select systems dependent on deemed value versus costs. The consumer will factor the results of their actions before they act to limit damage and maximize rewards.

Adverse Selection theory

This is the tactical conduct executed by a knowledgeable party in an undertaking disadvantaging the less knowledgeable party. Its relevance to our health insurance-related study is on the grounds that every individual picks among the medical insurance contracts offered by insurers in accordance with the benefits and premiums. In other words, those who are at a higher health risk will tend to choose an insurance plan that will be less costly and more beneficial than those who expect to use health services less. High health risk individuals will seek out health insurance contrasted to low-risk healthy individuals who will wait until it is almost unavoidable to seek health care financing (Morris et al. 2007; Wagstaff, 2010).

Moral hazard theory

This theory posits that people or entities assume higher risks when they have insurance than they would if uninsured because they enjoy financial protection from repercussions that could result from their risky practices. This may lead to the insurer facing more claims than they had planned or foreseen.

Moral hazard is applicable on both on the demand and supply sides. Demand side moral hazard occurs when the patient increases their health service consumption due to the low cost they incur. It may include unnecessary or excessive spending by the consumer who knows that the insurance provider will carry the financial burden.

Supply side moral hazard occurs when a provider exploits the missing financial constraints on the insured to oversupply their therapeutic interventions by exaggerating the scale/number of tests and procedures required. The patient will rarely refuse to purchase excessive healthcare since the cost is transferred to the health insurer.

Conventional health insurance theory

Pauly M. (1968), when developing this theory, stipulated that moral hazard is detrimental when it increases health care spending through insurance since it is a loss of welfare to the society.

This happens since insurance lowers the treatment price to a minimum making consumers purchase more health care than they otherwise would if it was charged at average market price. Even though the producer still incurs the cost of the additional care, the patient's impression is that value is lower than the market prices.

This inefficiency is demonstrated by the difference between the high market price of treatment and its low apparent value to insured customers reflected by the low premiums paid compared to the high cost of resources used to provide this care. The solutions to moral hazards provided by this theory are policies to impose coinsurance payments, apply deductibles, and benefit limits that transfer some cost of health to the member to address unnecessary utilization of medical care. The managed medical care system in the U.S. is premised on this theory (Besley, 1991).

2.3 Empirical Literature

Demographic Factors and Health Insurance Uptake

A person might have a top wealth index, a considerable income, and be employed but still does not purchase health insurance. This may be attributed to their sociodemographic

characteristics such as level of education, marital status, age or gender. Asenso et al., (1997), Wanjiku (2011), Ying et al., (2007), Mwaura (2012), Bernd et al., (2011), and Knowles et al., (2010), all concur that being married and having a higher education level increases the chances of enrolling to a medical scheme.

However, the studies differ when it comes to age and gender. While Ying et al.,(2010) found out that younger persons had increased probability of participating scheme offering medical cover, Mwaura (2012) found out that advanced age increased the probability of enrollment. Similarly on gender, Knowles et al.,(2010) observed that that households headed by females had a higher likelihood of enrolling in a medical insurance plan but Bourne and Kerr-Campbell (2010), observed the contrary.

Mhere (2013) observed age to be a significant predictor of enrollment to health insurance schemes. During his investigation on the low health insurance uptake in Gweru, Zimbabwe the researcher found that aged people have a greater sense of responsibility, more knowledge and have already accumulated enough wealth to take care of their healthcare needs financially. In the same study, however, Meher (2013) also observed that in advanced age there is decreased uptake of health insurance, suggesting that people past their productive years are not as cautious with their health or are rich enough to pay OOP. Some aged individuals also have generations of children who take care of their health needs financially.

Women over 40 years of age had a higher likelihood of enrolling in a medical insurance plan than younger ones in a study done in Ghana by Edward (2009). The reason is that older women are more aware of their deteriorating health and are more motivated to invest in affordable health care. Harmon and Finn (2006) also observed age to be an essential predictor of purchasing decision due to high indirect susceptibility, increased medical consumption, and possible higher income.

Boateng&Awunyor-victor, (2013) found gender to be a key predictor of enrolment to Ghana's National Health Insurance. Their research showed that women had a higher possibility of paying and updating contributions compared to men. Possible explanation for these phenomena was postulated as the psychological makeup of women and their vulnerability as caregivers for family. This leads them to explore the most efficient care and healthcare financing for their family. Subsequently, women have a more positive outlook toward health insurance compared to men.

Adebayo *et al.* (2015) observed that community-based health financing uptake is determined by demographic and systemic factors. The study carefully analyzed 14,506 available records of studies on Community Based Schemes in both published and

unpublished form. Individuals with small household, low income, low education levels, females, and the elderly had less likelihood to adopt the schemes. Poor health services provided and mistrust of Schemes was also associated with low uptake. This conclusion may not necessarily apply to the Kenyan situation since Community Based Schemes are not popular in this country, and the study results were generalizations.

Several studies by (Cude, 2005; and Tennyson, 2011) revealed the fact that consumers find health insurance is a complex service. Inadequate health insurance literacy makes health insurance challenging due to limited knowledge of coverage, and consumers need guidance to embrace and utilize the service.

Rifat et al. (2013) showed that Turkey's health transformation program boosted healthcare access as well as utilization among the citizenry.

Knaul et al. (2012) observed that Mexico made significant progress towards universal coverage attributed to the health reform of 2003 that instituted the System of Social Protection in Health (SSPH). Thus, reforms including but not limited to health insurance literacy have to be undertaken in a nation's health system for medical insurance uptake to improve.

A study in Nicaragua by Thornton et al., (2010) found that in developing countries, a family's health status especially in houses where a breadwinner is chronically ill and presence of a high chance of adverse future ill health significantly and positively influenced health insurance uptake. In Rwanda, Schneider and Diop (2001) observed that households with five or more members had a bigger likelihood of participating in a health plan than smaller households. The main reason behind this is that contributions paid are the same for everybody enrolled, even households that had up to 7 members. Bendig and Arum (2011) and Msuyate *et al.* (2004), found that household income as well as size positively influenced health micro-insurance uptake. This conforms to rational decision making by the breadwinner as the price of premiums is not dependent on size of the family.

Fang *et al.* (2012) observed that smaller sized households and higher-income families in Taiwan had higher likelihood of enrolling in public or private insurance. Also, households with members suffering from chronic illness had higher likelihood of purchasing health insurance so as to lower OOP health care financing. In conclusion, the study stated that although Taiwan had attained milestones in scheme enrolment, out of pocket payments continued to be a constraint.

Ghosh (2013) studied awareness and willingness to join health plans in India, and found out learned individuals had lesser chances of paying a high premium. The learned in

the district invested their money in other portfolios that would reap a higher rate of return. Bending and Arun (2011) observed low uptake levels in Sri Lankan households where the breadwinner had no formal primary education. This is primarily due to inadequate income and reduced opportunities despite this population having a higher inclination to take care of their families.

Level of Awareness and Health Insurance Uptake

Most Kenyans are naïve regarding insurance products leading to skewed awareness and information asymmetry and distortion. In some rural areas, there is nonexistent information regarding insurance altogether. As a consequence, uptake of health insurance products even at the corporate level remains low (Nduma 2013). Studies show a general awareness gap about the benefit of medical insurance. Most people, even in Kenya, first get insurance information when they purchase their first motor vehicle due to mandatory policies (Gitau, 2013). Despite insurance being in Kenya since the 60s Jain and Goyal (2013) noted that there is still a staggering lack of awareness of the contracting process in insurance.

In Africa, there is inadequate financial literacy amongst the populace leading to massive asymmetry between the people and providers. The insurer has limited exposure to the potential subscribers, and the insured do not have a clue about health insurance. Research also shows a generally negative perception towards insurance (Nduma, 2013).

Olopade and Frolich (2013) faulted approaches employed by insurance companies in educating the populace on health insurance. Most campaigns focus on a specific product, and there is generally missing insurance information including health insurance. During educational campaigns, stakeholders need to differentiate between the promotion of a specific product and general insurance education hence developing a deeper grasp of insurance as a whole product. The literacy campaign should explain insurance and break down concepts and terminologies associated with insurance. The government and NGO's have mainly been responsible for educating the general public on the different insurance types and benefits since it is not a promotional effort. Majority private sector players do not conduct general campaigns as the motive is typically seen on a commercial lens rather than social (Olopade&Frolich, 2012).

A further explanation for low health insurance uptake would be information gaps about the numerous options available and the registration process. Studies done on informal workers show that this is the main hindrance associated with low health insurance uptake in this group. The workers complained of being unaware that they could also become members

and contribute to the NHIF. They thought that the fund is only for the formal employees and the rich. (Mathauer et al. 2008). In addition, these workers pointed out that they did not know where to enroll, and they have never received information on the registration process. Similarly, in Tanzania, the lack of education on the Community Healthcare Fund led to low enrollment once it was launched (Kamuzora&Gilson 2006).

Results drawn from a research conducted in Nigeria by Sanusi et al., (2009) showed 87% percent of the study participants knew about the national health insurance of whom 83% had enrolled. The significant variables in this study were found to be employment and income levels, while demographic factors were not significant in influencing the respondents' awareness about health insurance schemes. A study by Danso (2005) highlighted a limitation in recognizing differences between awareness of versus knowledge among people residing in the rural areas. Health insurance awareness in rural areas was at 92.5%, whereas scheme knowledge was substantially low.

Health Insurance stakeholders should formulate precise policy details addressing the benefits and risks of health insurances so as to boost penetration and knowledge of the scheme among rural population in Kenya and also get feedback that will assist in developing tailor-made accessible and affordable health insurance packages (Carrin et al., 2005). Policymakers should recognize the perception of insurance and providers to the community and whether they act as barriers enablers to health insurance uptake.

Arhinfu (2003) studied the country's primary social health scheme and found that both the insured and the uninsured in Ghana held a positive perception towards insurance, including its social, financial and psychological benefits. However, in the same study, the researcher found that those who are uninsured, having previously been insured, had a negative perception of the scheme which could explain by their decision not renew membership.

The uptake of any insurance product in Kenya is low, and therefore, the rate of enrolment is an important indicator (Gine, 2007). According to Archaya &Vellakal (2013) enrollment in non-mandatory health insurance among rural population is subject to selection bias by adverse selection where more unhealthy individuals enroll in the health insurance plan due to its considered financial gains. This situation develops when there is asymmetric information between insurers and insured persons about a person's risk profile, and the individuals taking up health insurance are those who are more certain that they will make use of health care (Morris et al., 2007; Wagstaff, 2010). This affects enrollment and utilization of the scheme and affects the proper analysis of insurance scheme.

Mutinda (2015) hypothesized three factors that influence NHIF uptake as awareness level, premium amount, and income consistency. The study conducted in Kibera slums used purposive sampling to target respondents in 3 villages in the slum. The main study shortcoming was that it wasn't conducted on a broader scale to give more general information.

Socioeconomic Factors and Health Insurance Uptake

Kimani *et al.* (2012) noted employment status to be crucial determinant of enrollment to NHIF. Participation in the fund differed between formal and informal sector workers, and this may have essential ramifications in providing Universal health Coverage in Kenya. Research carried out to observe the predictors of health insurance choice in Kenya found that formally employed people had a higher likelihood to be insured under public scheme as compared to private health insurance (Kiplagat, Muriithi & Kioko, 2013).

The poor were also reported to be less likely to enroll in the NHIF. This is because they are unable to afford the stipulated contributions. Among the respondents who lived in areas characterized by extreme poverty, only 48% formal employees were registered in NHIF (Kimani *et al.*, 2012). They concluded that income may significantly predict health scheme membership. Membership to private health schemes is also relatively low mostly attributable to expensive premiums. This has therefore been left to the wealthiest population, especially those in the urban areas with the majority found in Nairobi (Republic of Kenya, Ministry of Health, 2009).

Fenny *et al.* (2016) found that sociocultural factors are the key influencers of uptake in Ghana. The researcher interviewed stakeholders in health insurance at both levels, national and local. Findings revealed low uptake of health insurance was highest among the aged and disabled group, and the cultural religions in the area forbade enrollment in the insurance. Income is a critical social determinant of health, since it dictates overall quality of living, mental wellbeing and affects related behavior among them housing, food, education and security, which in turn affect one's health status and influences the quality of life (Auger & Alix, 2009).

In most studies, household income across the world has a positive correlation with the chances of purchasing medical cover (Osei-Akoto & Adamba, 2011).

A noteworthy hindrance to access to health among low salaried and the marginalized is money-related constraints. An estimated 1.3 billion people are poor worldwide and they cannot afford to pay for and access healthcare when they require

(Dror&Preker, 2002) hence causing the individuals to experience financial burden with possible impoverishment due to out of pocket expenditure (WHO, 2010).

Xu et al. (2003) ascertained that nearly 5 % of families in Latin America used 40% of their income on health services annually while 40% families in India fall into poverty due to spending on hospitalizations.

46.6% of Kenyans survive on less than a dollar a day, and nearly half of this group is considered absolutely poor (World Bank, 2010). Poverty is a noteworthy contributor to illness which subsequently drives the poor deeper into poverty (WHO, 2010). In sub-Saharan Africa, studies show that formal sector employees have higher likelihood to have health insurance compared informal sector (Mathauer 2008; Kiriga 2006; Kimani 2004). This is attributable to various factors including low and irregular income, job insecurity, and insurance scheme factors such as not being in sync with population's preferences (Kimani, 2010).

In studying the connection between medical insurance enrolment and the economic, demographic, and educational factors, Kirigia et al. (2005) analyzed the characteristics of South African women who had medical insurance. The researcher found that the percentage of women who held medical covers increased with an increase in household income.

Sarponet al. (2010) explored the impact of socioeconomic status on health insurance using proxy measurements of wellbeing such as nature of dwelling, connectivity to electricity and water to group households into low, middle and high socioeconomic levels. In the research findings, a paltry 21% of low households had cover compared to 60% of high socioeconomic households. The researchers also acknowledged the government's efforts to address the disparities by setting premiums depending on the individual's ability to pay.

Dalaba et al. (2012), noted that high membership to health insurance by high-income individuals is in line with economic theory which views medical coverage as a good that is positively demand-elastic. Dalabe et al. (2012) concluded this after the results revealed affluent families in Ghana as having a higher insurance likelihood insured while the poor population remains uninsured. In another study, Ebenezer and Anthony (2014) evaluated health insurance coverage in Kumasi, Ghana across formal and informal workers and established that high-salaried workers are 7% higher chance of enrolling to health insurance compare to low income.

Accessibility and Health Insurance Uptake

A major limitation in providing universal health coverage is the rural population. Actual income levels are easy to hide through numerous jobs and subsistence farming. A possible solution could be using village officials to collect contributions. The officials may also be allowed to allocate health cards and choosing who ought to get free insurance cards. This would be advantageous in that the locals would be better in assessing the ability of the family unit to pay well than the national officers. The downside is that contribution waivers may not generally be given as required; there is extensive space for nepotism and corruption in the process of distributing exceptions (KIPPRA 2004).

Regarding Social Health Insurance in Kenya, there is more extensive awareness regarding NHIF among the populace (WHO, 2010).

The main challenge is the indirect expense while traveling to NHIF offices for enrollment may sometimes be restrictively high. NHIF is faulted for mainly purchasing private services which demonstrates bias towards employed persons who make majority contributions (Chuma et al., 2012).

According to Deloitte (2011) in the National Social Health Insurance Strategy Report, the strategies to expand access to collection points for individuals in rural areas may include collection by different associations nearer to the populace. Adequate mechanisms will be put in place to ensure that the contributions collected by these organizations are transferred regularly to the NHIF.

Insurance can be sold by insurance companies through intermediaries or directly to the consumer. The intermediaries are customers of the company, also acting as liaisons and managing the relationship between the client and the company (Mwangi, 2010). Providers should utilize diverse channels of distribution to enhance the penetration of health insurance to the rural population (Kotler, 2000). AKI posits that to improve health insurance penetration insurance organizations should promptly search for elective channels of distribution rather than continually depending on traditional methods. Mbogo (2010) also agrees with this view, arguing that low penetration in rural areas may partly be attributed to the use of inadequate channels to sell insurance packages.

Further literature showed that community-based medical insurance plans provide cover to a significant extent of rural and low-salaried households that would not have access to health financing (Preker, Carrin, et al. 2002).

Additionally, a survey of medical insurance gives proof that community health insurance system ensures financial protection to their members by mitigating the need for

OOP for treatment (Ekman 2004). The review, however, suggests that in practice, most schemes do not cover low-income populations. Community health insurance membership also prevents the use of non-conventional and alternative medicine and risky habits such as self-medication. Health insurance reduces the risk of households disposing of their assets to raise funds to access treatment during a disease outbreak.

Despite literature proving improved access to medical insurance for the community, it is urgent to investigate the consistently low uptake of it in rural zones. On the off chance that insurance services are only accessible to a limited population proportion, the challenge of general health care access persists for the population. Health insurance removes payment at the health care facility and allows members to pay when they can afford to do so; however, practically, even relatively cheaper contributions may be rather expensive for low-income members to pay (Bennett, Kelley, et al. 2004).

2.4 Overview of the Literature review

The review synthesized has indicated that although various countries are at various stages in enrolment of its citizens into health insurance schemes challenges remain due to low social-economic status, education, levels of premiums and information asymmetry on benefits. Furthermore, most of the studies have focused more on formal sector contributors who are already enrolled in mandatory schemes. The studies have concentrated more on cultural and geographic factors influencing uptake without addressing how the awareness and accessibility of Health Insurance Programs available to rural residents influence the rate of uptake of health insurance. One of the critical areas not adequately covered in the awareness levels of the specific health insurance products available to citizens in Kenya. This project addresses the gap as it assesses the levels of awareness about premiums and the benefits packages and accessibility of registration procedures due to sociodemographic and demographic factors.

CHAPTER THREE

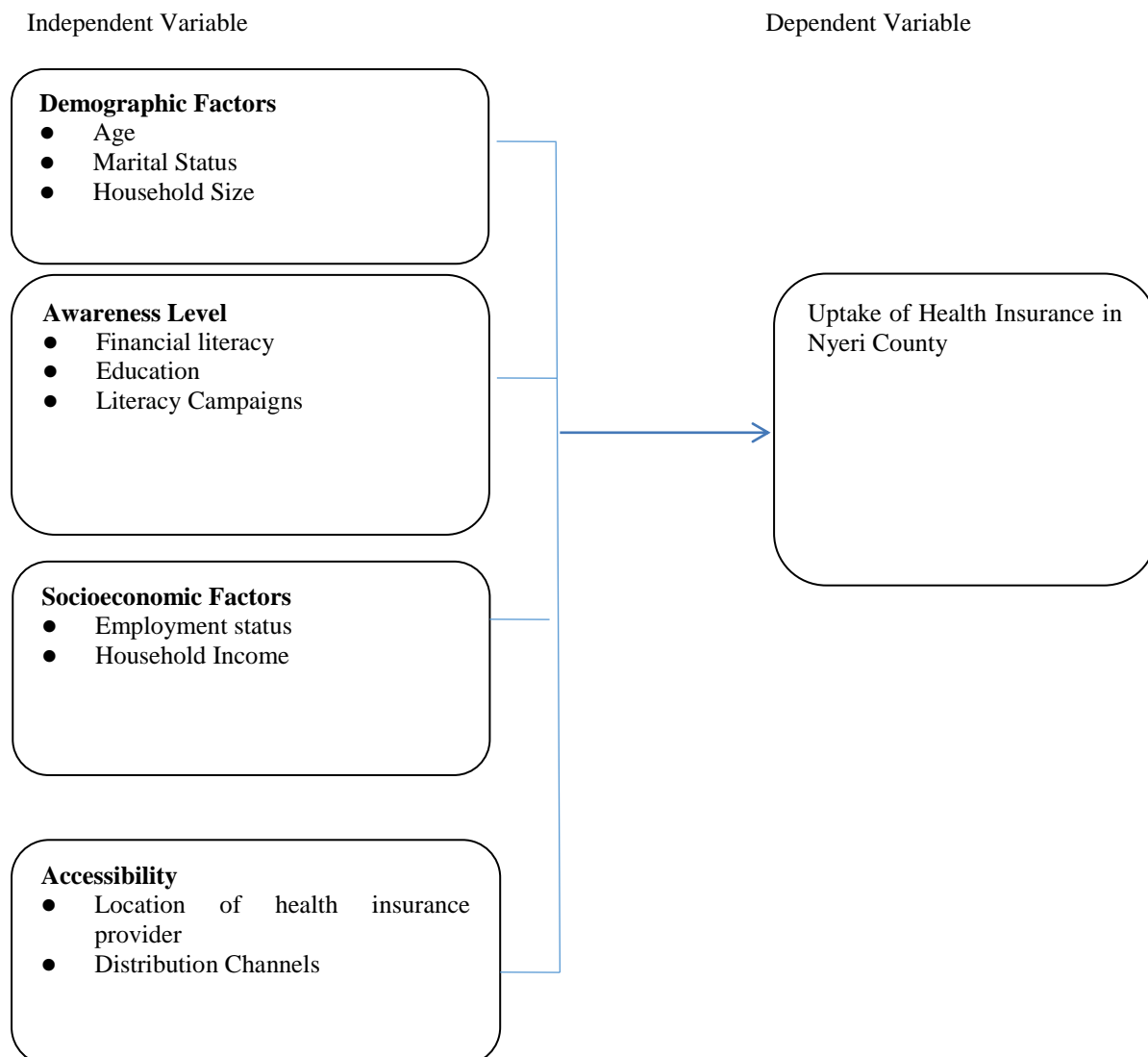
METHODOLOGY

3.1 Introduction

This chapter comprises the conceptual framework, econometric model, data sources and ethical considerations.

3.2 Conceptual Framework

This subsection illustrates the investigator's understanding of literature regarding a certain phenomenon. It steers the whole research activity serving as a “rudder” that guides towards realizing the study objectives. Below is the illustration of how the respective variables will connect to each other in this particular study.



3.3 Model specification

The probit model was applied to analyze the factors influencing residents of Nyeri County decision to purchase health insurance or not. The purchasing decision is modeled as a binary decision (Makhura, 2001; Key et al., 2000; Goetz, 1999) such that a household either buys or does not buy health insurance. Thus, the dependent variable is a discrete dummy variable (Purchased = 1; Not purchased = 0) in one model, β is the set of parameters for estimation, reflecting the effect of changes in x on the probability of purchasing or not and ε is the independently distributed error term assumed to be normal with a mean of zero and constant variance. There is an assumption that there is a linear relationship between the latent variable Y^* and explanatory variables. The structural model is expressed as;

$$Y^* = xi\beta + \varepsilon \dots\dots\dots (1)$$

Where Y^* is unobserved latent variable ranging from $-\infty$ to ∞

xi is a vector of independent variables

β is a vector of parameters under estimation

ε is error term

The following equation links the latent variable Y^* and the observed binary variable Y :

$$Y = \begin{cases} 1 & \text{if } Y^* > K \\ 0 & \text{if } Y^* \leq K \end{cases} \dots\dots\dots (2)$$

Where yi is the probability of having health insurance (1 if purchased health insurance, 0 if otherwise). K is the threshold point/ cut off, critical level of the index Y^* beyond a person will purchase health insurance.

The characteristics of X are taken at average and regressed against Y to determine the influence of each explanatory variables on the probability of an individual or household to decide to purchase health insurance or not.

Based on the conceptual framework and on past empirical work on uptake of health insurance, a number of relevant explanatory variables that may affect decision to purchase health insurance were identified and applied in the probit analysis. These include age, marital status, education level, household income, household size, employment status, and financial literacy, location of health insurance provider, Distribution channels and Literacy campaigns.

The estimation equation is therefore specified as

$$UHI = \beta_0 + \beta_1A + \beta_2MS + \beta_3LE + \beta_4HI + \beta_5HS + \beta_6ES + \beta_7FL + \beta_8LP + \beta_9DS + \beta_{10}LC + \varepsilon \dots\dots\dots (3)$$

Where;

UHI= Health Insurance Uptake

A=Age

MS=Marital Status

LE=Education Level

HI=Household income

HS=Household Size

ES=Employment Status

FL=Financial Literacy

LP=Location of health insurance provider

DS=Distribution channel

LC=Literacy Campaigns

ε =error term

Table 3.1 Description of Variables

Variable	Measurement	Expected Sign
UHI=Uptake of Health Insurance	Purchased = 1; Not purchased = 0	Dependent Variable
• Age	20-30yrs = 0 31-40yrs= 1 41-50yrs= 2 Above 50yrs= 3	+
• Marital status	Single = 0 Married= 1	+
• Education Level	Primary=0 Secondary=1 Diploma = 2 Bachelor's Degree = 3 Postgraduate=4	+
• Household income	KES 1,000- 10,000 = 0 KES 10,000-50,000=1 Above 50,000 = 2	+
• Household Size	1 member= 0 2 members= 1 3 members= 2 4 and above members= 3	+
• Employment Status	Unemployed = 0 Informally Employed = 1 Formally Employed = 2	+

• Financial Literacy	Untrained = 0 Trained = 1	+
• Location of health insurance provider	Less than 20 km = 0 More than 20 km = 1	-
• Distribution channels	Direct/Walk In=0 Sale Agents/Brokers=1 Online=2	+
• Literacy campaigns	Not conducted = 0 Conducted = 1	+

3.4 Data Sources

The study analyzed cross sectional data collected in Nyeri Level V Hospital in the month of October 2019.

A mixture of purposive and systematic sampling was used. Nyeri Level V Hospital since it's a high volume government which serves as a referral center for whole of Nyeri County. In addition, the hospital serves both rural and urban populations drawn from the larger Central Kenya.

The sample size was collected from an infinite population and Fischer's formula applied in sample size computation (Fischer, 1995).

$$n = z^2 \times pq / d^2$$

Where,

P = 0.20 - the estimated proportion of patients seeking care in formal healthcare settings (KHHEUS, 2013)

$$q = 1-p$$

Z = critical value corresponding to 95% confidence interval derived from standard normal distribution table,

d = degree of precision set at ± 0.05

n = sample size

$$n = (1.96)^2 \cdot (0.2) \cdot (0.8) / (0.05)^2 = 246$$

The respondents were determined using systematic sampling at facility exit points. The preferred exit points of choice were pharmacy and outpatient departments.

With an average 1,000 visits per week, the sampling interval was computed as $k=N/n$ where 'N' is the weekly target population and 'n' is determined size of the sample. Thus k was determined as $1,000/246=4.06$ which was rounded off giving a k^{th} value of 4. The first patient was picked randomly and subsequent ones were picked at intervals of 4. Appropriateness of this method was influenced by cost considerations and the fact that the patients were unlikely to have any hidden periodicity mainly because of common exit point and random population.

3.5 Ethical Considerations

Ethical approval was sought from National Council of Science, Technology and Innovation (License No: NACOSTI/P/19/2328) and informed consent obtained from each respondent on voluntary basis with an assurance of confidentiality.

CHAPTER FOUR

EMPIRICAL FINDINGS

4.1 Introduction

This chapter describes data analysis and results.

4.2 Response Rate

Of the 246 patients who were contacted to participate, 216 voluntarily agreed to be interviewed, translating to 87.8% response rate as illustrated in Table 4.1

This was considered sufficiently reliable since, according to Zikmund et al. (2013), a 70 percent and above response rate is said to be a reliable rate.

Table 4.1 Response Rate

Response	Frequency	Percentage
Responded	216	87.8
Not Responded	30	12.2
Total	246	100

4.3 Demographic Characteristics

Table 4.2 presents demographic profile of the 216 participants. The majority was in the 40 and 50 years age bracket, had at least a diploma and had worked or lived in Nyeri County for 6-10 years earning between 10,000-50,000 per month.

Table 4.2 Demographic Characteristics

Population Category		Frequency	Percentage
Age	20-30	23	10.8
	31-40	71	32.4
	41-50	99	45.9
	50 and above	23	10.8
Education Level	Primary	10	4.6
	Secondary	28	12.9
	Diploma	112	51.9
	Bachelor's Degree	43	19.9
	Postgraduate	23	10.6
Years Lived/Worked in the county	1-5	79	36.6
	6-10	85	39.4
	11-19	40	18.5
	20+	12	5.6
Monthly Income Range	Ksh 1,000-10,000	73	33.8
	Ksh 10,000 - 50,000	123	56.9
	Over Ksh 50,000	20	9.3

Table 4.3 shows health insurance coverage.

34.3% of the total participants did not have health insurance, while 65.7 % were enrolled in health insurance. This reflects an improved health insurance uptake by double mostly due to the government efforts to achieve UHC.

Table 4.3 Whether the respondent has health insurance

Response	Frequency	Percentage
Yes	142	65.7
No	74	34.3
Total	216	100

Table 4.4 shows whether demographic factors influence health insurance.

81.1% indicated that demographic factors influence health insurance uptake, while 18.9% disagreed.

Table 4.4 Whether demographic factors influence uptake of health insurance

Response	Frequency	Percentage
Yes	175	81.1
No	41	18.9
Total	216	100

The study also examined the influence of demographic factors on health insurance uptake as per Table 4.5.

Table 4.5 Influence of Demographic Factors

Statement	Mean	Standard Deviation
Getting married and graduating from school will increase chances that I purchase health insurance	4.50	0.71
People over 40 years of age are more knowledgeable and have accumulated wealth needed to take financial care of their health	4.75	0.44
Health status of household members will influence my decision to purchase health insurance	3.86	0.79
Household heads without formal education are less likely to purchase or enroll in a health scheme	3.89	1.18
Total	16.75	

The findings showed that majority agreed that getting married and graduating from school will increase chances that they'll purchase health insurance (with a mean of 4.50 and standard deviation of 0.71) and that people over 40 years of age are more knowledgeable and have accumulated wealth needed to take financial care of their health (with a mean of 4.75 and standard deviation of 0.44). Household heads without formal education have less likelihood of enrolling in a health scheme (with a mean of 3.89 and standard deviation of 1.18) and that

health status of a family member would influence their likelihood of purchasing health insurance (with a mean of 3.86 and standard deviation of 0.79).

Table 4.6 Degree of influence of demographic factors on uptake of health insurance

Response	Frequency	Percentage
Great Extent	134	62.2
Moderate Extent	64	29.7
Low Extent	18	8.1
Total	216	100

The study investigated the degree of influence of demographic factors on uptake. 62.2% indicated that demographic factors influence health insurance uptake to a great extent; 29.7% indicated a moderate influence, while 8.1% indicated low influence.

4.4 Level of Awareness

Based on Table 4.7 a majority 78.4% considered level of awareness an influence on health insurance uptake while 21.6% disagreed.

Table 4.7 Whether level of awareness influences health insurance uptake

Response	Frequency	Percentage
Yes	169	78.4
No	47	21.6
Total	216	100

The study investigated the influence of level of awareness on health insurance uptake. The results revealed that majority get more health insurance information from friends, Coworkers and families rather than from insurance providers (with a mean of 4.13 and standard deviation of 0.33) resulting in low level of financial literacy amongst the populace (with a mean of 4.25 and standard deviation of 0.67). The participants indicated there is information gaps regarding health insurance market between the insured and the insurance

providers (with a mean of 4.38 and standard deviation of 0.70), therefore literacy campaigns need to distinguish between specific and general education for people (with a mean of 3.75 and standard deviation of 1.21).

However, fewer respondents agreed that their perception of health insurance is largely positive (with a mean of 2.88 and standard deviation of 1.63).

Table 4.8 Influence of level of awareness on uptake of health insurance

Statement	Mean	Standard Deviation
I get more health insurance information from friends, coworkers and family rather than from insurance providers	4.13	0.33
Financial literacy in Nyeri County is low	4.25	0.67
There are information gaps regarding health insurance market between the insured and the providers	4.38	0.70
Literacy campaigns need to distinguish between specific and general education for people in Nyeri County	3.75	1.21
My perception of health insurance is largely positive	2.88	1.63
Total	19.39	

The study investigated the degree of influence of awareness on uptake.

59.5% stated influence level as high; 27.0% stated moderate, while 13.5% stated that the level of influence was low.

Table 4.9 Level of influence of awareness on health insurance uptake

Response	Frequency	Percentage
High	129	59.5
Moderate	58	27.0
Low	29	13.5
Total	216	100

4.5 Socioeconomic Factors

The study investigated the views of the respondents on whether socioeconomic factors influence health insurance uptake.

70.3% indicated that socioeconomic factors health insurance influence uptake, while 29.7% stated there was no influence.

Table 4.10 Whether socioeconomic factors influence uptake of health insurance

Response	Frequency	Percentage
Yes	152	70.3
No	64	29.7
Total	216	100

The study examined the influence of socioeconomic factors on health insurance uptake. Majority indicated that their employment status determines whether they purchase health insurance (with a mean of 3.88 and standard deviation of 0.79), reflecting reason why formal sector employees have higher likelihood of insurance coverage compared informal sector workers (with a mean of 4.13 and standard deviation of 0.84). Most of participants also attributed low membership to private health insurance being associated with the high cost of premiums (with a mean of 4.25 and standard deviation of 0.98). Majority indicated that coverage had risen with increase in household income (with a mean of 4.25 and standard deviation of 0.84).

Table 4.11 Influence of socioeconomic factors on health insurance uptake

Statement	Mean	Standard Deviation
My employment status determines whether I purchase health insurance	3.88	0.79
High cost of premiums prevents me from purchasing health insurance	4.25	0.98
Formal sector employment provides more health insurance access compared to informal employment	4.13	0.94
An increase in my household income will boost the chances of enrolling into a scheme.	4.25	0.84
Total	20.89	

Table 4.12 presents the responses on the level of influence of socioeconomic factors on health insurance uptake. 54.1% stated that level of influence is high, 32.4% stated moderate, while 13.5% stated that level of influence of socioeconomic factors is low.

Table 4.12 Level of influence of socioeconomic factors on uptake of health insurance

Response	Frequency	Percentage
High	117	54.1
Moderate	70	32.4
Lower	29	13.5
Total	216	100

4.6 Accessibility

Based on Table 4.13, 67.6% of the participants stated that accessibility influences health insurance the uptake while 32.4% stated that accessibility has no influence.

Table 4.13 Whether accessibility influences the uptake of health insurance

Response	Frequency	Percentage
Yes	146	67.6
No	70	32.4
Total	216	100

The study on Table 4.14 investigated the influence of accessibility on health insurance uptake. Findings showed that majority felt that NHIF should consider employing other entities closer to the populace (with a mean of 3.88 and standard deviation of 0.79); Insurance providers should use diverse channels to distribute products including local banks, agents among others to improve access to the rural populace (with a mean of 4.13 and standard deviation of 0.79); Community-based healthcare schemes also increase access by extending health insurance to rural poor (with a mean of 4.13 and standard deviation of 0.94), and that community health insurance membership also reduces use of traditional and non-

conventional medicine (with a mean of 4.00 and standard deviation of 0.71) and that a weak National Health Insurance System and limited health insurance providers within the people's geographical access discourages the purchase of insurance (with a mean of 4.38 and standard deviation of 1.00).

Table 4.14 Influence of accessibility on uptake of health insurance

Statement	Mean	Standard Deviation
To facilitate easy access to collection points for those in the rural areas health insurance providers should consider premium collections through organizations closer to the population eg churches	3.88	0.79
Brokers, tied agents and banks have more access to local residents for optimum access to health insurance	4.13	0.79
Community-based schemes provide cover to both rural and urban areas	4.13	0.94
Community based scheme membership mitigates the use of non-conventional and alternative medicine.	4.00	0.71
Inadequate health insurance providers near me and a weak National Health Insurance System in Nyeri County discourages purchasing insurance.	4.38	1.00
Total	16.14	

The study investigated the level of influence of accessibility on health insurance uptake. 67.6% stated that the level of influence of accessibility on health insurance uptake is high; 21.6% stated moderate, while 10.8% stated that the level of influence of accessibility is low.

Table 4.15 Level of influence of accessibility on insurance uptake

Response	Frequency	Percentage
High	146	67.6
Moderate	47	21.6
Low	23	10.8
Total	216	100

4.7 Multicollinearity

Table 4.16 is the representation of the multicollinearity test done to determine if our explanatory variables were correlated. Lack of multicollinearity is key assumption for regression as its presence affects the model. The study conducted formal detection-tolerance or the variance inflation factor (VIF) for multicollinearity. Values less than 0.1 suggest multicollinearity for tolerance, while VIF values exceeding 10 are often generally regarded as showing multicollinearity. The values of tolerance were greater than 0.1 and those of VIF were less than 10 showing lack of multicollinearity among the explanatory variables.

Table 4.16 Collinearity Statistics

	Tolerance	VIF
Age	0.331	1.782
Marital status	0.763	1.324
Education Level	0.781	1.871
Household income	0.811	2.142
Household Size	0.211	1.112
Employment Status	0.712	1.828
Financial Literacy	0.421	1.311
Location of health insurance provider	0.471	1.657
Distribution channels	0.781	1.811

Multivariate analysis

Table 4.17 presents estimation results based on probit model. All the p values are less than 0.05 meaning that all the independent variables are statistically significant. Interpretation is based on the marginal effects. From probit model, age is positively related to uptake of health insurance by Nyeri county residents. Increase in age by 9 years raises the chances of purchasing health insurance. Therefore, an additional age, of the residents raises the chances of purchasing health insurance coverage by 5%. This may be attributed to increase in income or increase in responsibilities. Grossman Model predicts that the health of older persons may deteriorate faster than the health of younger persons. Older persons therefore attempt to increase their health investments, including health insurance, so as increase their health stock.

Education majorly influences the decision to enroll to a medical scheme. *Ceteris paribus*, participants with diploma, graduate and postgraduate education have exp (0.28), exp (0.70), exp (1.49) respective higher odds of purchasing health insurance above those without education. Similarly, household income positively influences health insurance uptake in

Nyeri County. If all factors are held constant, increase in income, increased the chances of residents purchasing health insurance by (5%). The findings are consistent with Cameroon et al., (1988), Sanhueza and Ruiz-Tagle (2002), Fronstin, et al., (1997). Likewise, there is also a positive relation between medical scheme enrolment and financial literacy. If all factors are held constant, the chances of enrolling to a health scheme increases by (1%) if the resident has undergone training. Regarding marital status, this study established that *ceteris paribus*, a change in marital status positively increased the probability purchasing insurance by 0.02%.

This study is in agreement with Mwaura (2012) but differs with Ying et al., (2010) and Jutting (2001) who found out that being married increases the probability of enrolling in a health insurance scheme.

Oraya (2014) found out that family size increase inversely correlated with the chances of purchasing medical cover. This study is consistent with their findings but differs with Kiplagat (2011) who found out that a bigger family size was more linked to health insurance uptake. To be precise, this study found out that an increase in size of the household may have no effect on the insurance purchase decisions and a low expected value 0.07 increase.

This study considered location of nearest health insurance provider as a predictor of health insurance uptake. The model finds out that a resident living over 20 km from the nearest health insurance provider has a 2% less chance of having an insurance cover when compared to a resident closer than 20 km to the health insurance provider.

Distribution channels are positively related to health insurance uptake in Nyeri County. Holding all factors constant, using direct distribution channels increased the probability of a Nyeri County resident to purchase NHIF by 4%. Conversely, literacy campaigns do not have a big impact on health insurance uptake possibly due to poor attendance or non-specificity.

Table 4.17 Probit Model estimation results

Variable	Coefficient	Marginal effect
Constant	-9.186 (2.821)	0.001 (0.12)
Age	0.32*** (0.04)	0.03***(0.07)
Marital status (Married= 1)	0.31***(0.01)	0.06***(0.02)
Education Level	0.28***(0.23)	0.06***(0.01)
Diploma = 0	0.70*** (0.05)	0.18***(0.07)
Bachelor's=1	1.49***(0.07)	0.51***(0.21)
Postgraduate = 2		
Household income (KES <10,000 = 0)	0.51***(0.02)	0.27***(0.10)
Household Size	0.07***(0.01)	0.01***(0.00)
Employment Status (Informally Employed = 1)	0.81***(0.45)	0.76***(0.04)
Financial Literacy (Untrained = 0, Trained = 1)	0.37***(0.03)	0.06***(0.01)
Location of health insurance provider (<20 km = 0, >20km=1)	-0.08***(0.23)	-0.08***(0.02)
Distribution channels (Direct=0)	0.51***(0.02)	0.07***(0.04)
Literacy campaigns (Not conducted=0, Conducted = 1)	0.12*** (0.02)	0.02***(0.00)

Standard error in brackets

Number of observations = 216.

Pseudo r² =0.2003.

* p value < 0.1, ** p value< 0.05, *** p value < 0.01.

CHAPTER FIVE

CONCLUSION

5.1 Introduction

This section provides summarized results, policy recommendations conclusion and areas for further research.

5.2 Summary of Findings

The probit estimates indicated that age, marital status, household income, education level, household size, employment status, financial literacy, location of health insurance provider and the distribution channels all have a positive and significant impact on uptake.

Conversely, literacy campaigns conducted in the county have not been effective in influencing the uptake of health insurance probably since they have not been specifically targeted.

5.3 Policy recommendations

This study suggests that; insurance providers including the health ministry should continuously plan for health insurance schemes and products to be adapted for each demographic especially low income and unmarried youth population. Secondly, insurance providers as well as MoH should conduct health insurance literacy campaigns in Nyeri County to promote a positive view of health insurance. Thirdly, insurance products should target more informal sector workers who are excluded from insurance by high private insurance premiums and weak national insurance scheme. Lastly organizations near the populace like community-based healthcare schemes when utilized increase access to health insurance.

5.4 Conclusion

The research inferred that demographic factors significantly influenced health insurance uptake in Nyeri County. Demographic factors including a higher level of education and a marriage union coupled with the size of a household will increase the probability that a household will purchase health insurance. Additionally, older people have a greater sense of

responsibility, improved awareness and increased access, facilitating the need to take care of their health.

The study observed awareness to be a significant predictor of health insurance uptake in Nyeri County. Low financial literacy in Nyeri County may be attributable to reliance on speculation for information regarding insurance. This demonstrates information asymmetry regarding the health insurance market in Nyeri County between the insured and insurers. There is a need for insurance literacy campaigns conducted in Nyeri County that are both general and product specific for both insured and uninsured to give the populace a positive view of the benefits.

The research concluded that socioeconomic factors had a significantly influenced health insurance uptake. Household head's employment status is a crucial predictor of participation in NHIF. Formal employees have a higher likelihood to possess social or private insurance than informal sector workers. Other reasons identified for low penetration are expensive premiums, an inefficient National Insurance Scheme and lack of health insurance providers in the vicinity of all the populace in the county. The increase seen in health insurance uptake may be caused by an increased household income in the County.

The study concluded that accessibility significantly influenced health insurance uptake. Accessibility to health insurance can be improved by using organizations close to the rural populace to collect NHIF premiums. Insurance providers should use the diverse channels to distribute products including local banks, agents among others to improve access to the rural populace. Community-based healthcare schemes also increase access by extending health insurance to the poor. Increased access to medical schemes reduces the use of non-conventional medicine and traditional healers and unsafe alternatives such as self-medication.

5.5 Areas for further research

This research used quantitative data in determining the factors influencing health insurance uptake in Nyeri County. This can be extended by collecting qualitative data to explore the factors more in-depth.

The research should also be done in other counties and nationally and the results compared so as to ascertain whether there is consistency in health insurance uptake across the country.

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APPENDICES

APPENDIX I: Consent

Dear Respondent

RE: FACTORS INFLUENCING UPTAKE OF HEALTH INSURANCE IN NYERI COUNTY

My name is Dennis Njogu currently pursuing Health Economics & Policy studies at the University of Nairobi.

I am conducting a study on factors that influence health insurance uptake. The data collected is for academic purposes and care has been taken to safeguard your privacy.

Your voluntary participation is highly appreciated.

Regards,

Dennis M. Njogu

APPENDIX II: Study Questionnaire

This tool is organized in four parts. The data collected will be handled confidentially. Please answer all to the best of your ability.

Kindly check as applicable

PART 1: Demographic Information

1. Age

- (a) 20 – 30 []
- (b) 31-40 []
- (c) 41-50 []
- (d) 51 and above []

2. Education Attained

- (a) Primary []
- (b) Secondary []
- (c) Diploma []
- (d) Bachelor's degree []
- (e) Postgraduate []

3. How long have you lived in Nyeri County (In years)

- (a) 1-5 []
- (b) 6-10 []
- (c) 11-19 []
- (d) Over 20 []

4. What's the range of your income per month (In KES)?

- a) 1, 000-10,000 []
- b) 10, 000 - 50,000 []
- c) Over 50, 000 []

5. Do you and your family have health insurance?

- Yes [] No []

PART 2- Demographic Factors

2.1 In your opinion, do demographic factors influence health insurance uptake in Nyeri County?

Yes [] No []

2.2 If yes, explain how. If no, proceed to 2.3.

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2.3 Please tick the numeric value corresponding to your view for each statement using the scale of 1-5, where; 1= Strongly disagree, 2=Disagree, 3= Neutral, 4=Agree 5= Strongly agree

Statement	1	2	3	4	5
Getting married as well as graduating from school will increase chances that I purchase health insurance					
People over 40 years of age are more knowledgeable and have accumulated wealth needed to take financial care of their health					
Health status of household members will influence my decision to purchase health insurance					
Household heads without formal education are less likely to purchase or enroll in insurance schemes.					

2.4 To what extent does demographic factors influence health insurance uptake in Nyeri County in your view?

Great Extent [] Moderate Extent [] Low Extent []

PART 3-Level of Awareness

3.1 In your opinion, does the awareness level affect health insurance uptake in the County?

Yes [] No []

3.2 If yes, explain how. If no, proceed to 3.3

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3.3 Please indicate the numeric value matching with your opinion per statement using the scale of 1-5, where; 1=Strongly disagree, 2=Disagree, 3= Neutral, 4=Agree 5= Strongly agree

Statement	1	2	3	4	5
I get more health insurance information from friends, coworkers and families than from insurance providers					
There is a low level of financial literacy amongst the populace in Nyeri County.					
There is information gaps about health insurance market in Nyeri between the insurer and the insured					
Literacy campaigns need to address differences between specific and general education to people in Nyeri County.					
My perception of health insurance is largely positive					

3.4 In your opinion, to what extent does awareness level influence health insurance uptake in the County?

High [] Moderate [] Low []

PART 4-Socioeconomic Factors

4.1 In your view, does socioeconomic factors influence the uptake of health insurance in Nyeri County?

Yes [] No []

4.2. Explain how socioeconomic factors influence health insurance uptake in Nyeri County

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 4.3 Please indicate the numeric value matching with your view per statement using the scale of 1-5, where; 1=Strongly disagree, 2=Disagree, 3= Neutral, 4=Agree 5= Strongly agree

Statement	1	2	3	4	5
Employment status determines whether I purchase health insurance					
High cost of premiums prevents me from purchasing health insurance					
Inadequate health insurance providers near me and a weak National Health Insurance System in Nyeri County discourages me from purchasing insurance.					
Formal sector employment provides more health insurance access to compared informal employment.					
An increase in my household income will boost the chances of enrolling into a scheme.					

4.4 In your assessment, what is the level of influence of socioeconomic factors on health insurance uptake in Nyeri County?

High [] Moderate [] Low []

PART 5- Accessibility

5.1 In your opinion, does accessibility influences health insurance the uptake in Nyeri County?

Yes [] No []

5.2 Explain how access influenceshealth insurance uptake in Nyeri County

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5.3 Please tick the numeric value matching with your view per statement using the scale of 1-5, where; 1=Strongly disagree, 2=Disagree, 3= Neutral, 4=Agree 5= Strongly agree

Statement	1	2	3	4	5
To facilitate easy access to collection points for those in the rural areas health insurance providers should consider premium collections through organizations closer to the population eg churches					
Brokers, tied agents and banks have more access to local residents for optimum health insurance access					
Community-based health insurance schemes extend coverage to both rural and urban areas of Nyeri County					
Community health insurance membership mitigates the use of non-conventional and alternative medicine.					

5.4 In your view, to what extent does accessibility influence health insurance uptake in Nyeri County?

Great Extent [] Moderate Extent [] Low Extent []

5.5 What is the location of your nearest insurance provider?

(a) Less than 20 Km []

(b) More than 20 Km []