

**FACTORS INFLUENCING KITUI COUNTY HEALTH INSURANCE
COVER UPTAKE IN KENYA**

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X53/11302/2018

**A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF ECONOMICS, UNIVERSITY OF
NAIROBI IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE
DEGREE OF MASTERS OF SCIENCE IN HEALTH ECONOMICS AND POLICY.**

2021

DECLARATION

I declare that this project report is my original work and has not been presented either in part or as a whole to any other examining body for award of any degree

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DEDICATION

This work is dedicated to my wife Esther Mutei, son Ethan Mutisya, daughter Leticia Olive and other family members.

ACKNOWLEDGEMENT

My sincere appreciation first goes to our Heavenly Father for keeping me in good health and wisdom in researching and writing this paper.

First of all, I want to recognize the University of Nairobi Fraternity for offering the admission to take the course, the County Government of Kitui for giving me study leave, and the Ministry of Health and Sanitation with whose scholarship I could undertake my studies minus any constraints financially.

Secondly, I would want to appreciate Dr. Moses Muriithi who has been my supervisor and has worked with me closely through his guidance and direction in writing up this project work. His positive comments and suggestion all along were of great benefit to me.

Thirdly, to my classmates whose daily interaction and constructive debates I will greatly cherish. I also wish to thank Jane Maina, who assisted and supported me in interpreting my results.

I'm also indeed indebted to my family – my wife Esther Mutei, Parents, sisters as well as brothers for the moral and financial support throughout my studies. A big thank you also goes to my aunties, uncles, cousins for their inspirational advice.

In conclusion, I dearly acknowledge my respondents as well as the research assistants for the assistance and cooperation that enabled my undertaking of the research—special gratitude to my family members for patience as well as their support financially in the full period of my studies.

I confirm that the persons acknowledged here above cannot be held liable for any mistake or errors in this study and as such I shall be fully responsible for such.

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LIST OF ACRONYMS

CBHI	Community Based Health Insurance Scheme
KCHIC	Kitui County Health Insurance Cover
KHHEUS	Kenya Households, Health Expenditure and utilization survey.
KIBHS	Kenya integrated household budget survey
KIPPRA	Kenya Institute of Public Policy Research and Analysis
KNBS	Kenya national bureau of statistic
KNHA	Kenya National Health account
NHIF	National Hospital Insurance Fund
OOP	Out – of – pocket
UHC	Universal health cover
VIF	Variance Inflation Factor
WHO	World Health Organization

ABSTRACT

Out of pocket expenditures always have devastating effects on families, more so those living beneath the poverty line. One way of mitigating this is by using health insurance. The Kitui County Government introduced a low-cost insurance scheme called the Kitui County Health Insurance Cover (KCHIC). Primary aim of this research work was to investigate the factors influencing uptake of Kitui County health Insurance Cover case of Kitui County, Kenya. A sample size of 357 households out of 96,653 registered households. Questionnaires were used to collect data. These instruments were piloted at Makueni County with a sample of 35 respondents which is a 10% representation of the sample of study which was 357.

Data collection for this study was done in two months' time in the 14 hospitals in Kitui County. Statistical Package for Social Science (SPSS) was used for data analysis. The study employed a probit model to answer the main research objective and found out that some factors were significant, whereas others were established to be statistically insignificant in explaining Kitui County Health Insurance uptake. The study noted that 50.98% of females had taken up health cover in comparison to 49.02% males. The married had a higher enrolment of 247 (69.19%) than unmarried 110 (30.81%), education level was important influencing factor in decision to register for the health cover (registration for those with higher income and the ones affiliated to social welfare groupings).

Policy recommendations include; the County ought to consider letting workers from the informal sectors remit their premiums in small and manageable installments instead of insistence on remittance monthly, quarterly, semi-annually or annually. The government at both tiers needs to consider subsidizing or pay premiums for the family who are very poor, those elderly as well as disabled, who in most cases are never considered in the Social Security Programs. With this, the two levels of government can adopt it as a strategy to reduce poverty as they increase access to quality health care.

Offering more health-related services improves or incentivizes individual to enroll for a health insurance package. Therefore, it requires the hospital management to introduce new services that were not previously done at their health facilities.

This study recommended further research to investigate influence of religion and culture on registration or uptake decision, level of adversative selection in registration as well as the level of adversative registration selection and retention factors or insurance scheme drop out.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Universal health coverage is a worldwide plan with a specific interest for low cost and middle-income nations. Citizens come across difficulties accessing healthcare administrations of adequate health when required and are at risk of related catastrophic expenditure. For countries to gain ground to UHC, it is significant that their funding frameworks advance UHC objectives and offer budgetary assurance or financial risk protection; pooling courses of action that diminish fracture and take into consideration of successful pay and risk cross appropriation to guarantee value and manageability; and buying game plans that effectively seek the ideal approaches to streamline quality, proficiency, value and responsiveness of healthcare administration arrangement. Small scale insurance or community-based health insurance administrations target low-salaried workers, who are excluded from standard business and social insurance plans because of reasonableness boundaries or affordability barriers. By and large, small scale insurance at low premiums is made progressively reasonable to low-pay family units. MHI can improve access to healthcare administrations; offer money related risk assurance or protection through a decrease in cash-based uses or out of pocket expenditures (Munge, Mulupi, Barasa, & Chuma, 2019).

Health insurance has always been considered away of socially protecting oneself against medical expense risks within individuals. This kind of insurance is viewed as a critical pillar for the healthcare financing as well as a major driver in attaining the universal healthcare in several nations. Also, it is suitable in shielding households from catastrophic cost of medication which leaves many impoverished as a result of ill health (WHO, 2010). Worldwide, it is assessed that almost 150million people experience financial upheaval every year because of medical related

expenses, whereas another 100 million find themselves in poverty because of spontaneous expenses (Xu *et al.*, 2007).

Shielding family units from disastrous health care services costs is an attractive goal of healthcare frameworks the world over. World health organization (WHO, 2010) call for general (collective) healthcare inclusion that stressed the need to shield families from disastrous clinical costs and impoverishment emerging from looking for health care services. All around the world, it is evaluated that 150 million individuals endure money related calamity every year because of health care services and around 100 million are driven into neediness due to using cash on hand (OOP) instalments (Chuma & Maina,2012).

Disastrous medicinal services instalments happen in plentiful and poverty-stricken nations, yet more significant than 90% of the individuals affected live in low-salary countries. Calamitous healthcare use can occur to pay little heed to the measure of cash paid to health administrations. Low degrees of spending among low-income family units can have severe monetary ramifications for occupations (Chuma & Maina,2012).

Inability to pay by cash in hand use required to get to healthcare administrations has been promoted as one among the principal deterrence to medical services, especially for poor people. Cash instalments make money related boundaries that keep a considerable number of individuals every year from looking for and accepting required healthcare administrations. Family unit use may represent up to 80% of absolute healthcare consumptions because of high client charges. Given that low-salary nations' have restricted capacities to prepare incomes, nation and giver consideration have gone to casual part insurance instruments, for example, Rural Based Health Insurance, as an approach to improve money related assurance, activate incomes, and enhance the proficiency of cash-based spending (Mwaura & Pongpanich, 2012).

1.1.1 Health Care Financing in Kenya

History of health policy changes in Kenya back to 1963. From 1963 -1989, it had a predominantly tax funded health care system. This changed in 1989, when severe budgetary constraints led to structural adjustments consequently leading to introduction of cost-sharing charges for both out – patient as well as in-patient services in government health establishments. However, children under 5 years, and patients ailing specified health conditions were exempted from paying the user fees. Healthcare at dispensaries remained free of charge (Dahlgren, 1991).

As stated by the Kenya Healthcare Federation and Task Force Healthcare (2006), Government Health services capitalization or funding arrangement is composed of different modules which include: Funding from excise: this covers majority of health care services in rural based public health care facilities which are generally offered for free in the Country, they include free maternity services and treatment under-fives. NHIF: this provides funding for most of health facilities owned by Government and other privately-owned health care facilities agreed or accepted by the pooling system or fund. Its compulsory for those employed or working in the Government sector to be members of the fund and this equals to almost twenty percentage of the Kenyan citizens. Only 2% of citizens are cushioned or protected from catastrophic health expenditure by privately-owned health insurances. Currently we have around 25 privately-owned insurance organizations or institutions which provides healthcare insurance packages in the Country. Health insurance which are employment based, arrangement where employer provides health care insurance cover as a stimulus to its workers where by the finances may be controlled by the employer or third party. The community-based health funding organization; they are outlined in encountering the requirements for those earning low-income wage and not in a position to pay for privately-owned

healthcare insurance and National Hospital Insurance Fund. They are mainly recognized or recorded under the service, public, gender and youth affairs Ministry. Out – of – the pocket (OOP) funding; it entails direct payment by persons seeking health-care services from own cash and savings as they receive healthcare services. In the course of the treatment cycle it provides a hindrance during the period of receiving or accessing healthcare care provision by the disadvantaged or poor as it pushes the individuals into more poverty. Development organizations or partnering organizations & Nongovernmental organizations; it comprises donor organizations who assist more of funding and provision of healthcare.

Omondi E. Otieno and Nduta Githae (2014), the Sub Sahara Africa still experiences unattractive health scenarios in provision of health services to its citizens. These regions which is 12 percent world's populace stands for 22 percent of the worldwide disease load in total. Its poor health state is reflected by the crisis in health services financing and well as health human resource. With only 2 percent of the world health workforce and 1 percent of the global health expenditure, countries in this region are poorly equipped to sufficiently handle their health problems. Low levels of per capita income, perverse health systems and inadequate capacity for domestic revenue mobilization holdups thwart the ability of government to effectively answer to the challenges of healthcare in the respective county. Despite the considerable support from outside, huge gaps persist between the resources needed and the available ones.

The county Kenya continues to finance its health care system through the 3 primary sources, that is, donors, public and private comprising the consumers. Entire healthcare expenses in Kenya, according to the report of national health accounts (NHA 09/10), was equal to 4.8 percent of the gross domestic product (GDP) at the current market rate, that boils down to per capita of about Kshs. 1,987 health spending – falling under the targeted Ksh. 2,502 per capita. Families or

households are the biggest contributors to the health fund at 35.9 percent trailed by donors and government whose contribution is about 30%.

The huge out of pocket households' expenses and donor dependency, mostly intervention priorities, has driven governments to start building a financing strategy for health. In the near-term consideration, the NHIF is being restructured to take a wider responsibility in financing health services with an ongoing appraisal. The conceptualization and implementation of the system of county government, incorporating health rights in the new Kenyan constitution 2010 as well as restructuring in the public finance management gives important chances to the improvement and development of the Kenya's health care system. The national government has a mandate of overseeing and formulation of policies for health with devolved governments providing the healthcare services. In order to enhance impartial access to the vital health services, governments at both tiers need to be committed to the threshold internationally of 15 percent of the expenses as captured in the Abuja declaration.

Njuguna D and Pepela Wanjala (2014) as stated by the year 2010 World Health Report on funding "Governments whose majority of the citizens have an opportunity to a number of health care services do have fairly high degree of common of pooled funds – in the range of 5–6% of gross domestic product (GDP)." The Kenyan Government uses 2.5 % of combined or pooled finances to fund health. Generally, the citizens who have access to health care insurance averages to around 17 percent of the populace. However, urban area population has a higher coverage of around 27% in comparison to the rural populace at 12%. The coverage for health insurance is positively affected by wealth for the health cover which is advanced in the affluent populace. The Government has invested heavily in new initiatives as the country moves to ensure citizens are put under universal health coverage.

This can be done through introducing the new means of funding and lowering the fiscal load to the vulnerable and poor people in the community. This can be done through removing user fee, offering free maternity, managing equipment as well as Health Insurance Subsidy Programme (HISP). Drugs for tuberculosis have a 70 percent funding from the government as a way of covering the cost from outside.

Furthermore, National Hospital Insurance Fund has broadened the range of benefits with the new rates leading to recruitment of new two million members, broadening of the healthcare package to also include outpatient services, chronic diseases.

The allocation by Government to health care services still remains at a low rate of 6%, which is below the 15% Abuja declaration international benchmark. Huge out – of – pocket expenses on issues of health continue to be a hindrance in Kenya that has occasioned 32% of the total health expenditure when government, private and development partners funding is considered. This aspect leads to almost 6.2 percent of Kenyan citizens spending more than 40 percent of the non-eatery expenses on health – thus pushing near 2.6million to the poverty level. This kind of status is half way attributed to by reduced funding by the government on health as public health care facilities or services remain the main source of outpatient and inpatient care for majority of the Kenyan citizen. Currently, total funding on health by the government at both tiers is around 6.7% of their respective financial year budget. There has been skewness of public expenditure towards the high end inefficient and ineffective curative services. In addition, the cost for personnel accounts for 70 – 80 % of the entire recurrent budget for health at both levels of government.

1.1.2 Profile of Health Insurance Schemes in Kenya

The Health Ministry, 2018 indicated that Kenya is in the road map through the use of a Social Health Insurance Fund (SHIF) Insurance Fund (SHIF) being the main payer in achieving the universal health cover by the year 2022. Currently, NHIF coverage is an encouraging platform from which it can be used to broaden the purchasing power of a guaranteed benefits package, and with a progressive target to increase registration of new members is also important. Attaining universal insurance coverage require substantial attempt to increase registration of the population, especially the unemployed sector and the poverty stricken, as well as to build up the NHIF (National Hospital Insurance Fund) in addition to buying modules. Cover for health in Kenya is growing compared to the neighboring countries.

As stated by KHHEUS 2018 data, 19.9% of persons who participated in the survey in the middle of 2018 were in some kind of insurance cover, a spike from the 17% in the year 2013. The privately-owned insurance coverage has also gone up though National Hospital Insurance Fund covers more than half of insured populace.

Geographically, the insurance health care cover is highly taken by urban settlers in Kenya in comparison to those in the rural set ups translating to nearly 30 percent of people and 14 percent respectively (KNBS, 2018). This may reflect the higher status of unemployed sector in rural areas and lack of information on insurance options. A study using 2014 Kenya Demographic Health Survey (KDHS) data proposes that the changes are explained by the existing variances in socio-economic status with high poverty ratings within the rural set ups with very poor individuals less likely to be under any coverage, mostly through the private healthcare insurance (Kazungu and Barasa, 2017).

KHHEUS data further shows that there are clear differences in the coverage across each county (MOH, 2018). Roughly 41% of people in Nairobi are covered, approximately 32% in Embu and Nyeri were under insurance cover, while less than 1% of people in Wajir were covered; a coverage of less than 3% were in Marsabit, Mandera, West Pokot, Mandera and Garissa (MOH, 2018).

It is noted that healthcare insurance coverage is relatively high among the rich when considering the different types of insurance covers offered in the country; either public or privately owned, 42 percent of the rich citizens are covered in comparison to citizens in the lowest quintile who are covered at a low percentage of around 2.9 percent (KHHEUS 2018). NHIF is the main insurance offering services to the citizens covering more than half of all quintiles, with coverage still been highest among the rich. Privately owned insurance companies are virtually nonexistent among the poorest members in the society, the community-based insurance cover is alternately highest within the poor communities.

According to Kazungu and Barasa (2017), people from the affluent families possessed higher chances of taking up cover by the health care insurance as in comparison to poor people. Even though those with no healthcare cover have access to free motherly and primary health care services through the user – free scheme, they still experience the financial risk for hospital costs hence they are susceptible to disastrous health expenditure.

Schemes of voluntary health cover which are owned privately or community-based healthcare programmes have skyrocketed from 7% to 11% of the overall health care expenditure, accounting for 35 billion shillings in the 2015/2016 down from 13 billion in the year 2009/2010 financial year. In spite of representing a bigger portion of the entire health funding, the voluntary health insurance programmes cover relatively small part of the populace, at less than 5% (MOH,2017).

NHIF being the main provider of insurance in health sector within Kenya and the major tool by which Kenya plans to increase the healthcare cover in the country through sensitizations and mass registration of the public. NHIF was set up through the National Hospital Insurance Act of 1996 with the aim of providing health cover for citizens employed by the government. Among the employed or the formal sector, the contributions are made by the employees with no share by the employer, which is a different format than other contribution modes for health care insurance in countries with middle-income. Low rates do limit the total package for inpatient benefits under National Health Insurance Fund cover, and in 2015, there was an increase in contributory rates under NHIF for the first time (Deloitte, 2011).

Currently, the contributory rates range from KSh 150 to 1,700, with the unemployed members allowed to contribute a flat amount of 500 shillings (NHIF, 2017). Its mandatory for all employed members to remit their contributions through the employer; the participation by the informal sector workers is voluntary.

Through a scope of potential strategies, the government is geared towards the expansion of health care insurance cover to the harder to reach informal set up through NHIF. In 2017, the government initially partnered with M-Tiba, a mobile wallet platform, which is a partnership of Pharm Access Foundation, Care pay as well as mobile operators to register 2,000 families from the informal settlements into the NHIF and also 4,600 horticultural workers from the Oserian company (Macharia, 2017)

Since then M-TIBA has independently grown and its merger with the National Health Insurance Fund through NHIF Bora promotion is attracting employer and individual driven registration into Supa Cover NHIF also came up with the Mobile application that allow users to pay in small

instalments of money they are able to pay, until they reach the KSh 500 unemployed sector premium, at the end of the day, this will make it easier for the unemployed sector to both save for and pay their contributions. The roadmap also gives broader, country wide efforts to drive registration of members to the cover. Some of the registration responsibilities and the laid down strategies have been given to the county governments, which are expected to ensure registration of their populations (Daily Nation, 2017). The government is also looking at encouraging the County registration and collection of premiums using the result-based transfers from the central level. National Hospital Insurance Fund in partnership with AMREF also intends to use rewards in form of commissions through bank agents, community health workers to drive informal sector registration to health care insurance coverage (Government of Kenya, 2018).

1.1.3 Health Insurance Reforms in Kenya

Edwine Barasa *et al*; 2018, low- and middle-income nations are progressively approaching Universal Health Coverage as the main priority in health policies. In order to attain universal health coverage, countries are under obligation to expand the scope of their service provision to the citizens, expand citizens coverage with a means to make prepayments, as well as reducing the level of payment made directly when the population incur at the point of accessing healthcare services. The government has initiated a thoughtful method of attaining universal health coverage by 2022. Kenya as a country has a hybrid kind of healthcare financing system financed by taxes levies collected by the different tiers of government through tax levies as well as funding from the donors, the National Hospital Insurance Fund (NHIF) through member contributions, health insurances institutions owned privately through contributions by members, and individual spending by citizens at the point of care out of their pocket.

To purchase health care services, the government at both levels uses a supply – side subsidies to the public health facilities, for example, the department of health at the County give line budgets to the hospitals within the county to finance delivery of services to the citizens within their county, the NHIF, which contracts private and public health facilities in the country and pay for the services given to its registered members; and the privately owned health insurance institutions that contract private health facilities and then pay for the services given to their registered members.

Khama Rogo *et al*; 2018, in Kenya as well as other middle- and low-income countries, contributory health cover has become popular as a financing scheme for health, restructuring their health systems for the universal health coverage. The uprising number of countries in the Sub Sahara has either noted or in the course or acknowledging a public contributory health cover scheme. For example, Nigeria, Ghana, Rwanda, Kenya as well as Tanzania have in place a public contributory health cover scheme, whereas Swaziland, Sierra Leone, Lesotho, South Africa, Liberia, Uganda, Zambia, Zimbabwe and Burkina Faso are contemplating setting up one.

Jane Chuma *et al*; 2018, found out that the government of Kenya has decided to use National Hospital Insurance Fund as one of the crucial arrangements for increasing the cover in health insurance in its populace with a mechanism of prepayment health financing. NHIF being a public institution established under the act of parliament in 1996, it was to provide compulsory health insurance to those in the employment sector and this later changed to expand the cover to workers from the informal sectors. Those in formal employment pay a monthly rated contribution based on their income through the statutory deductions, while those in informal sectors pays a voluntary flat contribution directly to the NHIF. Analysis in the previous has indicated a passive purchase of NHIF rather than a strategic one.

Kenya has a generally low insurance cover at 19 %, NHIF as the major insurance institution in Kenya, covers 16 percent of the populace, while 25 privately owned health insurance institutions jointly cover a low percentage of the Kenyan populace. In the struggle to increase the capacity of NHIF to deliver to Kenyans the promise of universal health care coverage, various restructuring has been by government in the previous 8years span. The effects of these restructuring for the country's quest to attain the Universal Health Coverage, lay emphasis on the whole scope of recent reforms given the fact that they are interlinked and works towards similar objective of enhancing population cover with the NHIF to ensure increase in accessibility to superior health services as well as providing shield to the severe effects of the out-of-pocket payments.

LMICs' health financing reforms by highlighting the experience of Kenya with instigating health insurance reforms as well as providing learning points on how the arrangement of such restructuring can influence growth towards universal health coverage. The experiences and learning points are not only relevant to Kenya but also for other LMIC set ups that have or are arranging to introduce a contributory health insurance means.

1.1.4 Financial protection against the cost of ill health in Kenya

Kenya has gone a notch higher and made advances in bringing down the out of pocket expenditure in healthcare costs among its citizens, but more efforts are needed that can lead to improved financial protection for families against healthcare costs. This targets to improve on catastrophic health expenditure, lowering the burden of expenditure from the individual pockets from many families. The out of pocket shifts as well as designs may be useful tool to determine the extent of protection financially given to citizens by the health care system.

Out of pocket spending is a major contributor that households end up in suffering disastrous health expenditures thus distressing the standards of living and generally pushing them to below the poverty level. The government is advancing close to its 15% of the whole health budget according to the Abuja Declaration. Availability of finances towards the access to health care services is still experienced as a main bottleneck despite noteworthy improvements in budgetary allocation in between the year 2003 and 2018, an indication of a need for more governmental effort to enhance shield financially. (Kenya National Health Accounts 2015).

The KHHEUS 2018 data indicated the percentage of families revealing out of pocket expenditure as the major contributor to failure of access to healthcare services came down from 36.3% to 19.4% (MOH, 2018). Though this was regarded as a decrease, it still shows that an outstanding demand-side barrier exists. The poor families, who have high demand for health care services, are not likely to seek health care services, and eventually they spend low when seeking health care services. Huge load of poverty being in the rural, this section of the population is also the less likely to seek health care services because of limited finances.

Regardless of the increased disease burden among the population, averagely the annual total per capita expenditure on both in-patient and out-patient care is lower among persons in the lower two wealth quintiles in comparison to the upper quantiles. Chuma and Maina, 2012, indicated that 16 percent of households incurred out of pocket expenditure payments at the 10% rate of household budget. The poorest families were most likely to experience disastrous health care expenses in comparison to the richest families, there has been a constant reduction in the amount of household evaluated as facing such disastrous health expenditures from 2007 to the year 2018.

Barasa *et al.* in 2017 using multivariate analysis found that among families in the poorest sector, had a threshold of 6.53 more likely to suffer terrible health expenditures in comparison to the affluent families. The effects caused by Catastrophic Health Expenditure also found out that nearly 620,000 Kenyans in 2013 were made poorer since the payments out of pocket while seeking healthcare services.

1.1.5 Health Insurance Cover

Medical coverage is an organizational and funds related system that assists family units and particular people in putting aside budgetary resources in meeting clinical deliberations in the occasion of disease. It depends upon the rule of pooling reserves and committing to social insurance expenses of individuals added to the pool. This pooling is done through a third-party that can be either government, insurance agency, business of supplier (Kraushaar, 1994).

In medical coverage, each individual from the insurance pool pays the premiums independent of whether the person in question becomes ill. Pooling the risk of enormous human services consumptions of numerous individuals, medical coverage can make essential social insurance reasonable to all. (Chollet *et al.* 1997).

Kenya increases in a single primary medical coverage conspire, the National Hospital Insurance Fund, which existed as a division under the MoH since 1966 preceding its authoritative changes, National Hospital Insurance Fund Strategic Plan (2018 - 2022). Financing medicinal services conveyance in the nation keeps on as an unsurmountable test for the economy as well as a deterrent to rising accessibility to human services administrations of formal requirements. A few spearheading endeavors to address this test portray the post-autonomy history of Kenya. In 1965, the then government made a noteworthy stride on the landmass in financing medicinal services

conveyance through the presentation of obligatory Health Insurance for every utilized individual paying more than Kshs 1,000 every month.

The National Health Accounts and different examinations in the nation have indicated that the Government commitment to social insurance adds up to just about 30% of the absolute healthcare use in Kenya, and family units bear the more significant weight of about 40% of the medicinal services costs, Ministry of Health, (2012).

An overall aim of the Kenyan Government is to advance and better the healthcare level of Kenyan citizens by making healthcare administrations progressively successful, open and moderate. In this way, healthcare strategy or policy in the nation spins around two primary issues, precisely: how to convey a fundamental bundle of value healthcare administrations and how to back and deal with those administrations such that ensures their accessibility, openness and reasonableness to those in most need most social insurance—Kimani *et al.*; KIPPRA Discussion Paper No. 42; (2004).

In Kenya, 19% of the populace has some medical coverage spread. Urban zones have a greater extent of 29.2% of the public with medical coverage spread than provincial areas at a rate of 13.3%. The NHIF is the major medical coverage supplier of the populace. In Kitui County, just 8.6% of the population had a Health Insurance Cover and is enrolled as one of the 14 counties in which medical coverage entrance is beneath 9%. Ministry of Health, (2014).

The ensuing presentation of KCHIC was planned for decreasing OOP in expansion to improving access to medicinal services. KCHIC presented insurance that was less expensive than the National Hospital Insurance Fund, which is perceived as a clinical spread for up to 93.9% of the populace in Kenya.

The County Government of Kitui has gone a step higher by presenting a medical coverage spread known as Kitui County Health Insurance Cover (KCHIC) reasonable for all the habitation of the County to handily get to health care services administrations. Accomplishing effective healthcare usage in this manner requires a proficient healthcare financing framework that appropriates the weight of paying for health care services as indicated by the capacity to pay and advantages from healthcare spending based on need. Kitui County Government to present an extensive medical coverage plan that is considerate of the social, financial and social attributes of its populace was generally recognized as a positive development.

This investigative study will concentrate on Kitui as a particular province with an Arid and Semi-Arid atmosphere, a poverty index of 63.1% and low insurance entrance (KIHBS, 2015/2016). The expository underpinnings of this investigation depict the desperate requirement for this populace to have monetary security against disastrous healthcare use. As this investigation estimates, the presentation of KCHIC presents a definite monetary spread that reacts to the differing healthcare needs of Kitui living arrangement.

1.1.6. Uptake of Health Insurance

The out-of-pocket (OOP) mode of payment made to support or finance seeking of healthcare services mostly end up to unbalanced and catastrophic situations for most of family units among the citizens. This has given into the initiation or formation of health care insurance strategies whose objective is to lower the out-of-pocket expenditure (McIntyre et al., 2008). Some developing nations have tried to cushion out of pocket expenditure by introducing social health insurance (SHI) schemes as a rejoinder to the approach by the world health organization geared to universal cover (WHO, 2010).

Social Health Insurance schemes are majorly in such structures or formations of contributions by the workers and employing entities in the formal sectors whereas within the informal setting they do benefit by contributing to either privately owned or community-based health cover schemes. Smith *et al.*, (2010) found out that different countries in the world have divergent degrees or levels of health insurance uptake among the citizens. For example, in America, privately owned health insurance cover is one of the major providers of health care financing and covers estimated population of 35% of total health expenditure, public coverage is estimated at 44.9% while out of pocket is estimated at 13.5% of the populace.

Kirigia (2005) found out that in South Africa estimated 30% of respondents in his study had at least an individual registered in one health insurance cover setting. Carrin (2004) in his study discovered that Rwanda made a great milestone in achieving health care insurance coverage at an estimated rate of 90% by executing the community-based health schemes among the population. 10% of the whole healthcare services in Kenya happens in collective or shared scenarios, 5.4 percent of healthcare expenses are acquired through private health insurance coverage, National Hospital Insurance Fund covers a significant level of the population, out of pocket supports 29 percent of healthcare services offered in Kenya whereas 39 percent are supported through the financing by the government.

Osei-Akoto & Adamba, 2011 in their different research studies found out that there are 3 main factors influencing a family's demand for enrolling in health care insurance policies which includes; the family point of view towards insurance uptake, the status or characteristic of the whole healthcare setting, and status of the healthcare strategy as a standalone. Scientifically or accurately proved content indicate a certain pattern in elements like demographic and socioeconomic factors among families including income levels, levels of education among family

members, status of their health, availability of kids and aged, sex of family head and marital status as an outstanding determinant of need and demand for the uptake of healthcare insurance.

The constitution for the world health organization, achievement of the highest estimated health level is an essential human right and there exist properly archived literature indicating challenges faced in attaining universal health care financing in developing and developed countries even to the state-of-the-art economies in Europe (Anup, 2011; Tanner, 2008).

Tangcharoensathien 2011, found out there are scientifically proven challenges encountered by different nations in implementing coverage degree of health insurance in the midst of the unemployed setting workers. For example, in Thailand, unnoticed movement was achieved in the process geared universal cover for many years, till the nation decided to buy health care insurance premiums for unemployed setting through the collected levies.

Delloite 2011, found or confirmed that registration rate in National Hospital Insurance Fund had increased at a great rate among the unemployed setting though it only results to 19% of the entire number of members in the pool. The yearly growth for unemployed members in the fund has been found to be at an average of 38% over the years and 10% for employed sector members. This leads to a conclusion that going forward, the growth will therefore greatly be felt from the unemployed members of the society which currently has lower levels of coverage.

1.1.7 Healthcare Utilization Services

Healthcare use is the proportion of the healthcare administrations utilized by a populace. In this unique circumstance, widespread healthcare inclusion, just as medical coverage, is seen as the best option for improving access to healthcare administrations for some families. Ekman (2007). This has been intended to lessen budgetary weight in utilizing health services cover or spread.

While this has been regularly anticipated by the people who bolster the hypothesis of medical coverage inclusion, health care coverage does not generally give regular budgetary security to the individuals who are safeguarded, which is frequently because of constrained insurance spread. The County Government of Kitui presented KCHIC, which is willful for each family and remembers each part. While these administrations could be accessible for each part of the County, deciding the take-up of the clinical administrations is critical in building up the viability of such a plan in the area.

1.1.8 Kitui County

The County is situated in Eastern Kenya that covers a region of 30,496 square kilometres. Officially, it's divided into Eight decentralized units; Kitui East, Kitui Central, Kitui South, Kitui Rural, Mwingi Central, Kitui West, Mwingi West, Mwingi North. Kitui County imparts its fringes to seven Counties; Meru and Tharaka Nithi toward the North, towards the Northwest is Embu, Makueni and Machakos to the West, towards the East and Southeast is Tana River and towards the South is Taita Taveta. The foundation in the district is better in the urban territories when contrasted with the country regions. The propelled street organization fundamentally establishes a rock surface, which makes up 399.2 kilometres of the streets in the locale—County Government of Kitui, (2019).

Kitui County has the highest count of health institutions in the nation, totaling 295 public and 65 private health facilities that serve a population of 1,136,187. The population comprises of 51.6% (587,151) females and 48% (549,003) males and 0.002 % (33) intersex. The population density is 37 people per square kilometre, 262,942 family settings with an average of 4.3 per household, KNBS (2019).

1.2 Statement of the Problem

The payments out-of-pocket is outlined as payment directly created by people to suppliers of healthcare during the time of accessing the service. It excludes any payment for health services, as an example, within the kind of levies and the specific insurance contributions or premiums. Direct charges which are unregulated characteristically denote a severe access hindrance to the required health care services and contribute to increased out-of-pocket payment leading to economic protection matters. (WHO, 2008).

Currently, 26.11% expenditure of the entire health in the country is from individual pockets. This in essence leads several citizens into financial crisis or poverty and pushes a barrier to access the health care services as it drives the poorer households faster to financial constraint or deprivation (WHO,2008). An estimation of the Ministry of Health is that 16% of those sick never seek for healthcare because of monetary hindrances, whereas 38% disposes off their properties or borrow to procure their medical bills, presently the Kitui poverty level stands at 63.1%, Kenya Health System Assessment (2010).

The health and sanitation department in the year 2018 in Kitui county showed that those using the general Public Health Facilities had increased; however, the waiver volumes due to lack of funds to purchase health care services had additionally increased in 2016 at 10% to over 15% at the end of 2017. This has brought out the matter of more finances or resources assigned to the health segment for the recovery of waivers. However, the number accessing health care services and insured by Social insurance remained at a low level of 8.6%.

According to Operational Frameworks of County Health Care Facilities, Kitui County (2015) indicated that 79% of the population failed to have a Health Insurance Fund card while 56% did

not know about an insurance scheme, 12% did not think the card was necessary. A further 16% said they could not afford the card. There is a noted significant gap in the uptake of insurance cover at 79%, knowledge about the National Hospital Insurance Fund or Social scheme card and healthcare payment systems. Risk-pooling is beneficial because health care costs are unpredictable and sometimes high, increases the likelihood to access health care in an affordable and timely manner.

1.3 Research Questions

1. What is the current profile of health insurance patterns in Kitui County?
2. What are the factors that influence the uptake of Kitui County Health insurance cover?
3. How can policymaking processes be influenced by the uptake of Kitui County Health Insurance Cover?

1.3.1 Broad Objective

1. To evaluate the factors that influence the uptake of Kitui County Health Insurance cover in Kitui County.

1.3.2 Specific Objectives

1. To explore the current health insurance patterns in Kitui County.
2. To evaluate factors affecting the uptake of Kitui County Health Insurance Cover.
3. To draw key policymaking recommendations on the uptake of Kitui County Health Insurance.

1.4 Significance of the study

The analysis is essential to healthcare policymakers as they highlight the challenges and achievements made since introducing the KCHIC in Kitui County. It emphasizes the areas that need improvement to achieve maximum health insurance coverage.

The study provided additional literature on how to increase insurance cover and universal healthcare cover leading to efficient health service across the County. The study highlighted how health insurance financing by the county government could lead to efficient, equitability of health services. It also provided mechanisms that the County government can emphasize to efficiently finance health services and make them affordable for each and everyone in the County.

CHAPTER TWO: LITERATURE REVIEW

Introduction

This section gives a survey of recorded writing recognized with the objectives or destinations of the investigation to provide the hypothetical and observational structure on the difficult territory. It distinguishes the hypotheses that add to the examination.

2.1 Theoretical Literature

2.1.1 Expected Utility Theory

This theory by Louise (1954) advise the investigation factors in this examination. The expected utility hypothesis recommends that decisions are rationally and reliably made by gauging results (additions or misfortunes) of activities (options) by their probabilities (with settlements thought to be autonomous of chances). The expected utility hypothesis depends on essential fundamentals about the procedures that happen during choices made under risk and vulnerability. Given these presumptions, the anticipated utility hypothesis foresees that the greater elective will consistently be picked (Kahneman *et al.*, 1984).

The hypothesis can be put in this examination since medical coverage enlistment by shoppers is made by gauging results (additions or misfortunes) of selecting to the plan, and the elective which has the most powerful utility is chosen (Einhorn *et al.*, 1981). The hypothesis advises ampleness and accessibility.

2.1.2 Conventional health insurance theory

John A Nyman (2002) holds that individuals buy insurance since they are prepared toward the sureness of depositing a slight premium to the possibility of becoming ill than taking care of an

enormous clinical bill. The ordinary hypothesis likewise holds that any extra medicinal services that shoppers buy since they have insurance do not merit the expense of delivering them. It contains that individuals purchase insurance to get exceptional pay when they fall ill. Insurance bureaus act to move insurance instalments from the individuals who are advantageous to the individuals who fall sick. This extra pay produces the acquisition of extra high-esteem care, regularly allowing wiped out people to get life-sparing consideration that they couldn't in any case bear.

In this manner, if shoppers buy insurance, it isn't because they want to maintain a strategic distance from chance. Instead, the new hypothesis recommends purchasers just compensation a superior when sound in return for a case on extra salary (affected when insurance pays for the clinical consideration) on the off chance that they become sick.

2.1.3 Adverse Selection theory

The hypothesis of difficult choice began in the commitments of Arrow (1965). Every one of these versions (and numerous resulting ones) depends on the supposition that operators join into insurance strategies dependent on their risk type and instalment costs. If there should be an occurrence of a difficult choice, operators with the most considerable expected expenses are those with the highest readiness to pay. This suggests the regular costs brought about by the safeguarded ought to consistently be more significant than for non-protected. Additionally, it suggests people at the edge display lower anticipated expenses than the pool of effectively protected people, making a descending slanting minor cost bend. Also, items with higher risk inclusion ought to draw in greater risk types, causing an upward relationship amongst inclusion and peril of the insurance pool.

Another approach to distinguish and evaluate difficult choice is to assess the normal cost bend looked at by the safety net provider Einav and Finkelstein (2011). Minimal cost bend diminishes if higher-chance sorts show a more evident eagerness to make insurance payments. Thus, the guarantor is confronted with reducing regular expenses with expanding request or difficult determination. Information on the minimal and normal cost bends and the interest bend distinguishes difficult choice, yet in addition, it considers government assistance examinations.

2.1.4 State-Dependent Theory

The state-subordinate hypothesis proposes that their wellbeing or financial status guides buyers' utility level and taste. As such, contrasts in level of risk avoidance impact insurance choice and greatness of what they expect as insurance settlements. Many people protect when they are solid, which shows how focal financial status is in insurance choices as in buyer theory. A solid individual hopefully hopes to be sound, and later on, insurance inclusion might be beneath full misfortune inclusion if the foreseen insurance pay-off is underneath the genuine misfortune if there should be an occurrence of sickness. Thus, the anticipated requirement for clinical consideration, given the present status and the size of the related insurance pay-off in the event of affliction, will influence the family unit request.

The state-dependent theory sets that both interests impact the insurance choice of a family unit and gracefully factors as salary level and flexibility and insurance settlements. The comparative view is shared by the possibility hypothesis sets that family units are risk liking and that their choices to enlist dependent on the possibility of picking up when debilitated. It recognizes gracefully factors, for example, premium and advantages as issues to advise family units' insurance choices" (Schneider 2004).

2.2 Empirical Literature

Sarpong *et al.* (2010), in Ghana, used a multi-variate logistic regression data analysis model to investigate the social, monetary status and medical coverage take-up, found out that informal sector families were negatively affected contrasted to families that were named having a place with the high financial situation in the uptake of health insurance. The analysts recognized that high economic levels positively improved the probability of joining health insurance coverage. Kiriga *et al* (2005), in South Africa utilized used a logistic regression model to consider the connection between medical coverage enlistment and the monetary status among ladies and found that the extent of individuals who had health care coverage rose as family unit pay expanded with the inclusion of those gaining 1-950 Rand being at low levels while those earning over 7,600 Rand for every month having a high inclusion level in Insurance uptake, suggesting that formal employment increased the likelihood of enlistment in health care insurance coverage.

Kiplagat, Muriithi and Kioko (2013) studied urban centres within Nairobi and, using the multinomial logit model, discovered that cooperation in general medical coverage among the inhabitants was that formal sector is an outstanding reason of investment into a social insurance cover. The poor were additionally seen as more opposed to taking an interest in medical coverage to subsidize the program. This indicated that the informal sector negatively affects the uptake of social health coverage and the distinctions between the informal and formal sectors of the population in health insurance uptake. There was differential cooperation between the traditional and casual segments, which positively increased the formal sector's enrollment into the social, medical coverage in Kenya.

Chuma and Maina (2012), on the uptake of health cover in Kenya study, used a multilevel logistic regression analysis method which indicated employment has a well-founded signal of socio-economic levels. The data showed that occupation positively affected the attainment of health insurance. There was a notable increase in inclusion across individuals with average financial status and were of great chance to get cover through the social health cover in comparison to the informal sector. Employment also distributes as an origin of entitlement, especially if it puts persons in control of revenue. Occupation is a crucial reason for the rate of healthcare insurance uptake and utilization for family unit members.

Perry and Rosen (2001), in the United States, applied the ordinary least squares model to look at the low engagement of unemployed in contrast to wage-earners and indicated that the unemployed were considerably at low percentage than wage earners to be holders of insurance covers. Only a small percentage of unemployed were insured compared to 74.1% who were wage earners, indicating that employment positively increased chances of registering for health insurance cover. Another study using probit regression model also in the United State found out low registration of self-employed individual in comparison to the employed in a health insurance. Minority of the group covered by insurance cover where self-employed in comparison to 74.1 percent who were earning wages. The children of those in self-employment were also not likely to have health insurance cover.

Additionally, Robert *et al.*; (2008) used the probit regression model in their survey within the United States for those either permanently employed, employees under short term contract or casuals and established that health insurance cover was highly influenced by one's employment status. The majority of the permanently employed people were insured compared to those under short-term contracts or casuals. Furthermore, those who changed from public service to be self-

employed lost their cover. The researcher reached an agreement that job loss negatively affected health insurance uptake.

Sudharshan *et al.*; (2001), using a probit regression model in India, noted unemployed persons come across inadequacy and fluctuations of resources once their assets fail to get incomes because of market connected risks and uncertainties. The need for products is most of the time seasonal and unforeseeable because circumstances beyond one's control, economic situations and changes within the surroundings of the broad social science negatively affected the population from the uptake of health insurance coverage among the rural setting family units.

Kazungu and Barasa (2017) conducted a multivariable logistic regression model and established similar differentials; people from rich family units were twelve times additional probability to be insured than the below par. Whereas the uninsurable will access free essential and maternal care services through the public-capitalized copayment programs like Linda Mama, they are not safeguarded against the risk of CHE. As indicated by the Kenya National Health Accounts (2005), more than poor people who are sick do not look for care has contrasted to the rich. The majority of low-income family units referred to monetary constraints as the chief reason for not getting health care insurance coverage and health services. Moreover, low-income family units were exposed to catastrophic expenditure due to a lack of health insurance uptake.

Robert and Rebecca (2005), using probit regression model in the study on registration of part time employees, as well as those in the small organizations in United States discovered that insurance cover was influenced by status of employment. 78.5 percent of those employed were likely to get insurance in comparison to those who were not in employment. Moreover, 20.7 percent who shifted from public to self-employment lost their health cover. In conclusion the researcher pointed

that loss of job was a vital factor in explaining health insurance loss in an economy that employer sponsored insurance is dominant.

Stan Dorn (2004) analyzed health Insurance coverage using probit model in the United States indicated that between January 2002 and July 2004 unemployed workers with incomes below the federal income level majority of them lost their insurance cover only 6 months after they lost their jobs. In the study to determine access of health insurance and use in Russia, Perlman *et al* (2009) found out that even though health insurance cover had risen up from the years 2000 to 2004, the people who were in the informal sectors were three times most likely to be under insurance. KHHEUS (2007), Data indicates that 16% of families incurred out of pockets payments at 10 % threshold of families' budget. The poorest families were 66 % most likely to experience disastrous health expenses in comparison to the affluent families. Ministry of Health (2009), found out that the number of those registered with health cover in Kenya is low due to the high premiums. Therefore, it has been surrendered to the rich populace mostly in urban set ups with Most of them in Nairobi.

Mulenga *et al.*; (2016) in Zambia, in a study about demographic and income determinants of women's health insurance coverage, noted a positive relation between years of life and insurance uptake; using both univariate and bivariate analysis to study the population and binary logistic regression analysis to look at the demographic and socio-economic status showed that there is an upward relationship between health insurance cover and increase in age.

Marthur (2014), in a study in Lucknow, India, seeking to understand perception and factors influencing health insurance, employed the logistic regression model. It was observed that those insured were positively affected by an increase in age. As such, the study found out that age increased the chances of purchasing health insurance.

Musah Khalid and John Serieux (2018), in Ghana, used a probit regression model to study the utilization of optional health insurance cover and its effect on medical services use and indicated adults of lifetime 65 and above have greater chances of purchasing health insurance in contrast to those with 18–24-year-old. Also, adults of lifetime 45 – 64 years, averagely, were mostly likely to get optional health insurance covers compared to 18 – 24 years old.

Ndung’u (2015), in his study of the informal sector within Murang’a County using descriptive statistics, indicated that a rise in age positively resulted in the acceptance of the insurance cover; participants aged 46 years and above had insurance cover, followed by those who were aged between 26-35 years, a minority of the coverage were aged between 18-25 years. According to the KNHA survey for 2005/06, insurance coverage is additional among women and men age 25 or above, those staying in urban areas, and people residing in Nairobi and Central regions, International Journal of political economy, Commerce and Management (2018).

Nathan Lukhale Masengeli *et al;* (2017) using cross-sectional descriptive in a study to determine the taking up of health cover amongst the older patients visiting the Bungoma referral County Hospital found out that among the respondents over 55years, there was an increase in the take up of health insurance cover with age. Those patients who are under the age of 25years were five times most likely not likely to have a cover in comparison to those 25 years or beyond. This surge in insurance cover with age can be attributed to the increase in addition health care needs and increase in financial capability and security. On the other hand, a reduction in the uptake of the insurance cover for those over 55 years may be linked to access to information and the ability to purchase. Many other studies locally have attributed increased health insurance cover take up with increased age to the depreciation of the health stock inherited as well as improved financial security.

Musah Khalid and John Serieux (2018) on a study for the registration of voluntary cover as well as its effect on the Ghanaian healthcare use using descriptive statistics and ordinary list squares observed that increase in age positively affects the distribution of health insurance. The results confirmed that advanced age adults are highly likely to get health cover. Specifically, adults above the age of 65 averagely have a 54% increased likelihood of getting the insurance cover for health in comparison to those between 18 – 24years old. Nonetheless, there was indifference between the prospect of voluntary health cover registration for those between 25 – 44years and 18 – 24years old adults.

Karigia *et al.* (2005) on factors key to health cover uptake amongst the females of South Africa used a logistic regression model, which showed that marriage had positively increased the probability of health insurance enrollment. It had been discovered that married persons had a more significant possibility of getting social insurance cover compared to their unmarried equivalents.

Ndung'u (2015) in Murang'a County, using descriptive statistics in the analysis of the informal sector, indicated that of those who had insurance cover, the majority were married, followed by a minority of the group who were either separated or solely unmarried. This trend can be explained by married individuals being additional probably to possess dependents whose healthcare wants had to be taken care of through health insurance coverage. It's also probably that married persons had access to higher combined unit financial gain and could afford premium payments.

Jackson Maina et al; (2016), using multivariate analysis on study to determine the uptake as well as awareness of the health cover for motherly caregiving in the remote parts of rural Kenya found out an important relation between marital status and insurance uptake, being married could struggle towards providing a universal care.

Benard Muiya (2017) using descriptive statistics in a study to determine the uptake of healthcare insurance cover by town based unemployed populace in Nairobi and Machakos, found that marriage positively affected the enrolment into health insurance. The description for this was that those who are married had a high probability to offer contribution with fact that they are in a dual-income household. The widowed, divorced, or separated were disadvantaged in their financial capacity or laden and therefore the probability to make payment for premiums of the health cover was compromised or low. This led to the conclusion that there exist a notable association between registration into health schemes and marital status.

A Namuhisa, 2012 in a study to determine the uptake of NHIF strategy by those unemployed people in Nairobi using univariate analysis for descriptive and multinomial logistic regression, marital status was not significantly associated with uptake of National Hospital Insurance Fund strategy though those who are single are notably not likely to register in National Hospital Insurance Fund scheme, This can be attributed by the assertion that those not married were younger with no people depending on them, or lacked flow of income or may be lack of other sources of revenue to meet the extra required premiums payments needed by the insurance strategies available. There are other aspects that comprise of the awareness of being away from risk in relation to matters of health on this category of populace or absence of know-how on schemes of health insurance needs. Nonetheless, families having children seemingly are highly risk averse and on the same note expect an advanced necessity for healthcare services hence expected to register for insurance.

In Turkey, Rifat *et al.* (2013) applied a multiple logistic regression model and found health changes program and education levels quickly increased health insurance coverage and entry to medical

services for the population, particularly the poverty-stricken population teams towards their goal to realize UHC.

Boateng and Awunyor (2013), in the Republic of Ghana, used both Logistic Regression model and descriptive statistic to access aspects that affect the uptake of insurance cover noted that respondents with no education were negatively affected in the uptake of health insurance in comparison to those who had an education. The minority of participants with no formal studies had never been listed on any insurance compared to most respondents with tertiary schooling.

Mulenga *et al.*; (2016) indicated that individuals with secondary or higher instruction have considerably higher feasibility of getting insurance coverage. The results were obtained using binary logistic regression analysis with the actual certainty that education on matters of health has a vital responsibility in enlightening people regarding the significance of social health insurance coverage uptake. Education also positively helps people create knowledgeable selections on related medical issues, obtaining health covers to avoid catastrophic health expenditures after they fall sick.

According to Ndung'u (2015) using descriptive statistics in the analysis in a research of the informal sector in Murang'a County, most of the respondents had certain formal education and hence understood the need of health insurance, need for quality health care, health cover messages, in addition to importance of health cover in comparison to those who never had any formal schooling. According to KNHA survey for 2005/06, the ones with tertiary level of schooling possess higher chances of having a health insurance compared to the primary level ones.

Nathan Lukhale Masengeli *et al.*; (2017) using cross-sectional descriptive in a study to determine the take up of health insurance amongst aged patients visiting the Bungoma Referral Hospital of

the County found out that having a health insurance cover for health had a positive correlation with higher education level.

Doris S Phillip (2018), using qualitative as well as quantitative analysis in a research regarding uptake of health cover in Kenya established that education has a statistical significance in the uptake of health insurance. The ones who attained the tertiary level of schooling had 4.7 percent higher chance of having health cover in comparison to the ones with primary level education. The findings further established that level of education was a vital aspect in the ownership of health insurance. Taking up health insurance goes up as the education level goes up. Education creates awareness and enlightens people on serious matters comparable to health. This prompts the learned people to take health cover as they are well versed on the significance of good health.

Musah Khalid and John Serieux (2018) on a study for the take up of health insurance voluntarily and its effect on healthcare use in Ghana using descriptive statistics and ordinary least squares found out that education positively affects the registration of health cover, higher levels of schooling is linked positively to the likelihood of uptake of health insurance voluntarily. Precisely, in relation to those with limited schooling, 7% of aged people with primary level of schooling were more probable to register health cover voluntarily. That variance is 22.6 percent in addition to 14 percent for grownups with post –for secondary and secondary education respectively.

Sophie H. Allcock, Elizabeth H. Young and Manjinder S. Sandhu (2019) using multivariable and univariable mixed effects Poisson regression assessment on a research on the patterns of sociodemographic of health cover in Namibia established that public engagement and education have been cited as crucial strategy for the acceptability and uptake of health insurance in other set ups. Level of education was strongly linked to health insurance cover among the populace. These findings therefore point out the price in addition to effects of training on health cover. Training or

education can impact health cover in different means. It might enhance attitudes and knowledge in seeking health as well as worth of health cover. Willingness to register for least costly health covers in Namibia has been associated with education and has been also linked with the increased awareness the schemes of insurance elsewhere. Consequently, women and relatively poor individual may be empowered by education to make choices including health decisions. Enhancing access and education quality is a vital constituent of various government policies in Namibia and the finding additionally point out the significance of the county's dedication to improving education.

Even though in overall education, including for women, is high in Namibia, quality and attendance of education is variable and mostly not enough in the lower income members of the communities, the marginalized populace as well as in rural and remote areas. While huge percentage of Namibians finish primary education, shifting to and completing secondary as well as higher education might be enhanced. Results proposes that enhancing accessibility to education might assist people manage better their health issues. The results have inferences for design and operationalization of policies to increase health cover or enhance protection financially for the extra helpless populace. Scaling up of health insurance could be done through strategies of engaging the community by utilizing the advocacy and media tools. Moreover, mechanisms to ensure health insurance is more affordable and inexpensive through subsidies may assist in improving the uptake.

Jackson Michuki Maina¹, &, Peter Kithuke, Samuel Tororei (2016), using multivariable analysis on uptake and perception of health cover for motherly caregiving in remote parts of the rural Kenya found that knowledge positively effects on insurance uptake with majority of the respondents

affirmed that health cover is of benefit. These conclusions agree with other past research work amongst the Kenyan societies affirm that it is vital to have some kind of health cover to help meet the medical costs mostly in cases of crises to lower the heavy costs on health. This might be attributed to the assertion that most of the respondents in the studies had at least attained secondary education hence had some kind of education that enhanced information on contemporary matter like medical cover. The knowhow on the workings of insurance is very low in that region.

Studies by (Lusardi, 2008 and Tennyson, 2011) proposes that health covers is a complicated financial product for clients. For the clients with known low-to-moderate stages of literacy in health cover have bottlenecks in purchasing the health cover because of small information and understanding of the worldwide healthcare hence should be assisted to know and utilize the health insurance. Rifat *et al*, (2013) posit that health revolution schemes in Turkey swiftly extended health cover and accessibility to the healthcare amenities for the citizens, mostly the poorest population groups to attain universal health cover. Knaul *et al* (2012) Knaul, claimed that Mexico has advanced meaningfully in the quest for universal cover due to the 2003 reforms in the health that enacted the System of Social Protection in Health (SSPH) as well as statutory reforms in 1983. Therefore, in order to improve uptake of social insurance cover, health insurance reforms like health insurance literacy in the health system in a country.

Ndung'u (2015), in a study of the informal sector in Murang'a County using descriptive statistics, showed that feminine had a higher number of insured persons compared to masculine who was listed in an exceeding insurance cover. More analysis of the information indicates that females were higher than males to possess complete enrollment coverage. Cheryl (2002), in a study to look at factors related to gender variations in health care access in New York City using logistic regression model, noted that the majority of women had non-public or public insurance whereas

fewer men were coated; there was no vital distinction in proportions with non-public insurance with women listed at higher percentage compared to men.

A different study by Sabine Serceau (2012) in the research of Indias Rasthriya Swashya Bima Johana (RSBY) health insurance theme using logit regression model accorded that male member enrollment was higher compared to women. The poor enrollment among women was related to the underprivileged arrangement of women since husbands as heads of families created selections in registration. The ladies who had low attainment and required info on RSBY continued to trust their spouses for preferences on enrollment and use of their cover cards. In regard to coverage the poorer and those without access to cash (including women) are not likely to participate in the voluntary health cover schemes, even in those involved relatively modest payments as in microinsurance programmes.

A study to determine the uptake of NHIF schemes by people in the informal set up in Nairobi County using univariate analysis for descriptive and multinomial logistic regression, gender was meaningfully linked with registration of schemes of NHIF, where women were less likely to register for the National Hospital Insurance Fund scheme unlike male respondents, A Namuhisa (2012).

Aaron Alesane and Benjamin Tetteh Anang (2018) using multivariate logit model on registration of the health cover by the less privileged in the rural Ghana: determining factors and implication for policy, established that gender was positive and statistically important at 1 percent level showing higher registration of insurance by the masculine respondents. The chances of one being a male enhances the likelihood of registering for insurance by 0.93. From the point of view of gender and age, older females were seen to have higher chance of registering for health cover in comparison to elderly men. This was captures in the positive coefficient which is significant at 5%

level. The likelihood of elderly women registering health cover was higher for elderly men by 0.04.

Another study by Archaya *et al* (2013) established that in India, households controlled by women are likely to register health scheme. There exist different aspects like power of hierarchy in household, high rates of premium, geographical and political and class structure which makes women to be excepted from health schemes.

Catherine Nguru (2011), using descriptive statistics in a study to ascertain uptake of health insurance amongst people joining communal and privately-owned health care facilities in Embu County, Kenya found that females had higher chance of joining an insurance scheme than men, this indicated a considerable relation between registration of health care cover and gender.

Adebayo *et al.* (2015), in a study in Ghana using descriptive statistics, indicated that value of health care is one of the leading health-related factors that influence social care decisions. Improvement in quality of care is thought to positively increase the likelihood to pay for an insurance cover.

Wenyaa *et al.*; (2008), in a study within the Kenyan population using binary and multiple logistic regression models, indicated that the citizens did not see the need to be insured due to low quality of healthcare service primarily due to lack of drugs. Gilson L, Raphaely N (2007), in a study in the Republic of Tanzania, experienced the same scenario due to the low quality of services concerning health insurance scheme enrolment. The population felt unworthy of paying for the schemes due to lack of health products and technologies, understaffing, and few services covered.

Additionally, Fang *et al.* (2012) did a study in China and found out that persons with chronic diseases, high level of illness history, households with illness experience, higher illness rates or more sick household members were more linked to higher uptake of health insurance coverage.

Kirigia *et al.* (2005), using a logit regression model in a study in South Africa, found out lifestyle aspects are likened with an appetite for the uptake of health insurance cover.

Gidey *et al.*; (2019), in a study in Ethiopia using interval data logit model, indicated that the majority preferred and were ready to make payment for premiums for the social health cover program, but scheme related factors such as high premium contribution and unsatisfactory benefit packages had a negative influence on the process. Kamuzora & Gilson (2007) in Tanzania discussed several barriers leading to low enrolment, including the inability to pay annual contributions, especially for low-income households, untrustworthy system pointing out corruption and lack of transparency being significant barriers, lack of understanding the rationale of the scheme majority did not understand prepayment mechanism.

Wenyaa *et al.*; (2008), in a study done in Kenya using binary and multiple logit regression models, indicated that scheme design is a critical element concerning the uptake of social care scheme. In another approach, Bhandari, L., & Sinha, A. (2010) showed that the Kenyan population insurance uptake among the citizens had been positively affected by scheme-related factors. Mathauer *et al.* (2008), the Community engagement in package arrangement play a more significant role for it ensures integration of the increasing casual labour and the below par to the scheme.

2.3 Overview of the Literature

Investigations in various studies using logistic regression model by Karigia *et al.*; (2005), Barasa (2007), Chuma *et al.*; (2012) indicated that employment positively affected the uptake of health cover. Studies by Muriithi, Kioko (2013), Robert *et al.*; (2005) and Sudharshan *et al.*; (2001), using logit model and probit regression models, respectively, found out that employment was a key factor that positively affected the uptake of social insurance cover.

It was also discovered by Karigia *et al.*; (2005) by use of a logistic regression model that persons who were married had more significant feasibility of enrolling into health insurance cover has compared to their unmarried counterparts. Data analyzed using a logistic regression model by Rifat *et al.*; (2013) and Mulenga *et al.*; (2016) indicated that education levels positively increased the likelihood of health insurance uptake among different populations.

Studies relating to gender using the logistic regression model and descriptive statistics by Cheryl (2000) and Ndungú (2015), respectively, indicated that females have a higher capacity to enrol an insurance cover. Some of the critical areas not adequately addressed are the scheme designs and health-related aspects in the registration of social health covers. The study fills the gaps by addressing how the public's engagement in designing the schemes, factoring in health-related matters can positively improve the uptake of health insurance cover.

CHAPTER THREE: METHODOLOGY

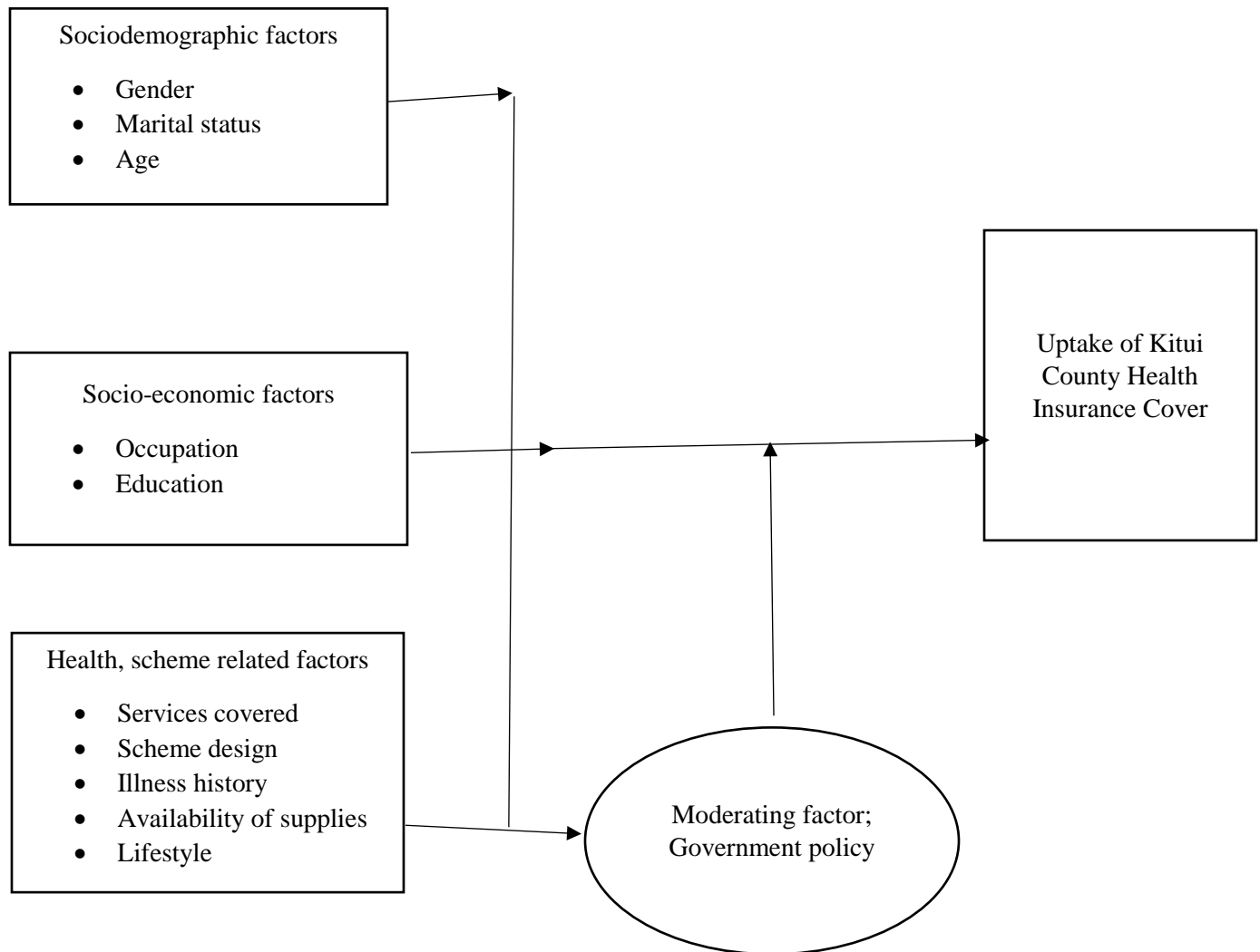
This chapter contains the conceptual framework, econometric model and model specification, diagnostics tests, data source, sample size determination, pilot study and ethical considerations.

3.1 Conceptual Framework

This section describes the association linking independent and dependent variables of the study.

Independent variables

Dependent variable



Source: Author (2021)

3.2 The Econometric Model and Model Specification

The study used a probit model for estimation. The main focus of the research is to explain the dependent variable as the chances of selecting either to buy the health cover or not to. An assumption exist of a linear connection between the latent variable Y^* and explanatory variable (x_i). The structural model is expressed as;

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

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

x_i is a vector of explanatory variables

β is a vector of parameters to be estimated

ε is the error term.

Let the following measurement equation link 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 y_i is the chance of being covered by Kitui County Health Insurance Cover (1 if covered by Kitui County Health Insurance Cover, 0 if not covered)?

K is the brink point, critical level of the index Y^* outside which the individual will buy KCHIC.

Attributes of X were taken and regressed against Y to ascertain the effect of each variable on the chance of participating in health insurance or not.

Therefore, the estimable model is shown as;

$$KCHICP; P_{ij} = f(\beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + e)$$

Where;

Y - is the uptake of Kitui County Insurance Cover (dependent variable)

X₁ – Gender

X₂ – Marital status

X₃ - Age

X₄ – Education level

X₅- Occupation

X₆- Income

X₇- Illness history

X₈ – Design of the scheme services

X₉- Design of the scheme affordable

e - is the error term

3.3 Definition, measurement and signs of variables

The primary variable is the uptake of the insurance cover. This was regressed against the study's independent variables, which include employment, occupation, age, gender, education level, illness history, lifestyle, design of the scheme, services covered, and availability of supplies.

The features of X are taken and regressed against Y to ascertain the effect of each variable on the likelihood of participating in the Kitui County Health Insurance Cover or not. This study employed the multinomial probit model as the dependent variable is categorized.

Njenga *et al.* (2018) and Mwangi & Sichei (2011), also used multinomial probit in their research to model the full correlation matrix of residuals. A probit model is superior in comparison to multinomial logit as it allows for correlation of residuals in countering the Independence of Irrelevant Alternatives problem (IIA). Probit model assumes that error terms are multivariate normally distributed and more so are correlated across the choices while logit assumes a logistic distribution. It helps in correcting for the blue bus red bus paradox in the multinomial logit.

The Kitui County Health Insurance Cover Participation (KCHICP) was introduced as a function of several variables; employment, occupation, age, gender, education level, illness history, lifestyle, design of the scheme, services covered and availability of supplies. Thus, the probit model can be shown as;

$$KCHICP; P_{ij} = f (\beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Marital status} + \beta_3 \text{Age} + \beta_4 \text{Income} + \beta_5 \text{Education} + \beta_6 \text{Occupation} + \beta_7 \text{Illnes history} + \beta_8 \text{Scheme design services} + \beta_9 \text{Scheme design affordable} + e)$$

Table 3.1: Summarizes the operational definitions, signs and measurements of the variables

Variables	Definitions	Measurements	Expected Sign
Dependent			
Kitui County Health Insurance Uptake	Discrete variable where individuals can select on the uptake of the cover	If an individual has health insurance, is 1 If not to be represented by 0	
Independent			
Gender	Whether Male or Female	1 if female 0 if male	Positive (+) Negative (-)
Marital status	Whether Married or Not Married (single, separated, divorced, widowed)	1 if the married 0 Otherwise	Positive (+) Negative (-)
Age	Number of Years lived	Complete years	Negative (-)
Education	Levels of Education	1 No education 2 if primary 3 if secondary 4 if tertiary	Negative (-) Negative (-) Positive (+) Positive (+)
Occupation	Employment status	1 if employed 0 if unemployed	Positive (+) Negative (-)
Income	Monthly Average income	Monthly Average income	Positive (+)
Illness history	Whether the individual has a chronic illness	1 if has a chronic illness 0 if has no Chronic illness	Positive (+) Negative (-)
Design scheme affordable	Whether the plan is affordable	1 if inexpensive, 0 otherwise	Positive (+) Negative (-)
Design of the scheme service	Whether the design of scheme favors uptake	1 if good services 0 Otherwise	Positive (+) Negative (-)

3.4 Data Source

The main research instrument was by use of a questionnaire during the study. The data was obtained by administering the questionnaire and conducting interviews with the enrolled individuals into Kitui County Health Insurance Cover.

3.5 Sample Size determination

As indicated by Kothari (2004), an example is the number of things chosen from the universe to establish the example and suggests that the sample size should be ideal to content the requirements of expertise, unwavering quality, representativeness, and adaptability.

The study used Fischer *et al.*, 1999 formula.

$$N = Z^2pq / d^2$$

Where;

N = desired sample size (when the target is greater than 10,000)

Z= standard deviation of required confidence level. (Standard value 1.96)

P= Proportion in target population estimated to have characteristics being measured.

$$Q=1-p$$

d= level of statistical significance (0.05)

In total, 96,653 households have been enrolled into Kitui County Health Insurance Cover out of 262,942 households (Kitui Department of Health and Sanitation 2020).

Given that; Z = 1.96; P = 96,653; Q = 1 – 96,653 / 262,942; d = 0.05.

Therefore;

$$\frac{1.96 * 1.96 (96,653 / 262,942) (1 - 96,653 / 262,942)}{0.05 * 0.05} = 357$$

$$0.05 * 0.05 = 357$$

3.6 Diagnostic Tests

3.6.1 Testing for Multi-collinearity

Multicollinearity refers to a state during which there is a linear dependency or inter-correlations among the independent variables resulting in applied mathematics inferences being unreliable (Gujarati 2007).

The study used the Variance Inflation Factor test. If the analysis shows a VIF of 10 or additional and/ or tolerance of less than 0.1, there is a high correlation among independent variables.

Robust commonplace errors are used to guarantee no inflation of variables of parameters estimates hence avoiding wrong inferences.

3.6.2 Testing for Heteroscedasticity

Cross-sectional Data are prone to heteroscedasticity. The study detected the presence of the varying variance using the Breusch- Pagan test with null hypothesis of constant variance in relation to the alternative hypothesis of heteroscedasticity rectifying its presence by use of robust standard errors.

3.7. Pilot Study

A trial study was undertaken in Makueni County, which has similar insurance cover characteristics as Kitui County. A representative of 35 respondents representing 10% of a sample size of 357 was used. Mugenda & Mugenda (2003) argued that 10 percent of the study sample is sufficient for doing trials of a study. The pilotage was of significance to unite the respondents' observations and recommendations and correct any deficiencies in the questionnaire, hence enabling the instrument's reliability. It indicated that education, increase in age, high level of income positively increased the uptake of insurance cover. The trial study allowed the investigator to be acquainted with the study.

CHAPTER FOUR: FINDINGS AND DISCUSSIONS

4.1. Introduction

This chapter presents results of the data analysis for this study. The chapter presents descriptive statistics, Diagnostics analysis/post estimation, inferential statistics, including probit results and the marginal effect.

4.2 Descriptive Statistics

The table below shows the summary statistics of the data used in this study. It shows the number of observations, mean, standard deviation, minimum and maximum values for each of the variables utilized in this study.

Table 4.2: Descriptive Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Kitui County Cover	357	0.429	0.496	0	1
Gender	357	0.51	0.501	0	1
Age	357	41.188	15.792	18	85
Marital Status	357	0.692	0.462	0	1
Monthly income	357	8633.333	8465.139	1000	60000
Occupation	357	0.608	0.489	0	1
No Education	357	0.14	0.348	0	1
Primary Education	357	0.165	0.372	0	1
Secondary Education	357	0.552	0.498	0	1
University Education	357	0.143	0.35	0	1
Illness History	357	0.246	0.432	0	1
Design Cover Services	357	0.888	0.316	0	1
Design Cover Affordable	357	0.938	0.241	0	1

Source: Author computation

From Table 4.2, the number of observations for each variable employed in this study is recorded at 357 observations. The mean value is obtained by summing up all the observations and dividing the resulting value by the total number of observations. Monthly income had the highest mean value at 8633.333, while no education recorded the lowest mean value of 0.14. Standard deviation measures the extent of variability of observations of a given variable from the mean value of that variable. Monthly income exhibited the highest level of dispersion at 8465.139, while design cover affordable showed the lowermost spread or variability of 0.241. The minutest value was recorded at 0 for all the dummy variables except Monthly income at 1000 Kenya shillings and age variable at 18 years. Likewise, the maximum value was recorded at 1 for all the variables for age variable and monthly income at 85 and 60,000, respectively.

Diagnostic tests

To ensure the robustness of our estimates, we do the following post-estimation and pre-estimation tests that are common in cross-sectional data analysis.

4.3 Multicollinearity Test

Correlation analysis is a pre-estimation test that shows the correlation coefficient among the independent variables considered in the study, whereas the Variance Inflation Factor (VIF) is a post-estimation test and shows the degree to which the standard errors are inflated due to multicollinearity. The pairwise correlation and the VIF were used to compute the degree of multicollinearity among the explanatory variables in the model (Gujarati & Porter, 2003). Multicollinearity is a shared problem in cross-sectional information, and its presence violates Gauss Markov assumptions. It occurs when there is linear dependence among explanatory variables, and its presence inflates the confidence interval of the estimated coefficients in the model.

Table 4.3: Matrix of Correlations

Variables	Gender	Age	Marital Status	Monthly Income	Occupation	No Edu.	Primary Edu.	Secondary Edu.	University Edu.	Illness History	Design of Cover Services	Design of Cover Affordability
Gender	1.000											
Age	0.113	1.000										
Marital Status	-0.054	0.002	1.000									
Monthly Income	-0.158	-0.084	0.021	1.000								
Occupation	0.060	0.044	0.045	0.001	1.000							
No Education	0.116	-0.019	-0.045	-0.051	0.364	1.000						
Primary Education	0.029	-0.056	0.088	0.112	0.111	-0.122	1.000					
Secondary Education	-0.219	0.029	-0.015	-0.062	-0.004	-0.075	-0.180	1.000				
University Education	0.177	0.018	-0.049	-0.089	-0.041	0.095	-0.448	-0.494	1.000			
Illness History	-0.062	0.000	-0.001	0.082	-0.046	0.066	-0.165	-0.182	-0.453	1.000		
Design of Cover Services	-0.482	-0.024	0.006	0.044	0.026	-0.060	0.200	0.060	-0.138	0.059	1.000	
Design of Cover Affordability	0.038	-0.046	-0.055	0.109	-0.131	-0.012	0.015	-0.081	0.091	0.038	0.094	1.000

Source: Author computation.

From table 4.3, it is evident that there is a weak degree of association among the independent variables since the correlation coefficient among all the variables is less than 0.80.

However, we compute a more formal test using the variance inflation factor (VIF).

Table 4.4 below provides a post-estimation correlation analysis test. A mean VIF of more than ten concerns multicollinearity is present in the model (Kennedy,2008).

Table 4.4: Variance inflation factor

	VIF	1/VIF
Gender	1.019	0.981
Age	1.018	0.983
Marital status	1.049	0.954
log of monthly income	1.276	0.784
Occupation	1.273	0.786
Primary Education	1.897	0.527
Secondary Education	2.455	0.407
University Education	1.879	0.532
Illness History	1.061	0.943
Design of the Cover Services	1.061	0.942
Design of the Cover Affordability	1.03	0.971
Mean VIF	1.365	.

Source: author Computation

From table 4.4, we found a mean VIF of 1.365 that is less than the recommended mean value of 10, and we conclude that multicollinearity is not a problem in the model (Kennedy,1992).

4.4 Heteroscedasticity Test

The Breusch – Pagan / Cook – Weiberg test is useful to check heteroscedasticity in the model under the null hypothesis of constant variance or no heteroscedasticity. The consequences of heteroscedasticity are that standard errors will not be reliable if our errors are heteroscedastic.

Table 4.5: Breusch – Pagan / Cook – Weisberg test for heteroskedasticity

	Calculated Chi2	Prob>Chi2
Kitui County Health Insurance Cover	27.20	0.0000
Hypothesis	<i>H₀: Constant Variance</i>	<i>H_a: Unequal Variance</i>

Source: Author Computation

Since the p-value for the chi-squared was found to be less than 5%, we reject the null hypothesis of constant error variance — homoscedasticity and conclude that we do have a heteroscedasticity problem. To correct that, we use robust standard errors.

4.5 Econometric Estimates

A probit model was used to examine the factors influencing Kitui County Health Insurance Cover. The results from the probit estimation indicate a likelihood ratio (LR) test of 109.85 and a p-value that is important at a 1% level of significance. This implies that the variables used in the model jointly explain mixed uptake of Kitui County Health Insurance Cover and that our model is valid and significant. The results also indicated a pseudo R² of the value 0.0849. However, we only interpret the marginal effects because they show the probability of uptake of Kitui County Health Cover given other individual's attributes. The marginal effects after probit help us to interpret the uptake probability easily.

The marginal effects were also computed and interpreted after that. The probability value of chi-squared was found to be 0.0000. Since it is less than the alpha significant level, we reject the null hypothesis and make a conclusion that the overall model is statistically significant. The results of the Probit model are presented in the below table 4.6.

Table 4.6: Probit Model Results

	Probit Model
Gender	0.297* (0.160)
Age	-0.005 (0.005)
Marital Status	-0.468*** (0.169)
Log of Income	0.363*** (0.110)
Occupation	0.051 (0.183)
Primary Education	0.984*** (0.316)
Secondary Education	0.905*** (0.276)
University Education	0.458 (0.317)
Illness History	-2.622*** (0.446)
Design of the Cover Services	0.475** (0.230)
Design of the Cover Affordability	0.039 (0.317)
_cons	-3.847*** (1.081)
Prob > Chi2	0.0000
N	357

Robust Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Notes: (1) The dependent variable is Kitui County Health Insurance Uptake, (2) No education was the reference category for education level variable.

4.6 Discussion of Results

Gender has a positive correlation with the outcome variable (KCHIC) and statistically significant at 10%. It is clear that females were more likely to register in in the Kitui county health insurance scheme than males, keeping all other aspects constant. This finding agrees with different results from prior research on health cover scheme uptake, such as Cheryl (2002) and Ndung'u (2015).

Primary education and secondary education were found to be positively related to the outcome variable — Kitui County Health Insurance Cover and statistically significant at 1%. Holding other factors constant, individuals with primary and secondary education we most likely to register in the Kitui county health insurance cover than those individuals with no education. In regards to university education, it revealed a statistically insignificant relationship with the outcome variable. Rifat *et al.* (2013) also found similar results with the present study.

The findings from the model suggest that individuals who were married were less likely to enroll in the Kitui county health insurance than those individuals who were not married, *ceteris paribus*. Marital status was found to be a significant factor at a 1% level of significance in determining the uptake of Kitui County Health Insurance Cover. This contrasts with the findings of other studies that found that married individuals were more likely to have health insurance than their unmarried counterparts. Ndung'u, (2015).

Income was found to be a significant factor that determines the uptake of Kitui County Health Insurance Cover at a 1% level of significance. A shilling increase in income increase the probability that an individual will enroll in the Kitui county health insurance scheme. This means that members with high incomes are more likely to subscribe to the health insurance cover.

On the Illness history variable, the study found that it was significant at 1%, and it showed a negative relationship with Kitui County Health Insurance Cover uptake. Individuals with illness history were less likely than healthy individuals to enroll in the Kitui County health cover.

In regard to the design of the health cover services variable, the results found that the services covered under the plan were positive and significant at 1% in influencing the uptake of the Kitui County Health Insurance scheme. An individual's probability of enrolling in the Kitui County Health Insurance Cover is higher for covers with good services than those with not. This contrasts with the study conducted by Fang *et al.* (2012), who found individuals with a high level of illness history were most likely to register in a health insurance scheme.

Design cover, age and occupation variables were found to have an insignificant impact in influencing the Kitui County Health Insurance scheme uptake and, therefore, not good at determining where a household will go for the Kitui County Health Insurance scheme or not.

Table 4.7: Marginal Effects

	Marginal Effects
Gender	0.079* (0.042)
Age	-0.001 (0.001)
Marital Status	-0.125*** (0.043)
Log of Income	0.097*** (0.028)
Occupation	0.014 (0.049)
Primary Education	0.266*** (0.079)
Secondary Education	0.245*** (0.068)
University Education	0.120 (0.081)
Illness History	-0.701*** (0.099)
Design of the Cover Services	0.127** (0.061)
Design of the Cover Affordability	0.010 (0.085)
_cons	
Prob > Chi2	
N	357

Robust Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Notes: (1) The dependent variable is Kitui County Health Insurance Uptake, (2) No education was the reference category for education level variable, and (3) Equation 1 is a probit model, whereas equation 2 is marginal effects.

4.7 Discussion of Results

Holding all other factors constant, being female increases the likelihood of Kitui Health Insurance usage by 7.9% compared to being male, which was statistically significant at 10%. This finding was consistent with the results of previous studies on health insurance scheme uptake, such as Cheryl (2002) and Ndung'u (2015). It is clear from this research and others that being female increases the likelihood of up taking insurance schemes. But one study Sarbine Serceau (2012), conducted in India, found that the probability of males enrolling was higher than that of females.

Primary education and secondary education were found to be positively related to the outcome variable — Kitui County Health Insurance Cover and statistically significant at 1%. This implies that a person with primary education and secondary education is 26.6% and 24.5% more likely to have health insurance compared to one with no education, respectively. In regards to university education, it revealed a statistically insignificant relationship with the outcome variable. These findings can be explained from the perspective that individuals with education are more likely to be aware of the importance of having health insurance relative to catastrophic out of pocket health expenditures. It could also be argued that individuals who have some form of education are more informed on enrolling on the health insurance scheme. Rifat et al. (2013) also found similar results with the present study.

The probability of having enrolled for Kitui county health cover decreased by 12.5% for married couples relative to unmarried ones, and it was found to be a significant factor at a 1% level of significance in determining the uptake of Kitui County Health Insurance Cover. This finding implies that married couples are less likely to participate in Kitui county health insurance coverage, and that could be because one of the spouses could be in another health insurance scheme other than the Kitui one.

This contrasts with the findings of other studies that found that married individuals were more likely to have health insurance than their unmarried counterparts. Ndung'u, (2015). The other reason could be that these individuals had already enrolled for public or private insurance scheme before introducing the Kitui County Health Insurance Cover and did not see the need to have more than one insurance cover.

Income was found to be a significant factor that determines the uptake of Kitui County Health Insurance Cover at a 1% level of significance. Income increased the probability of health insurance uptake by 9.7, keeping all other factors constant. This means that members with high incomes are more likely to subscribe to the health insurance cover. Individuals with higher disposable income indeed consume more. If enrollment in an insurance cover is deemed consumption, then individuals with higher income will consume more. This is the case in our study. Several other plausible explanations from the previous back the findings of this study (see Adebayo et al., (2015); Ekman, (2007).

On the Illness history variable, the study found that it was significant at 1%, and it showed a negative relationship with Kitui County Health Insurance Cover uptake. Holding all other factors constant, people with illness history are 70.1% less likely to join the scheme than healthier individuals. This finding can be explained from the perspective that the plan combines both high risk and low-risk individuals and that chances of having high-risk individuals in the pool are minimized. Hence individuals with illness history, the high-risk individuals, have a lower probability of enrollment in the insurance scheme. This unlike the study by Fang *et al.* (2012).

Regarding the design of the Cover Services variable, the results found that the services covered under the design were positive and significant at 1% in influencing the uptake of the Kitui County Health Insurance scheme. The probability of uptake increased by 12.7% given the services that the scheme covers relative to those not covered under the Kitui County Health Insurance Cover.

Design cover, age and occupation variables were found to have an insignificant impact in influencing the Kitui County Health Insurance scheme uptake and, therefore, not good at determining where a household will go for the Kitui County Health Insurance scheme or not.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter consists of four parts. The first part is a summary of findings which is a round-up of the outcome of the study. The second part is the conclusion and inference from findings. The third part contains policy recommendations based on the study. The last part offers areas for further research not captured in this study but are significant to the topic.

5.2 Summary

The main objective of this study was to determine factors influencing the Kitui County Health Insurance Scheme in Kenya. A Probit model was used for analysis and estimated by the Maximum likelihood method. The Probit model results found that the overall model was significant and that all the variables jointly predict the probability of choosing the health insurance cover of Kitui County. To interpret the model, there was a need to run the marginal effects of the probit model and interpret them.

The Probit estimation results revealed that income, marital status, design of the scheme, illness history, and gender were significant despite showing different signs of the coefficients. For instance, gender, income, education level, design of the scheme services was positively related to the outcome variable, whereas marital status and illness history showed a negative relationship with the Kitui Health Insurance Cover uptake. In addition, variables such as age, design of the scheme affordable, and occupation were found to be statistically insignificant in influencing the uptake of Kitui county health insurance cover.

The illness history variable was found to have the most significant impact on the uptake of Kitui county health insurance scheme was also highly statistically significant. The probability value of chi-squared was found to be 0.0000. Since it is less than the alpha level of significance, we reject the null hypothesis and conclude that the overall model is statistically significant.

From the study, it was clear from the study that gender was positively correlated with the Kitui county health insurance scheme. The probability of having health insurance by a female is higher than that of a male. This suggests that more females enrolled on the Kitui county health insurance scheme more than males. The same could be said for marital status. These findings are in line with other studies such as Cheryl (2000).

The level of education was positively related to the Kitui Health Insurance Scheme. Using the no-education variable as the base variable, it was clear that having some form of education increases the probability of enrolling in the Kitui county health insurance scheme. It could be argued that education helps an individual realize the benefit of having health insurance. This was also in line with recent studies.

The marital status variable had interesting findings. This is because, unlike other studies, being married decreases the probability of an individual enrolling in the Kitui County health insurance scheme. However, this can be explained by the fact that most married couples had a spouse who was enrolled in another insurance scheme other than the Kitui county health insurance scheme.

Income was found to be a significant determinant in enrolling for the Kitui County health insurance scheme. An increase in income increased the probability of enrolling on the County's health insurance scheme. This simply means that individuals with higher income are more likely to enroll in the health insurance scheme.

From the study, it was also clear that individuals who had a history of illness were less likely to enroll in the Kitui county health insurance scheme than healthy individuals. This can be explained by the fact that most health insurance schemes will try and minimize the chances of having a high-risk individual in the insurance pool.

The design and occupation variables were found to be insignificant. Therefore, they are not good determinants in indicating whether an individual is more likely or less likely to enroll in the Kitui county health insurance schemes.

5.3 Conclusions

Based on findings, we can conclude that several factors determine health insurance uptake provided by Kitui County, among them being the marital status, income, design of the cover services, illness history, and gender. The study also concluded that income, education level, design of the scheme services positively influenced Kitui County Health Insurance cover uptake, whereas marital status and illness history negatively correlated with the Kitui Health Insurance Cover uptake. Other variables the study found insignificant in determining whether an individual participates in the Kitui Health Insurance Scheme or not was age, design cover affordable, and occupation and therefore, these variables do not explain the choice of Kitui health insurance cover.

5.4 Policy Recommendations

From the study findings, the study made various policy recommendations based on the empirical results. Given that income was found to positively and significantly influence, the County should consider allowing informal sector workers to pay their premiums in small instalments rather than insisting on monthly, quarterly, semi-annual, and annual payments. The National and County governments should consider paying or subsidizing premiums for the very poor, the elderly and

the disabled, who are often excluded from social security programs. This should be one of the strategies by the national and County governments to reduce poverty and increase access to quality health care. Given that gender, marital status, level of education, income and illness history were significant. The County can target individuals who are more likely to enroll in the insurance scheme but have not enrolled yet. For the groups of individuals who are less likely to enroll in the health insurance scheme, the County can conduct educational campaigns to increase awareness of the health insurance scheme.

The study also found that services provided under the Kitui County Health Insurance Scheme were positively and significantly related to the scheme and that the County should focus on providing more services that will be covered by the Kitui County health insurance scheme, implying that offering more health-related services improves or incentivizes individual to enroll for a health insurance package. This, therefore, requires the hospital management to introduce new services that were not previously done at their health facilities.

5.5 Area for Further Research

Study to determine the extent of adverse selection in enrolment. This would address concerns on registration of persons who register after falling sick, which may negatively affect the claims payout ratios and continuity of the insurance scheme and a study on the retention and drop-out of the registered members: to find out the reasons why some informal sector workers register and later withdraw from the insurance scheme. Understanding the causes for drop-outs would be helpful in the review of registration procedures, pricing mechanisms, benefits packages and improving service delivery to contributors. It is also essential to conduct a cross-country study on the uptake of health insurance in selected counties to measure the disparities and see the comparability of the data collected.

REFERENCES

- Aaron Alesane and Benjamin Tetteh Anang (2018); uptake of health insurance by the rural poor in Ghana: determinants and implications for policy. School of Agriculture, Policy and Development, University of Reading, Reading, Berkshire, England, Department of Agricultural Economics and Extension, University for Development Studies, Tamale, Ghana & Corresponding author: Benjamin Tetteh Anang, Department of Agricultural Economics and Extension, University for Development Studies, Tamale, Ghana - Health insurance 2018.
- Acharya, A. & Vellakal, S. (2013). The Impact of Health Insurance Schemes for the Informal Sector in Low- and Middle-Income Countries: A Systematic Review. The World Bank Research Observer.
- Adebayo, E. F., Uthman, O. A., Wiysonge, C. S., Stern, E. A., Lamont, K. T., & Ataguba, J. E. (2015). A systematic review of factors that affect the uptake of community-based health insurance in low-income and middle-income countries. *BMC health services research*, 15(1), 1-13.
- Anup, S. (2011). "Health Care around the World." Global Issues. Retrieved at <http://www.globalissues.org>.
- Arrow, K. J. (1965). Uncertainty and the welfare economics of medical care: reply (the implications of transaction costs and adjustment lags). *The American economic review*, 55(1/2), 154-158.
- Atun, R., Aydın, S., Chakraborty, S., Sümer, S., Aran, M., Gürol, I., ... & Akdağ, R. (2013). Universal health coverage in Turkey: enhancement of equity. *The Lancet*, 382(9886), 65-99.
- Begg D, Fischer S., and Dornbusch R., (1999). Economics. London: The McGraw-Hill Companies.
- Bhandari, L., & Sinha, A. (2010). Access to healthcare. In India health report 2010 (pp. 21–34). New Delhi: Business Standard.

- Boateng, D., & Awunyor-Vitor, D. (2013). Health insurance in Ghana: evaluation of policy holders' perceptions and factors influencing policy renewal in the Volta region. *International journal for equity in health*, 12(1), 1-10.
- Buchmueller, T. C., Lo Sasso, A. T., Lurie, I., & Dolfin, S. (2007). Immigrants and employer-sponsored health insurance. *Health Services Research*, 42(1p1), 286-310.
- Carrin, G., James, C., Adelhardt, M., Doetinchem, O. Eriki,P., Hassan,M., Henri, H., Kirigia., Koemm,B., Korte,R. (2004) Health financing reform in Kenya - assessing the social health insurance proposal. *South Africa Medical Journal*. 97(2):130–135. [Pub Med]
- Catherine Ndegi Nguru (2011): Uptake of Health Insurance Among Patients Attending Public and Private Hospitals in Embu County, Kenya
- Cheryl Merzel (2002). Gender Difference in Healthcare Access Indicators in Urban Low-Income Community. *American Journal of Public Health*.
- Cholletta, D. and M. Leuris (1997). Private insurance principles and practice. World Bank Discussion Paper 365.
- Chuma, J., & Maina, T. (2012). Catastrophic health care spending and impoverishment in Kenya. *BMC health services research*, 12(1), 1-9.
- County Government of Kitui. (2018); County Government of Kitui County Integrated Development Plan 2018-2022; Transforming Kitui for Inclusive and Sustainable Development. Kenya towards a Globally Competitive and Prosperous Nation.
- Dahlgren, Goran. "Strategies for health financing in Kenya--the difficult birth of a new policy." *Scandinavian journal of social medicine. Supplementum* 46 (1990): 67-81.
- Daily Nation. "Ask Your Question: NHIF's Geoffrey Mwangi." January 1, 2017. Available at: <http://mobile.nation.co.ke/news/ask-your-question-geoffrey-mwangi-nhif/1950946-3995876-item-1-11d0o3z/index.html>
- Delloite, (2011). Strategic Review of the National Hospital Insurance Fund – Kenya
- Deloitte. 2011. NHIF Strategic Review & Market Assessment of Pre-paid Health Schemes: Measuring Up. Nairobi, Kenya: Deloitte Consulting Limited.

- Doris Syombua Philip (2018): Uptake of Health Insurance in Kenya: An Empirical Analysis using 2005/06 Kenya National Health Accounts Survey.
- Dutta, A., T. Maina, M. Ginivan, and S. Koseki. 2018. Kenya Health Financing System Assessment, 2018: Time to Pick the Best Path. Washington, DC: Palladium, Health Policy Plus.
- Edwine Barasa, Khama Rogo, Njeri Mwaura & Jane Chuma (2018), Kenya National Hospital Insurance Fund Reforms: Implications and Lessons for Universal Health Coverage
- Einav, L., & Finkelstein, A. (2011). Selection in insurance markets: Theory and empirics in pictures. *Journal of Economic Perspectives*, 25(1), 115-38.
- Einhorn *et al* (1981). The Expected Utility Model; Its Variants, Purposes, Evidence and Limitations; *Journal of Economic Literature*.
- Ekman, B. (2007). Catastrophic health payments and health insurance: Some counterintuitive evidence from one low-income country. *Health policy*, 83(2-3), 304-313.
- Fang,K, Ben,C. Shuangge, M.(2012).Health Insurance Coverage, Medical Expenditure coping strategy: Evidence from Taiwan.BMC health Services research 2012, 12,442.
- Fischer, J. S., Rudick, R. A., Cutter, G. R., Reingold, S. C., & National MS Society Clinical Outcomes Assessment Task Force. (1999). The Multiple Sclerosis Functional Composite Measure (MSFC): an integrated approach to MS clinical outcome assessment. *Multiple Sclerosis Journal*, 5(4), 244-250.
- Gidey, M. T., Gebretekle, G. B., Hogan, M. E., & Fenta, T. G. (2019). Willingness to pay for social health insurance and its determinants among public servants in Mekelle City, Northern Ethiopia: a mixed-methods study. *Cost Effectiveness and Resource Allocation*, 17(1), 1-11.
- Gilson L, Raphaely N (2007). The terrain of health policy analysis in low- and middle-income countries: *Health Policy and Planning*, 23(5):294–307.
- Gujarati, D. N., & Porter, D. C. (2003). Basic econometrics (ed.). *Singapore: McGraw Hill Book Co.*<https://www.kitui.go.ke> - County Government of Kitui, 2019.

- Jackson Michuki Maina¹, &, Peter Kithuka, Samuel Tororei (2016), using multivariable analysis on perceptions and uptake of health insurance for maternal care in rural Kenya. School of Public Health, Moi University, Kenya; Health insurance, antenatal care, insurance uptake.
- John A Nyman (2001); The theory of the demand for health insurance.
- Joses M Kirigia, Luis G Sambo, Benjamin Nganda, Germano M Mwabu, Rufaro Chatora¹ and Takondwa Mwase (2005). Determinants of Health Insurance Ownership among South African Women.
- Kahneman, D *et al*; (1984); Choices, Values, And Frames. *American Psychologist* 39: 341-350.
- Kazungu, J. S., & Barasa, E. W. (2017). Examining levels, distribution and correlates of health insurance coverage in Kenya. *Tropical Medicine & International Health*, 22(9), 1175-1185.
- Kennedy, P. (1992). *A guide to econometrics*. Oxford: Blackwell.
- Kennedy, P. (2008). *A guide to econometrics*. John Wiley & Sons.
- Kenya Health System Assessment (2010).
- Kenya Healthcare Federation & Task Force Healthcare (2016). Kenyan Health Sector: Opportunities for the Dutch Life Sciences & Health Sector. Embassy of Netherlands: Nairobi.
- Kenya Household Health Expenditure and Utilization Survey 2007.
- Kenya National Bureau of Statistics (KNBS). 2007. Kenya Household Health Expenditure and Utilization Survey (KHHEUS). Nairobi, Kenya: KNBS.
- Kenya National Bureau of Statistics (KNBS). 2016. 2015/16 Kenya Integrated Household Budget Survey (KIHBS). Nairobi, Kenya: KNBS.
- Kenya National Bureau of Statistics (KNBS). 2019. 2019 Kenya Population and Housing Census. Nairobi, Kenya: KNBS.
- Kenya National Bureau of Statistics. 2015. Economic Survey. Nairobi, Kenya: KNBS.
- Kenya National Health Accounts 2005.
- Kenya, Republic of (2007). Kenya Vision 2030. Nairobi: Ministry of Planning, National Development and Vision 2030.

- Khalid, M., & Serieux, J. (2018). Uptake of voluntary health insurance and its impact on health care utilization in Ghana. *Health policy and planning*, 33(7), 861-869.
- Kimani, D. N. (2014). *Out-of-pocket health expenditures and household poverty: evidence from kenya* (Doctoral dissertation, University of Nairobi).
- Kimani, D., Muthaka, D., & Manda, D. K. (2004). Healthcare financing through health insurance in Kenya: The shift to a national social health insurance fund.
- Kiplagat, I., Muriithi, M., Kioko, U. (2013). Determinants of Health Insurance Choice in Kenya. *European Scientific Journal*, 9(3), 1857-7881.
- Kirigia, J. M., Sambo, L. G., Nganda, B., Mwabu, G. M., Chatora, R., & Mwase, T. (2005). Determinants of health insurance ownership among South African women. *BMC health services research*, 5(1), 1-10.
- Knaul, FM et al. (2012). The quest for universal health coverage: achieving social protection for all in Mexico. *Health Policy*.
- KNBS, Ministry of Health (MOH), National AIDS Control Council (NACC), Kenya Medical Research Institute (KEMRI), National Council for Population and Development (NCPD), and ICF International. 2014. Kenya Demographic and Health Survey 2014. Rockville, MD: KNBS, MOH, NACC, KEMRI, NCPD, and ICF International.
- KNBS, Ministry of Health (MOH), National AIDS Control Council (NACC), Kenya Medical Research Institute (KEMRI), National Council for Population and Development (NCPD), and ICF International. 2018. Kenya Demographic and Health Survey 2018. Rockville, MD: KNBS, MOH, NACC, KEMRI, NCPD, and ICF International.
- Kothari (2004) *Research Methodology Methods and Techniques*. New Age International Publishers Ltd.
- Kraushaar, D. (1994). "Health insurance: What it is, how it works". Financing District Health Services International workshop.
- Louise (1954). *Expected Comparative Utility Theory: A New Theory of Rational Choice Under Risk*.
- Luoma, Marc, Julie Doherty, Stephen Muchiri, Tiberius Barasa, Kate Hofler, Lisa Maniscalco, Charles Ouma, Rosalind Kirika and Josephine Maundu. August 2010. Kenya Health

- System Assessment 2010. Bethesda, MD: Health Systems 20/20 project, Abt Associates Inc.
- Lusardi, A., Michaud, P., & Mitchell, O. (2011). Optimal! financial literacy and saving for retirement, Financial Literacy Center Working Paper. Retrieved from http://www.rand.org/content/dam/rand/pubs/working_papers/2011
- Macharia, K. "Mobile Health Insurance M-Tiba Partners with NHIF, Enlists Oserian Employees." Capital, April 26, 2017. Available at: <https://www.capitalfm.co.ke/business/2017/04/mobilehealth-insurance-m-tiba-partners-nhif-enlists-oserian-emp>
- Marthur et al (2018). Uptake of voluntary health insurance and its impact on health care utilization in Ghana.
- Mathauer, I., Schmidt, J. O., & Wenyaa, M. (2008). Extending social health insurance to the informal sector in Kenya. An assessment of factors affecting demand. *The International journal of health planning and management*, 23(1), 51-68.
- McGaugh, J. 2018. HSFR/HFG Project Activities and Results Summary: August 2013 through December 2017. Health Finance and Governance Project, Abt Associates
- McIntyre, D. et al, (2007). Learning from experience: Health care financing in low-and middle-income countries. Global Forum for Health Research.
- Ministry of Health (MOH). 2006. Kenya National Health Accounts 2005/6. Nairobi, Kenya: Government of Kenya.
- Ministry of Health (MOH). 2013. Kenya National Health Accounts 2012/13. Nairobi, Kenya: Government of Kenya.
- Ministry of Health 2012; Sessional Paper No. 7 on The Policy on Universal Health Care Coverage in Kenya.
- Ministry of Health 2018. Kenya Household Health Expenditure and Utilization Survey. Nairobi, Kenya: Government of Kenya.
- Ministry of Health. 2017. Kenya National Health Accounts 2015/16. Nairobi, Kenya: Government of Kenya

- Mugenda, O. M., & Mugenda, A. G. (1999). *Research methods: Quantitative and qualitative approaches*. Acts press.
- Muiya B M (2010): Determinants of Health Insurance Uptake by Urban Informal Sector Workers in Nairobi and Machakos, Kenya.
- Mulenga, J. N., Bwalya, B. B., & Gebremeskel, Y. (2017). Demographic and Socio-economic Socio-economic determinants of maternal health insurance coverage in Zambia. *Epidemiology, Biostatistics and Public Health*, 14(1),1-9.
- Munge, K., Mulupi, S., Barasa, E., & Chuma, J. (2019). A critical analysis of purchasing arrangements in Kenya: the case of micro health insurance. *BMC health services research*, 19(1), 1-10.
- Musah Khalid and John Serieux (2018); Uptake of voluntary health insurance and its impact on health care utilization in Ghana. *Health Policy and Planning*, 33, 2018, 861–869 doi: 10.1093/heapol/czy063 Advance Access Publication Date: 3 August 2018 Original Article
- Mwangi, I. W., & Sichei, M. M. (2011). Determinants of access to credit by individuals in Kenya: A comparative analysis of the Kenya National FinAccess Surveys of 2006 and 2009. *European Journal of Business and Management*, 3(3), 206-227.
- Mwaura, J. W., & Pongpanich, S. (2012). Access to health care: the role of a community-based health insurance in Kenya. *Pan African Medical Journal*, 12(1), 12-35.
- Namuhisa A J (2012): Determinants of Uptake of National Hospital Insurance Fund Scheme by the Informal Sector in Nairobi County, Kenya
- Nathan Lukhale Masengeli, Wanja Mwaura-Tenambergen , Joseph Mutai , Ben Wafula Simiyu (2017): Determinants of Uptake of Health Insurance Cover Among Adult Patients Attending Bungoma County Referral Hospital.
- National Hospital Insurance Fund Strategic Plan (2018 – 2022). Pathway for Health Financing in Kenya Towards Universal Health Coverage.
- National Hospital Insurance Fund. 2014. Strategic Plan 2018–2022: Sustainable Financing towards Universal Health Coverage in Kenya. Nairobi, Kenya.

- Ndungu, T. T. (2015). *Factors influencing uptake of national health insurance in the informal sector: a case of ithanga division in murang'a county, Kenya* (Doctoral dissertation, University of Nairobi).
- Njenga, G., Onuonga, S. M., & Sichei, M. M. (2018). Institutions effect on households savings in Kenya: A ranked ordered multinomial/conditional probit model approach. *Journal of Economics and International Finance*, 10(5), 43-57.
- Njuguna D and Pepela Wanjala (2014). A Case for Increasing Public Investments in Health Raising Public Commitments to Kenya's Health Sector.
- Omondi E. Otieno and Nduta Githae (2014). Health Financing in Kenya; the case of Wajir, Mandera, Turkana, Meru and Bungoma Counties.
- Osei-Akoto, I.& Adamba. (2011). Ethnic and Religious Diversity as Determinants of Health Insurance Uptake in Ghana. Institute of Statistical, Social and Economic Research, University of Ghana, Egon Accra.
- Perry, C.W., and H. Rosen. (2001). "The Self-Employed Are Less Likely to Have Health Insurance. NBER Working Paper No. 8490, Immigrants and Employer-Sponsored Health Insurance.
- Rifat et al (2013). Turkish health system reform from the people's perspective: a cross sectional study.
- Robert W. and Rebecca A. London. September (2008). "The Dynamics of Health Insurance Coverage: Factors Correlated with Insurance Gain and Loss among Adults." Report submitted to the U.S. Department of Labor. Race, Ethnicity and Dynamics of Health Insurance Coverage.
- Sabine, C. (2012). Gender Equality in Access to Healthcare: The role of social health protection, a case study of RSBY Scheme. *GIZ Discussion Papers on Social Protection*.
- Sarpong, N., Loag, W., Fobil, J., Meyer, C. G., Adu-Sarkodie, Y., May, J., & Schwarz, N. G. (2010). National health insurance coverage and socio-economic status in a rural district of Ghana. *Tropical medicine & international health*, 15(2), 191-197.

- Savage E, Wright D (2008). Health Insurance and Health Care Utilization: Theory and Evidence from Australia 1989–90. Sydney: University of Sydney.
- Schneider, P., & Diop, F. (2001). *Synopsis of results on the impact of community-based health insurance on financial accessibility to health care in Rwanda*. World Bank, Washington, DC.
- Sean Boyle (2011); Delivery of health care evaluation studies financing, health care reform
- Smith, A., Chamberlain, D., Hawan, S., Narb, S., & Chelwa, G. (2010). Kenya Micro insurance Landscape: Market and Regulation. The Centre for Financial Regulation and Inclusion
- Sophie H. Allcock, Elizabeth H. Young and Manjinder S. Sandhu (2019); Sociodemographic patterns of health insurance coverage in Namibia. *International Journal for Equity in Health*, 18:16 <https://doi.org/10.1186/s12939-019-0915>
- Stan Dorn (2004). Towards Incremental Progress: - Key Facts About Groups of Uninsured Accessed from www.esresearch.org.
- Sudharshan C and S.V Sethuraman (2001). Social Protection and The Informal Sector in Developing Countries: Challenges and Opportunities - The World Bank.
- Tangcharoensathien, V. Patcharanarumol, W. Aljunid, S.M., Mukti, A.G., Akkhavong, K., Banzon, E., Huong, D.B., Thabrany, H., & Mills, A. (2011). Health-financing reforms in Southeast Asia: challenges in achieving universal coverage. *Lancet* 2011, 377(9768):863-873.
- Tanner, M. (2008). The Grass Is Not Always Greener: A Look at National Health Care Systems Around the World. Policy analysis no.613
- Tennyson, S. (2011). Consumers' insurance literacy: Evidence from survey data. *Financial Services Review*, 20, 165–179.
- Wealth Health Organization, (2008, 2010); Commission on Social Determinants of Health.
- Wenyaa *et al*; (2007); Extending social health insurance to the informal sector in Kenya. An assessment of factors affecting demand.

World Health Organization. (2006). Health financing reform in Kenya: assessing the social health insurance proposal. Geneva, Switzerland: WHO, Department "Health System Financing" (HSF) Cluster "Evidence and Information for Policy" (EIP)

World Health Organization. (2010). *The world health report: health systems financing: the path to universal coverage*. Geneva: World Health Organization

Ying, X. H., Hu, T. W., Ren, J., Chen, W., Xu, K., & Huang, J. H. (2007). Demand for private health insurance in Chinese urban areas. *Health Economics*, 16(10), 1041-1050.

APPENDICES

Appendix 1: Questionnaire

The purpose of this study is to evaluate the factors that influence the uptake of the county insurance cover, a case of Kitui County. The data will be used purely for academic purposes and the recommendation made will be of great importance to our county. The information will be treated with utmost confidentiality.

Instructions: TICK appropriately.

Section A: Demographic Factors

1. Gender Male Female
2. What is your age(Complete years)?
3. What is your marital status? Married Single Divorced

Section B: Socio-economic factors

1. What is your main economic activity? Salaried employment Small Scale Farming
] Small Scale Business Others (Specify).....
1. Approximately how much is the total income per month?
2. Can you afford to pay Ksh. 1,000 per year for KCHIC? Yes No
3. If Yes and not paid, why
4. If No, why

Section C: Level of Education

1. What is your highest level of education? Primary Secondary College University
] Other (specify).....

Section D: Health, Scheme related factors

1. Are you aware of Kitui County health insurance Health Insurance Cover? Yes No
2. What was the source of your information regarding Kitui County Health Insurance Cover?
TV Radio Friends / Family Employer Others (specify)
3. Are you enrolled in Kitui County Health Insurance Cover Yes No
4. State the reasons for your enrollment to Kitui County Health Insurance Cover;

a. Availability of drugs / medical supplies

All the supplies are always available at the time of visit []

Some of the supplies are available []

All supplies not available []

b. Number of services covered

All the services are covered by the insurance []

Some of the services are covered by the insurance []

All the services are not covered []

c. Illness history

Do you have any Chronic illness Yes [] No []

Does any member of your family have any Chronic illness Yes [] No []

Have you or any member of your family been admitted in the las 5years? []

How did you pay for the hospital bill?

- Used Kitui County Health Insurance Cover []
- Used other types of Insurance cover []
- Used family savings []
- Borrowed from friends []
- Others (specify)

d. Lifestyle

- Do you smoke Yes [] No []
- Do you use alcohol Yes [] No []

e. Scheme design

- The design of the cover caters for the required services Yes [] No []
- The design of the cover is affordable Yes [] No []