

**DETERMINANTS OF MEDICAL INSURANCE UPTAKE IN KENYA**

**BY**

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**MASTER OF SCIENCE IN COMMERCE (FINANCE AND ACCOUNTING)**

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**OCTOBER 2024**

## DECLARATION

### Declaration by the Student

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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## **ABSTRACT**

Health is critical for the economic development of any country. Kenya has implemented universal health coverage to achieve Sustainable Development Goal 3. Efforts have been made by both government and private sector to ensure many Kenyans enroll in medical insurance schemes. However, despite its effort, only 22 percent of the population has enrolled in a medical insurance scheme. This low insurance uptake has also made Kenya to be among the countries with low insurance penetration in Sub-Saharan Africa. This study therefore seeks to investigate the determinants of medical insurance uptake in Kenya with an aim of boosting insurance penetration. Earlier researchers that studied the concept concentrated on specific regions of the country. This study uses logit models to estimate the determinants of medical insurance uptake. The results reveal an individual with a higher income has a 0.8 percent chance of enrolling for medical insurance. In addition, as one age, there is a 3.1 percent chance that he or she will enroll in medical insurance. In addition, an individual with a university education has a 7 percent higher probability of enrolling for medical insurance as compared to one with no education. The results also showed that one living in an urban center has 0.5 percent higher chance of enrolling in a medical insurance compared on one living in the rural area. The study recommends that insurance companies should have income-sensitive premium structures and rural-focused awareness campaigns to bridge the coverage gap. The study also recommends that government should allocate funds in the education sector to ensure many Kenyans get university education.

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## **DEDICATION**

This work is dedicated to my two beautiful children, Joy and Adrian, whose love and support have been the fuel of my academic pursuits. You believed in me and constantly encouraged me and for this, I am truly grateful. I also dedicate this work to my father who inculcated in me hard work, resilience and the value of education. His wisdom has propelled me beyond my limits. “I will forever cherish you in my heart. May this dedication be a testament to my profound appreciation for your roles in my life and this academic endeavor”.

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## **ABBREVIATIONS AND ACRONYMS**

**AU** African Union

**MoH** Ministry of Health

**NHIF** National Health Insurance Fund

**US** United States

**UHC** Universal Health Coverage

**WHO** World Health Organization

## OPERATIONAL DEFINITION OF TERMS

<b>Household Income Levels</b>	Refers to how much income a household earns and its impact on the likelihood of taking medical insurance cover.
<b>Access to Financial Services</b>	Refers to the availability and use of financial services such as mobile money.
<b>Healthcare Costs</b>	Refers to the direct and indirect healthcare costs such as hospital visits and out- of-pocket payments.
<b>Medical Insurance Uptake</b>	A measure of whether individuals or households have enrolled in a medical scheme.
<b>Regular payments</b>	Made to maintain an active insurance policy.
<b>Out-of-pocket Expenditure</b>	Direct payments made at the point of service.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to Study

In recent years, healthcare financing has witnessed major transformations. There has been a growing focus on medical insurance to provide financial protection against healthcare related costs. This transformation signifies a shift from traditional out-of-pocket payment models to more organized insurance-based approaches. Medical insurance serves to pool financial risks, such that individuals can access healthcare services without incurring unbearable costs (Carrin & James, 2005). Many countries therefore have recognized the importance of integrating medical insurance into their healthcare financing systems to improve access to necessary services and improve overall health outcomes.

Across the globe, countries have adopted various models of medical insurance to lessen the financial risks accrued from healthcare expenses. These models are either government sponsored social health insurance, private health insurance, or mixed systems. Germany and France for instance, use social health insurance systems, in which contributions are made by payroll taxes to fund universal healthcare services (Reinhardt, 2017). In contrast, the United States primarily operates a private health insurance system. In this system, individuals obtain coverage through employer-sponsored plans or government programs like Medicaid and Medicare (Buchmueller et al., 2018). Additionally, several low- and middle-income countries have adopted mixed models, comprising public and private financing to ensure wider coverage while managing costs (Wagstaff et al., 2016).

The global shift towards universal health coverage (UHC) underscores the necessity for all individuals to access quality health services without financial hardship. UHC is aimed at ensuring that all individuals and communities get the health services they need without

facing financial difficulties (WHO, 2010). Achieving UHC is important for enhancing health equity and ensuring that vulnerable populations are also covered. As stated by Ir et al. (2016), UHC supersedes health policy. It is also a fundamental human right, necessitating joint efforts from governments and stakeholders globally to eliminate barriers to healthcare access.

Significant disparities in insurance uptake persist across different regions and populations despite the global push for UHC. Many of the low-income countries struggle to attain high levels of insurance coverage. This is attributed to economic constraints and inadequate healthcare infrastructure. A report by the World Bank (2017) states that only 16 percent of individuals in low-income countries are covered by any form of health insurance while 73 percent are covered in high-income countries. These disparities showcase the challenges faced by vulnerable populations in gaining access to financial protection against health expenditures. Moreover, in many regions, cultural beliefs, lack of awareness, and mistrust in formal insurance systems additionally exacerbate low uptake rates. (Bennett et al., 2018).

In Africa, several factors including socioeconomic status, cultural beliefs, and the availability of healthcare services influence the uptake of medical insurance. Socio-economic status exhibits an important role since individuals in higher income brackets are more likely to afford insurance premiums and adopt healthcare systems effectively (Ranson, 2002). Additionally, cultural perceptions of health and wellness greatly impact insurance enrollment. According to Sage et al (2017), many people may prioritize traditional medicine over formal healthcare systems, resulting to low uptake rates of medical insurance. Besides, the availability and quality of healthcare services can also affect insurance enrollment. Regions where healthcare facilities are scarce or perceived to be of low quality make individuals to be less inclined to invest in insurance (González & O'Donnell, 2018).

The African Union (AU) has acknowledged the need to strengthen health systems and increase access to healthcare financing programs as part of its Agenda 2063. Following the launch of the African Health Strategy in 2016, the AU emphasized the importance of sustainable financing for health and universal health coverage (African Union, 2016). This initiative intends to mobilize resources, improve the quality of health services, and enable all citizens to have access to essential healthcare. By championing collaborative efforts among member states, the AU aims to improve health insurance schemes by making them more inclusive and effective in solving the health needs of diverse populations (Nabyonga-Orem et al., 2019).

In Sub-Saharan Africa, medical insurance uptake remains low, as only a small percentage of the population is covered by formal insurance schemes. Limited financial resources, poor infrastructure, and high levels of informal employment are some of the issues many countries in the region have struggled with. This contributes to low enrollment in health insurance programs. As noted by Carrin et al. (2016), access to health insurance is hampered by poverty, lack of awareness, and weak healthcare systems. In some countries like Ghana and Rwanda, significant improvements have been made through community-based health insurance schemes, which have improved coverage among rural and informal sector workers (Saksena et al., 2016). These programs still face challenges related to sustainability, equitable access, and coverage limitations, nonetheless. The African Union (AU) has stressed the need for member states to strengthen health systems and expand access to healthcare financing mechanisms to achieve Universal Health Coverage (UHC). Even with these efforts, gaps persist in understanding the specific financial determinants that influence medical insurance uptake in the region, including how household income, healthcare costs, and access to financial services affect individuals' decisions to enroll in insurance programs (Barasa et

al., 2018). Addressing these gaps is essential for the design and enactment of policies that can effectively increase insurance coverage in Sub-Saharan Africa.

The Kenyan government has made significant strides to progress healthcare financing and expand access to medical insurance. The government launched the Universal Health Coverage (UHC) pilot program in 2018 as part of its "Big Four Agenda," Its focus was on ensuring that all Kenyans have access to affordable and quality healthcare (Ministry of Health, 2018). The NHIF has been instrumental in fueling the expansion of health insurance coverage especially because it is a statutory contribution to the formal sector. By providing low-cost premiums and expanding coverage to informal sector workers, NHIF has made steps toward increasing insurance access in Kenya. Nevertheless, challenges such as low enrollment rates in rural areas, inefficiencies in service delivery, and a lack of comprehensive coverage persist (Barasa et al., 2017).

Regional disparities further add on the challenges of medical insurance uptake in Kenya. Urban areas, such as Nairobi, Nakuru, Eldoret, Kisumu and Mombasa, have higher insurance penetration because of better healthcare infrastructure, higher income levels, and greater access to information. Urban areas have the highest number of those in formal employment, hence the high penetration of insurance uptake. On the contrary, rural areas and marginalized regions, such as northern Kenya, trail behind in terms of insurance coverage. Aspects such as low-income levels, geographic isolation, and limited access propel this disparity. Moreover, cultural and traditional beliefs about health and insurance, particularly in rural communities, result in lower enrollment rates (Kimani et al., 2014). Kenya's efforts to promote UHC must address these regional disparities to achieve equitable access to healthcare services across the country.

### **1.1.1 Insurance Penetration in Healthcare**

Insurance penetration, particularly in health insurance, is a key indicator of how well a country's population is covered by financial protection mechanisms against health-related risks. Globally, insurance penetration remains a key policy issue. The World Health Organization (WHO) advocates Universal Health Coverage (UHC) to enhance insurance coverage and access to healthcare services. In the context of healthcare, penetration refers to the extent to which health insurance products reach the intended population, and it can be measured as a percentage of the total population covered by insurance.

In Sub-Saharan Africa, insurance penetration rates remain relatively low compared to developed economies. According to Swiss Re (2021), South Africa stands out as a leader in insurance penetration in the continent, with 16.99 percent penetration of the insurance market as of 2020. Its success is linked to its developed financial sector and its regulatory framework that encourages private health insurance. South Africa's private health insurance sector also serves a significant proportion of the population, alleviating the burden on public healthcare services. This contrasts sharply with countries like Kenya, where medical insurance penetration was only 2.29 percent as of 2022 (Ministry of Health, 2022). Other countries in the region, such as Nigeria and Tanzania, also report low insurance penetration, particularly in health insurance, largely due to a combination of informal labor markets, low awareness, and mistrust in insurance systems (Koech, 2021). The current measures taken by the Kenyan government to expand the mandate of national insurer, NHIF, by introducing Social Health Insurance Fund (SHIF) could help alleviate the problem. Under SHIF, the vulnerable population under the informal sector will gain access to broader benefits. SHIF hopes to shift the healthcare paradigm towards preventive and promotive practices.

To increase insurance penetration, especially in the health sector, several strategies have been proposed. First, simplifying insurance products to make them more affordable and

accessible to the informal sector, which constitutes a large percentage of the population in Sub-Saharan Africa, could drive higher uptake. Countries like Rwanda have had success with community-based health insurance schemes, which are low-cost and cater to the needs of the poor and informal workers (Kabunga, 2019). Rwanda has managed to achieve coverage for about 90% of its population through such schemes, serving as a model for other countries in the region.

Additionally, increasing awareness of the benefits of health insurance and addressing the mistrust in insurance providers through transparency and better service delivery could enhance penetration. Educational campaigns targeting low-income earners and rural populations, where uptake is lowest, could significantly boost the number of people covered. South Africa's insurance penetration in the private sector has shown that higher-income groups are more likely to take up health insurance; therefore, expanding premium subsidies for the low-income population, as suggested by O'Mahony (2020), can bridge the gap in poorer regions. Finally, strengthening the regulatory environment can help foster growth in insurance markets. Regulatory measures such as mandatory insurance enrollment, as seen in countries like Germany, could help ensure that even the most vulnerable populations are covered. This will not only reduce the financial burden of healthcare on individuals but also strengthen healthcare systems overall.

### **1.1.2 Socio-economic Determinants of Medical Insurance**

Social factors are also very important determinants of enrollment in a medical insurance scheme. The key social determinants influencing uptake of medical insurance include income levels, marital status and education. With regards, individuals from low-income backgrounds are likely not to enroll in a medical insurance scheme since they may not have enough income to pay for premiums. Secondly, individuals with higher education have higher chances of enrolling in medical insurance. This is because with higher education, one may

have better awareness of the importance of having an insurance policy. Thirdly, marital status is also an important determinant of medical insurance uptake. For example, married individuals have a higher chance of enrolling for medical insurance as compared to those who are single. The married ones are likely to enroll in medical insurance since they may have many dependents. The dependents may be their children and parents. In addition, married individuals may pool together resources thus giving them an opportunity of paying for medical insurance premiums. The single individuals may not enroll for medical insurance since they may not have many dependents to protect (Adebayo et al., 2015).

Further, religion plays a critical role in determining enrollment into a medical insurance scheme. For example, some religious beliefs in divine healing may discourage individuals from enrolling in medical insurance schemes since they do not go to hospitals for conventional treatment. In addition, some individuals may rely on spiritual practices thus leading to reduced reliance on conventional treatment. Such individuals may not enroll for medical insurance since they may not benefit from them. In addition, some religions may have certain perceptions with regards to some medical procedures. For example, some religion believes in sanctity of life and therefore may not seek maternal services from the conventional hospitals. With such beliefs then it means individuals may only select a few medical insurance policies that are in line with a few medical procedures that can be performed in a conventional hospital (Dror et al., 2016).

Lastly, age is a key social determinant of medical insurance uptake. The healthcare needs and risk perception usually change throughout the life of an individual. Young people, especially those in the age bracket of 20 and 30 may consider themselves healthier and may not see the need to enroll for medical insurance. Such individuals may consider other commitments for their finances over enrolling in a medical insurance scheme. If they opt to consider enrolling in a medical insurance scheme, they may opt for minimal plans that have

fewer benefits. This contrasts with older individuals, particularly those approaching middle age or are about to retire. Such categories of individuals are prone to illness and therefore may prioritize enrolling in a medical insurance scheme over other commitments (Adebayo et al., 2015).

Affordability of health insurance is a major determinant influencing individuals' decisions to enroll in medical insurance schemes. High premiums and out-of-pocket expenses can be viewed as significant deterrents, especially for low-income individuals and families. The government must put into consideration the financial challenge that these costs present to potential enrollees and work towards reducing them (Mwaura, 2019; WHO, 2018).

Research has proven that even minimal cost-sharing arrangements can lead to decreased utilization of healthcare services. This is visible among the most vulnerable populations, who may forego important medical attention due to cost reasons. It is imperative for the government to come up with insurance products that are affordable and offer comprehensive coverage to ensure that members receive the care they need without the fear of financial difficulty (Yego, et al., 2023).

The design of health insurance programs must also account for the indirect costs associated with healthcare access, including transportation to medical facilities and lost wages due to illness or medical appointments. These costs can add to the financial burden on individuals, making it even more challenging to keep up with health insurance coverage. The government could seek out partnerships with transportation services or provide compensation for lost wages as part of its benefits package to address these compounded financial concerns (Ng'ang'a, 2023).

The affordability of insurance premiums such as high premiums can deter potential enrollees, particularly those from lower-income households who may find it challenging to

spare some funds for health insurance. Several scholars have shown that reducing the cost of premiums can significantly increase enrollment rates. For example, implementing sliding scale premiums that consider individuals income levels could make insurance more accessible to a broader population. This would entice lower-income individuals to enroll in medical insurance schemes without facing undue financial strain, thereby improving overall coverage rates (Mwaura, 2019; WHO, 2018).

Out-of-pocket costs, including copayments and deductibles, play a crucial role in determining healthcare utilization. Even small cost-sharing requirements can lead to reduced utilization of healthcare services, especially among vulnerable populations. Research reveals that individuals are less likely to seek necessary medical care when they are required to pay out-of-pocket. To mitigate this, medical insurance firms should consider reducing or eliminating out-of-pocket expenses for essential services. By ensuring that insurance coverage is comprehensive and reduces financial barriers, the government through insurance firms can promote more consistent use of healthcare services among its members (Yego et al., 2023).

Indirect costs such as transportation to medical facilities and lost wages due to illness or medical appointments also affect individuals' ability to maintain health insurance coverage. These additional financial strains can make it difficult for individuals to justify the cost of insurance, particularly if they are already facing economic downturns. The government could address these concerns by incorporating options such as subsidized transportation services or compensation for lost wages.

The design of health insurance products should put affordability and comprehensiveness at the forefront to maximize enrollment and utilization. Affordable premiums alone are not sufficient if the coverage does not satisfy the needs of the insured.

The government should focus on designing insurance plans that provide extensive coverage for a wide range of medical services while keeping costs affordable. This comprises preventive care, chronic disease management, and emergency services.

The government can achieve a balanced approach that integrates low cost and at the same time giving comprehensive benefits to members. Through this initiative, the government can raise the value proposition of its insurance products and attract a larger number of potential members. According to Mwaura, 2019; WHO, 2018, a comprehensive package has both inpatient and outpatient services for those who opt for insurance cover. The package entices the insured to remain loyal to the cover and ensures that they also refer to others. The initiative can reduce the effect of insurance costs on its uptake with much ease.

### **1.1.3 Regional Disparities**

Regional disparities greatly influence the uptake of medical insurance in Kenya. Topographical accessibility to healthcare facilities, the density of healthcare providers, and local economic conditions are major factors that influence enrollment rates. In more remote areas, where healthcare facilities are scarce and traveling to access care is troublesome, individuals are less likely to see the value in enrolling in medical insurance. Likewise, regions with lower economic activity may have residents that are less able to afford insurance premiums nonetheless government-subsidized programs like NHIF. These disparities compel an approach to policymaking, which factors in the unique geographic and economic contexts of different regions (Yego, et al., 2023).

Addressing these regional differences necessitates targeted interventions that consider the unique challenges and opportunities present in each region. For instance, in regions where literacy rates are lower and fabrication about insurance benefits is prevalent (Yego, et al., 2023). Diverse economic conditions significantly influence the ability of an individual to

afford health insurance. In economically underprivileged areas, where income levels are normally lower, residents may struggle to meet even subsidized insurance premiums. This financial struggle can result in lower enrollment rates in insurance programs.

Geographic barriers affect the uptake of medical insurance, particularly in Kenya's more remote and underserved regions. In areas with inadequate healthcare infrastructure, such as rural or isolated and marginalized communities, the shortage of medical facilities and the struggle of accessing care can discourage individuals from enrolling in health insurance. For these people, the perceived value of insurance may be reduced if they cannot readily access the services covered by their insurance plan. To address these challenges, it is crucial for the policymakers to devise strategies that improve healthcare accessibility in remote areas. For instance, establishing mobile clinics or enhancing transportation options to healthcare facilities.

By mitigating the physical and logistical barriers to accessing care, insurance schemes can become more enticing to residents of these regions (Yego et al., 2023). This is because geographic barriers determine the uptake of medical insurance, particularly in Kenya's more remote and underserved areas.

Regional economic conditions considerably influence an individual's ability to afford health insurance. In economically disadvantaged areas, residents who can barely afford their basic needs may strain to meet even subsidized insurance premiums. This financial strain can lead to lower enrollment rates in insurance programs. Addressing regional economic disparities requires a multidimensional approach that includes adjusting premium levels based on regional economic conditions as well as implementing targeted economic support programs. For illustration, localized economic development initiatives or additional subsidies for low-income regions could help alleviate the financial barriers to insurance coverage, making it more accessible to economically disadvantaged populations (Yego et al., 2023).

Educational disparities also affect the adoption of medical insurance across different regions. In areas with lower literacy rates and limited access to information, residents may lack cognizance of the benefits and availability of health insurance options. This can result in lower enrollment rates, as individuals may not fully comprehend the value or mechanics of insurance schemes. To counter this issue, targeted educational campaigns and community outreach programs are needed to intensify awareness and provide clear, accessible information about insurance benefits and enrollment procedures. Teaming up with local leaders and utilizing community-based platforms can help ensure that information reaches underserved regions and addresses the educational gaps that fuel regional disparities in insurance uptake (Yego et al., 2023).

#### **1.1.4 Medical Insurance in Kenya**

Medical insurance in Kenya performs a key role in the country's healthcare financing. However, its penetration remains low despite various efforts from both the government and private sector to expand coverage. In Kenya, the National Health Insurance Fund (NHIF) is the primary provider of medical insurance, providing service to a significant portion of the insured population. Its membership is compulsory for all formally employed individuals and voluntary for informal sector workers. NHIF had over 10 million registered members as of 2022 which is approximately 22 percent of the total population, signifying that a significant portion of Kenyans remain uninsured (Ministry of Health, 2022). NHIF provides several services, including inpatient and outpatient coverage, maternity services, and treatment for chronic conditions such as cancer and kidney dialysis.

Apart from NHIF, several private health insurance companies offer medical insurance in Kenya. Jubilee Insurance, Britam, APA Insurance, and AAR Healthcare are some of the leading players in the industry. According to the Insurance Regulatory Authority (IRA) Annual Report of 2022, Jubilee Insurance, commanding a market share of 31.6 percent, leads

the medical insurance sector. Britam follows it with 24.2 percent and AAR Healthcare with 15.5 percent. APA Insurance commands about 11 percent of the market share (IRA, 2022). These companies offer individual as well as group medical insurance schemes. They offer services such as outpatient treatment, hospitalization, surgery, dental and optical cover, and specialist consultation services.

Regardless of the presence of these players, private medical insurance remains unaffordable for most of the population. This is attributed to high premiums and limited accessibility, especially for those in the informal sector. Majority of Kenyans still depend on out-of-pocket payments to cater for healthcare services. For low-income households, the reliance on out-of-pocket payments leads to a high incidence of catastrophic health expenditure. A study by Barasa et al. (2021) revealed that more than 30 percent of Kenya's population faces financial devastation attributed to health-related expenses. This underscores the critical role that medical insurance could play in relieving this burden.

Additionally, the Kenyan medical insurance landscape faces several encounters, such as low awareness, mistrust in insurance providers, and a lack of understanding of the benefits of medical insurance. This is particularly visible in rural areas. In addition, the voluntary nature of NHIF for the informal sector presents another challenge. It discourages enrollment due to irregular incomes and the notion that medical insurance is unaffordable. Because of this, only 18 percent of informal workers are covered by the scheme. (KPMG, 2021).

There have been ongoing reforms to expand NHIF's services and introduce targeted subsidies for low-income groups in a bid to enhance medical insurance coverage in Kenya. Furthermore, private insurers are working towards designing more affordable micro-insurance products personalized to the needs of the informal sector, which accounts for 83

percent of Kenya's workforce. Efforts to intensify awareness and education on the benefits of medical insurance are being implemented to boost enrollment and penetration rates.

### **1.1.5 Access to Financial Services**

Access to financial services plays a key role in determining medical insurance uptake. In Kenya, financial inclusion has developed significantly over the years, with 83 percent of the adult population having access to financial services as of 2021, according to the Central Bank of Kenya. This growth in financial inclusion, fueled by mobile banking, savings groups, and microfinance institutions, has created opportunities for individuals to participate in health insurance schemes. However, even with this progress, there remains a gap between financial access and insurance enrollment. Many low-income households, especially in rural areas, still encounter barriers such as lack of awareness, trust issues, or the complexity of navigating financial services to access medical insurance. The connection between access to financial services and health insurance uptake highlights the need for targeted interventions to improve awareness and ease of access to insurance products in underserved regions.

### **1.2 Statement of the Problem**

The goal for any country striving toward Universal Health Coverage (UHC) is for its citizens to have equitable access to healthcare services without incurring financial hardship. In such cases, medical insurance would be broadly accessible, affordable, and utilized by most of the population. This ensures that individuals are safeguarded from burdensome healthcare costs, especially in times of critical need. Kenya has made steps to achieve this by offering comparatively affordable insurance options to the public, particularly targeting low-income and informal sector populations.

However, the reality in Kenya does not reflect this ideal. The uptake of medical insurance remains low despite global and regional commitments to UHC. As of 2022, only 22 percent of the population had any form of health insurance coverage, leaving the vast majority dependent on out-of-pocket payments for healthcare services. This significantly exposes Kenyans to the risk of crippling healthcare costs, particularly those with chronic conditions. Despite government efforts and the presence of both public and private insurers, medical insurance remains inaccessible to large segments of the population. This gap between policy and reality highlights the existence of substantial barriers, particularly financial, that impede a broader enrollment in medical insurance schemes, thus hindering Kenya's efforts to attain UHC as well as increasing insurance penetration.

Several studies have examined factors influencing health insurance uptake in Kenya, with a focus on specific demographic groups. For example, Mwaura (2019) focused on the informal sector in Nairobi, while Ng'ang'a (2018) concentrated on the poor urban population in Mombasa. While these studies provide valuable insights, they do not comprehensively address the financial determinants affecting the general population across both urban and rural areas. Further, studies like Kirigia et al. (2014), which analyzed national statistics, emphasized disparities in health insurance uptake. In contrast, this study leverages the most recent 2021 FinAccess data, which offers a more up-to-date and representative perspective on the determinants of insurance uptake. The study examines key factors such as household income, access to financial services, and other social factors like education level, providing a comprehensive view of how these factors influence medical insurance enrollment.

This study seeks to address Kenya's persistently low medical insurance coverage despite the existence of both private and public insurers and various UHC initiatives. By utilizing contemporary data and examining a wider range of financial determinants, this research will provide fresh insights into the significant financial barriers to health insurance

uptake. In doing so, the study aims to contribute to the development of policies that are more effective, and strategies aimed at increasing insurance coverage and moving Kenya closer to achieving UHC.

### **1.3 Objectives of the Study**

The Study was guided by the following:

#### **1.3.1 General Objective**

The general objective of the study was to determine the determinants influencing the uptake of medical insurance in Kenya.

#### **1.3.2 Specific Objectives**

- i. To assess the impact of income on the uptake of medical insurance.
- ii. To assess the effect of social factors on the uptake of medical insurance.
- iii. To assess the effect of region on the uptake of medical insurance.

### **1.4 Research Questions**

#### **1.4.1 General Question**

- i. How does income affect the uptake of medical insurance in Kenya?
- ii. How do social factors influence the uptake of medical insurance in Kenya?
- iii. How does regional influence the uptake of medical insurance in Kenya?

### **1.5 Justification of the Study**

This study sets out to explain the relevance of understanding the determinants of medical insurance uptake in Kenya. By examining these determinants, the study will add to the existing body of knowledge and practice by providing fresh insights and recommendations that can support policy development, advance healthcare accessibility, and promote social well-being. The study will offer important evidence to guide the formulation of policies

targeted at enhancing health insurance coverage, particularly in underserved populations. By identifying the financial barriers and socio-economic factors that hinder medical insurance uptake, policymakers can create targeted interventions to increase enrollment in health insurance bodies and eventually support Kenya's Vision 2030 and global commitments to Universal Health Coverage (UHC).

To the insurance providers, the study provides insights into the financial and socio-economic factors influencing insurance uptake, enabling them to establish more attractive and accessible insurance packages. By addressing issues such as affordability, accessibility, and public awareness of health insurance benefits, the study will provide practical recommendations on how to improve enrollment, particularly in low-income and marginalized areas.

The study's findings will help healthcare specialists to understand how financial and socio-economic factors affect patients' ability to access health insurance and medical care. With this understanding, practitioners can work in partnership with insurance providers and policymakers to improve service delivery and lessen the financial burden on patients.

The study will contribute to academic literature by bridging gaps associated with the financial and socio-economic determinants of health insurance uptake in Kenya. The wider analytical approach and current data will offer useful reference for future studies in the areas of healthcare financing, social health protection, and medical insurance uptake, mainly in developing countries.

By highlighting the barriers to medical insurance enrollment, the study will incidentally benefit the public, especially the uninsured individuals. The research will shed light on strategies that can enhance awareness, accessibility, and affordability of medical

insurance hence reducing out-of-pocket medical expenditures, improving health outcomes, and improving the socio-economic well-being of the population.

Finally, the study shows support for Kenya's Vision 2030, particularly the social pillar. This pillar aims to provide equitable, affordable, and quality healthcare to all citizens. The study also aligns with the Sustainable Development Goals (SDGs), specifically Goal 3 that focuses on ensuring healthy lives and promoting well-being for all. By identifying and addressing the financial and socio-economic barriers to insurance uptake, the study will contribute to achieving UHC, reducing health inequalities, and promoting sustainable economic growth through a healthier and more financially secure population.

### **1.6 Scope of the Study**

The study included individuals aged 18 years and above, as they are the legal age to make decisions regarding medical insurance enrollment. Respondents were residents of Kenya and belonged to the designated income levels, employment sectors, or geographic locations outlined in the target population. This study focused on the financial determinants influencing the uptake of medical insurance in Kenya. The research utilized the most recent and comprehensive data from the FinAccess 2021 survey, which offered valuable insights into financial inclusion and the dynamics of financial service usage across the country. This dataset was particularly relevant for understanding the financial behaviors and barriers that affect health insurance enrollment. To maintain a clear and manageable scope, the research did not explore non-financial determinants of health insurance uptake, including cultural and psychological factors. By focusing solely on the financial and socio-economic aspects, the study aims to provide an intensive analysis of how income levels, education level, access to financial services, and other economic variables impact medical insurance uptake.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter encompasses the theoretical review and empirical review of literature. It also highlights the research gaps in the existing literature reviewed. The chapter also presents a conceptual framework of the variables to enhance our understanding of the topic.

#### **2.2 Theoretical Literature Review**

This study was anchored on three theories: Agency theory, Adverse selection theory and Theory of income distribution. The theories mutually present detailed discussion to provide a comprehensive theoretical framework for the study.

##### **2.2.1 Agency Theory**

Stephen Ross and Barry Mitnick first introduced this theory in 1973 and 1974, respectively. The theory centers on the relationship between principals and agents within an organization or system. Primarily the theory describes how one party (the principal) delegates work to another (the agent), who carries out the work on their behalf. The main issue the theory addresses is the potential for conflicts of interest, where agents may act in their own best interests rather than in the interests of the principals they serve.

Since it was pioneered, the theory has evolved beyond organizational management and economics to various contexts, including healthcare and insurance markets. Jensen and Meckling (1976) further polished the theory by introducing the concept of agency costs, which results in when principals are unable to perfectly monitor agents, leading to inefficiencies. In the context of health insurance, the government or insurance provider acts as the principal, while individuals or healthcare providers act as agents. This dynamic creates

opportunities for moral hazard or the pursuit of personal gains, highlighting the need for mechanisms like contracts or regulations to align both parties' interests.

The theory's ability to explain principal-agent relationships in a broad range of disciplines, including healthcare financing, is one of its key strengths. It recognizes information asymmetry as a major source of inefficiency, especially when agents hold more information than principals do. However, critics contend that agency theory is too narrow, concentrating only on economic and contractual relationships and often leaving out other social and emotional dynamics that may influence agent behavior. Moreover, the theory assumes that all agents act solely out of self-interest, overlooking instances of altruistic behavior.

Agency theory is very relevant to understanding medical insurance uptake. In the context of this research, the theory helps explain the potential inefficiencies that arise in the insurance programs, where beneficiaries (agents) may not fully ascribe with the insurer's (principal) objectives of reducing out-of-pocket healthcare expenditures. Additionally, agency costs such as adverse selection and moral hazard are crucial considerations for policymakers and insurers looking to enhance coverage and improve the efficiency of healthcare service delivery.

### **2.2.2 Adverse Selection Theory**

Developed by George Akerlof in 1970, this theory highlights the problem that occurs when buyers and sellers have asymmetric information. In the context of health insurance, adverse selection arises when individuals with higher risks (those who anticipate the need for healthcare) are more likely to purchase insurance, while healthier individuals (with lower risks) opt out. This results in a skewed risk pool, where insurers are left with higher-cost clients, driving up premiums.

Adverse selection has been a fundamental concern in the field of insurance economics. Over time, representations of adverse selection have been refined to elucidate how insurance companies adjust premiums to account for the higher risk of ensuring a pool of individuals that is biased toward those in need of healthcare. Rothschild and Stiglitz (1976) expanded on Akerlof's work by displaying how adverse selection can lead to market failure if insurers cannot differentiate between high-risk and low-risk individuals. This has had practical implications for healthcare policy, particularly in debates over mandatory insurance, as it seeks to broaden the risk pool by including both healthy and sick individuals.

The theories' strength lies in its clear explanation of the challenges insurers face when providing coverage in a market where information is imperfectly distributed. It has greatly influenced policy interventions like mandatory health insurance, which intends to minimize adverse selection by ensuring a balanced mix of risk profiles among policyholders. However, the theory is criticized for oversimplifying market dynamics. It assumes that all insured individuals act rationally and have perfect foresight about their future health needs, which is usually not the case. Additionally, it does not fully consider behavioral and psychological factors that may influence decisions to purchase insurance.

Adverse selection theory is relevant to this study's exploration of financial determinants in health insurance uptake. In the context of medical insurance in Kenya, the theory helps explain why low enrollment rates could lead to unsustainable insurance models, as higher-risk individuals may overburden the fund while healthier individuals remain uninsured. Understanding adverse selection can help policymakers in crafting incentives or mandates that encourage a more diverse pool of enrollees, ensuring the long-term viability of the NHIF and contributing to the goal of universal health coverage.

### **2.2.3 Theory of Income Distribution**

The Theory of Income Distribution dates to classical economics. Economists such as Adam Smith (1776), David Ricardo (1817), and Karl Marx (1867) initially discussed it. The theory emphasizes how the total income of a society is distributed among its various members or economic groups. Income distribution encompasses the factors that determine the allocation of economic resources, rents, wages, and profits among individuals or groups. It postulates aspects such as ownership of resources, individual productivity, and market mechanisms drive, wealth accumulation and income disparities (Smith, 1776; Ricardo, 1817). Over time, this theory has been modified to address the growing concerns about income inequality and its social and economic implications.

The Theory of Income Distribution has developed through several phases, shifting from classical and neoclassical interpretations to perspectives that are more modern. In classical economics, philosophers like Ricardo (1817) stressed the role of land, labor, and capital in determining income shares. Marx (1867) analyzed the exploitation inherent in capitalist systems. In the 20th century, economists such as Kuznets (1955) presented the Kuznets Curve, which put forth that income inequality would initially increase during early stages of economic growth before eventually diminishing. More recent study by Piketty (2014) has emphasized how inequality can persist and even worsen over time, as the rate of return on capital normally exceeds the rate of economic growth, accumulating wealth in the hands of a few. These developments in income distribution theory have been essential in analyzing economic inequality and its impact on society.

This theory provides a critical lens through which income inequality and its effects can be examined, making it relevant for understanding socio-economic disparities. One key strength of this theory is its ability to explain the structural causes of income inequality, such

as wage disparities, capital accumulation, and unequal access to resources (Piketty, 2014). However, the theory has also encountered criticisms. Classical approaches, particularly Marxist interpretations, have been criticized for being exceedingly deterministic; assuming that class conflict is inevitable (Blau, 1977). Moreover, Kuznets' hypothesis has been challenged in recent times, as inequality has continued to rise even in forward-thinking economies (Atkinson, 2015). Critics contend that the theory often fails to consider social factors, such as education and healthcare access, which can impact income distribution and economic outcomes.

In the context of our research on the financial determinants of medical insurance uptake in Kenya, the theory is highly relevant as it helps explain how income disparities within households can influence their ability to afford medical insurance. In Kenya, where income inequality is a big issue, the distribution of income across different socio-economic groups directly affects their financial capacity to purchase medical insurance. Poorer households may prioritize immediate needs over health insurance. On the other hand, wealthier households have more disposable income to allocate to insurance premiums. Therefore, this theory is important for understanding how household income levels shape medical insurance uptake (Piketty, 2014). By analyzing income distribution patterns, our research can identify how economic inequalities create financial barriers to healthcare access and insurance enrollment.

## **2.3 Empirical Review**

### **2.3.1 Income as Determinant of Health Insurance Uptake**

Income is a key element of health insurance uptake as it affects the ability and willingness to pay for health insurance premiums. Several studies have found a positive and significant relationship between income and health insurance uptake in Kenya and other countries.

Ng'ang'a (2021) investigated the determinants of health insurance uptake among low-income populations in Kibera, Nairobi. He employed a binary logit model to examine the factors influencing health insurance ownership. Outstandingly, the findings showed that income levels had a positive and significant effect on health insurance uptake. Put into perspective, higher income increased the likelihood of individuals purchasing health insurance.

Using an instrumental variable 2-stage least squares (IV 2SLS) approach and a control function approach (CFA), Mugo (2023) estimated the impact of health insurance enrollment on health outcomes in Kenya. The study revealed that income was a significant predictor of health insurance enrollment. This finding aligns with the theoretical expectation that higher income leads to greater demand for health insurance due to the increased opportunity cost of ill health and improved affordability.

Mwaura (2019) employed a random forest model to investigate factors influencing health insurance uptake in Kenya with an emphasis of the informal sector. The findings showed that income had a negative effect on the uptake of medical insurance, but a positive effect on the uptake of other health insurance schemes. This reveals that insurance uptake may not be attractive for higher-income individuals in the informal sector, as they may opt for alternative schemes offering better benefits or lower costs.

Using sophisticated statistical methods, including the instrumental variable 2-stage least squares (IV 2SLS) and the control function approach (CFA), Mugo (2023) examined the impact of income on health insurance enrollment. IV 2SLS was used to address potential endogeneity issues, especially the correlation between income and unobserved factors influencing health insurance uptake. The CFA was utilized to account for the non-linearity in the relationship between income and insurance uptake. Mugo's findings asserted that income is a crucial predictor of health insurance enrollment. Higher income levels were connected to

greater enrollment in health insurance, reflecting increased affordability and opportunity cost considerations. The study underscored the view that as individuals' financial resources grow, their capability and propensity to engage in health insurance also improve.

Empirical evidence backs the theoretical propositions of Zweifel and Manning (2000) about the relationship between income and health insurance demand. Their study presents a framework that expounds how higher income levels are related to increased health insurance uptake. Drawing on data from numerous household surveys, Zweifel and Manning found that as income rises, the financial burden of potential health issues becomes more pronounced. Households with higher incomes tend to perceive the opportunity cost of illness as greater, making health insurance a more attractive investment to mitigate these risks. Studies adopting this theoretical model have demonstrated that individuals in higher-income brackets are more likely to purchase health insurance due to their ability to absorb the costs and risks associated with poor health (Zweifel & Manning, 2000). This relationship between income and insurance uptake has been corroborated by other studies as well, reinforcing the understanding that financial capability plays a key role in health insurance decisions.

Ouma et al. (2020) conducted their study in Kenya, revealing interesting nuances in the relationship between income and insurance preferences. Their findings, resulting from a multinomial logit model, showed that while higher income had a positive effect on choosing public health insurance, it also negatively affected the choice of private health insurance. This point out that individuals with higher income might prefer public insurance options or alternative health financing methods to private insurance, probably due to perceived value or cost considerations (Ouma et al., 2020).

In contrast, Mwaura (2019) found that income had a negative effect on the uptake of National Hospital Insurance Fund (NHIF) only, but a positive effect on other health insurance

schemes. This shows that NHIF might not be as attractive to higher-income individuals compared to other insurance schemes that may offer better benefits or lower costs. The negative relationship between income and NHIF uptake might mean that higher-income households may find NHIF less suited to their needs or less competitive compared to alternative health insurance schemes (Mwaura, 2019).

Collectively, these studies prove that income is a significant determinant of health insurance uptake, though its impact can vary depending on the type of insurance and the particular context. Higher income generally propels greater insurance participation because of increased affordability and reduced financial risk. Nonetheless, preferences for different types of insurance can influence the extent and nature of this relationship. Considering these dynamics is crucial for tailoring health insurance policies and interventions to different income groups and ensuring equitable access to health coverage (Ng'ang'a, 2021; Mugo, 2023; Zweifel & Manning, 2000; Ouma et al., 2020; Mwaura, 2019).

In conclusion, income's role in the uptake of health insurance in Kenya cannot be overstated. With a large portion of individuals living on low or irregular incomes, many find it challenging to afford health insurance premiums. This financial barrier limits access to critical health services, leading to delayed treatment and increased out-of-pocket costs during emergencies. Even with the introduction of schemes such as the National Hospital Insurance Fund (NHIF) to provide affordable coverage, uptake remains low, especially in rural areas where incomes are normally lower, and awareness of such schemes is limited. Individuals and households in the higher-income bracket are more likely to have access to private insurance that offers better health coverage and services. However, most Kenyans, who constitute the informal sector, remain uninsured due to the exorbitant cost of premiums. The outcome of this income inequality is significant health disparities, with the poor enduring the most healthcare-related financial burdens. Efforts to escalate health insurance uptake in

Kenya must focus on improving affordability, raising awareness about the benefits of health insurance among low-income populations, and expanding coverage for informal workers.

### **2.3.2 Healthcare Costs and Price Sensitivity**

Numerous research has empirically examined the effect of premium subsidies on health insurance uptake in Kenya and other countries. Njagi and Maharaj (2018) analyzed preferences and willingness to pay for health insurance among informal sector workers in Kenya. The study employed a discrete choice experiment. Premium subsidies were shown to have a positive and significant effect on the demand for health insurance. This indicates that subsidies increase affordability and thus uptake.

Chuma et al., (2019) studied the impact of a premium subsidy program on insurance uptake among poor households in rural Kenya using a randomized controlled trial. The premium subsidy program increased the uptake by 52 percentage points, from 3 percent to 55 percent, indicating the significant impact of subsidies on insurance enrollment. Zweifel and Manning (2000) employed theoretical model of the demand for health insurance. The study revealed that premium subsidies lower the price of health insurance and increase demand since lower prices enhance the expected utility of health insurance.

Kimani et al. (2018) explored the impact of introducing copayments for outpatient services on NHIF uptake among civil servants in Kenya. The study employed a difference-in-differences approach. The findings demonstrated that introducing copayments reduced insurance uptake by 12 percentage points, from 67 percent to 55 percent, signifying that copayments decrease insurance demand. Liu et al. (2019) evaluated preferences and willingness to pay for health insurance among rural residents in China using a discrete choice experiment. The findings presented that copayment, and deductibles had a negative and significant effect on health insurance demand, signaling that higher cost sharing reduces

insurance uptake. Mwai et al. (2019) assessed the impact of a community-based health insurance scheme implementing a risk-sharing mechanism on insurance uptake in rural Kenya.

Their study involved a mixed-methods approach. The scheme increased health insurance uptake by 18 percentage points, from 12 percent to 30 percent, demonstrating that risk-sharing mechanisms improve insurance enrollment. In Burkina Faso, De Allegri et al. (2019) assessed the effect of a district-level risk-sharing mechanism pooling funds from different health insurance schemes on uptake using a cluster randomized controlled trial. The mechanism increased health insurance uptake by 7 percentage points, from 8 percent to 15 percent, signifying that risk-sharing mechanisms reduce uncertainty and increase demand.

Njagi and Maharaj (2018) led a discrete choice experiment among informal sector workers in Kenya. They sought to assess their preferences and willingness to pay for health insurance. The study revealed that premium subsidies had a positive and significant effect on insurance demand. Subsidies made health insurance more affordable by reducing the cost burden of premiums, thereby increasing the likelihood that individuals would enroll in insurance programs. This highlights the critical role that financial incentives play in enhancing insurance uptake (Njagi & Maharaj, 2018).

Chuma et al. (2019), who evaluated a premium subsidy program's impact on insurance uptake among poor households in rural Kenya, observed a remarkable increase in insurance enrollment, from 3 percent to 55 percent, attributable to the premium subsidies. This significant rise underscores the substantial influence that reducing premium costs can have on increasing health insurance enrollment, especially among economically disadvantaged households (Chuma et al., 2019).

The cost of medical insurance affects the uptake of health coverage in Kenya significantly. For majority of Kenyans, mostly those in the informal sector or low-income job groups, high insurance premiums present a barrier to accessing adequate health insurance. Despite the effort by the Kenyan government to come up with a national insurer with statutory payments, NHIF, which offers relatively affordable options, many people find the premiums challenging due to irregular or low incomes. This financial barrier often daunts enrollment, resulting to reliance on out-of-pocket payments during medical emergencies. Conversely, private medical insurance providers offer broad coverage, but their high premiums present a barrier to the majority of the population, especially those in rural areas earning minimum wage. Due to this, a large proportion of the population remains uninsured, leaving them exposed to significant healthcare costs. To improve the uptake of medical insurance, it is essential for policymakers and insurers to offer flexible and affordable premium options that cater to the financial realities of most Kenyans. Furthermore, providing subsidies for low-income households and increasing public awareness of the long-term financial benefits of health insurance could help alleviate the impact of high costs on insurance uptake in the country.

### **2.3.3 Access to Financial Services**

Several studies have evaluated the role of access to financial services in determining medical insurance uptake, centering on various populations, including low-income households, informal sector workers, and rural populations in developing countries in Africa. For instance, Muli (2019) investigated how access to mobile money platforms influenced financial inclusion and, by extension, medical insurance uptake among informal workers in Kenya. Likewise, Kimani et al. (2016) studied the relationship between financial accessibility and health insurance enrollment among urban populations in Nairobi. Many of these investigations focus on financially vulnerable groups, comprising the uninsured or

underinsured, highlighting how lack of access to banking and financial services limits their ability to participate in insurance schemes.

Studies on access to financial services and medical insurance uptake have received growing attention since the early 2010s. This is due to advancements in digital financial services like mobile money. World Bank (2014) found that the expansion of mobile money platforms, such as M-Pesa in Kenya, played a major role in improving financial access across East Africa. Moreover, Muthuri et al. (2020) inspected the impact of financial services on insurance uptake in the wake of technological advancements in sub-Saharan Africa. As the availability of digital financial platforms has increased, so has the ability of individuals to access health insurance products.

Studies that have explored access to financial services as a key determinant of medical insurance uptake have examined variables such as the availability of microfinance institutions, mobile banking, and traditional banking services. In Kenya, access to mobile money platforms, such as M-Pesa, has been for the most part influential. Muli (2019) established that the availability of mobile financial services has significantly reduced transaction costs. This has made it easy for informal sector workers to join in medical insurance schemes. Mburu (2016) stressed how the presence of microfinance institutions in rural Kenya facilitated low-income households to access loans, which enabled the payment of medical insurance premiums. Other variables explored in the literature include financial literacy, bank proximity, and the presence of government incentives like subsidized insurance schemes.

A great number of empirical studies on access to financial services and medical insurance uptake have been undertaken in Kenya and other East African countries. Kimani et al. (2016) concentrated on urban populations in Nairobi, while Muli (2019) examined

informal sector workers across several counties in Kenya. World Bank (2014) also offered comparative data on the role of mobile banking in improving insurance uptake across East Africa, especially in rural and semi-urban areas. Furthermore, some research from Ghana and Nigeria have investigated similar dynamics, concentrating on how access to financial services enhances healthcare financing in sub-Saharan Africa (Asante & Aikins, 2018).

The studies highlighted employed quantitative research methods, utilizing household surveys and administrative data from financial institutions and insurance providers. Muli (2019) employed a survey design to evaluate the relationship between mobile money usage and medical insurance uptake, utilizing data collected from informal workers in Kenya. In the same way, Kimani et al. (2016) employed regression analysis to explore how financial inclusion variables like access to savings accounts and mobile money compare with insurance enrollment. Other investigations, such as Muthuri et al. (2020), have used cross-sectional data to examine financial inclusion and health insurance uptake across multiple African countries.

Most of the empirical studies have revealed a positive correlation between access to financial services and medical insurance uptake. Kimani et al. (2016) established that households with access to mobile banking services were significantly more likely to enroll in medical insurance schemes because of the reduced transaction costs and ease of premium payments. Muli (2019) also revealed that informal workers who used mobile money platforms like M-Pesa were more likely to take up medical insurance since these platforms made saving and paying for premiums more convenient. Similarly, Mburu (2016) showed that access to microfinance institutions in rural areas facilitated insurance uptake by providing households with loans to cover premium costs.

#### **2.3.4 Social Determinants of Health Insurance Uptake**

The uptake of health insurance is influenced by a variety of social factors. The factors encompass age, marital status, and religion, each of which can influence individuals' perspectives on healthcare access and financial risk management.

Age has been consistently found to affect the likelihood of purchasing health insurance. Younger individuals, especially those in their 20s and 30s, usually view themselves as less vulnerable to health risks and therefore less motivated to invest in insurance. On the contrary, older populations are more likely to seek coverage due to increasing health concerns as they age. For instance, a study by Mathauer et al. (2019) noted that health insurance enrollment increases significantly with age, especially as individuals approach retirement. This is because older individuals are more aware of their vulnerability to illness and are more willing to pay insurance to mitigate healthcare costs as their health risks increase.

Marital status has also been shown to be a key determinant of health insurance uptake. Research by Kirigia et al. (2020) revealed that married individuals are more likely to have health insurance than their single counterparts are. Marriage typically brings greater financial security and may include spousal health insurance benefits, which can lessen the burden of healthcare costs. Furthermore, married individuals may be more concerned about family health, encouraging them to invest in medical insurance. On the other hand, single individuals, particularly those without dependents, may delay purchasing health insurance, prioritizing other expenses.

Religion can influence attitudes toward health insurance because of the value systems and healthcare approaches inherent in certain religious communities. For instance, Islam places a strong emphasis on community welfare, which can inspire participation in cooperative insurance schemes. In contrast, some Christian denominations may have

reservations about conventional health insurance due to their reliance on faith-based healing. A study by Olivier et al. (2018) investigated how religious beliefs shape healthcare decisions, emphasizing that religious groups with a strong emphasis on spiritual healing were less likely to enroll in health insurance programs. Similarly, individuals affiliated with religious groups that endorse modern medicine were more inclined to take up insurance.

### **2.3.5 Combined Influence of Income, Healthcare Costs, Access to Financial Services and Government and Institutional Interventions on the Uptake of Medical Insurance**

Research on the determinants of medical insurance uptake has often focused on low-income populations, especially in low- and middle-income countries (LMICs), where government insurance programs, such as the National Health Insurance Fund (NHIF) in Kenya, are critical to expanding healthcare access. For example, Zhang et al. (2022) studied the impact of income and regional differences on medical expenses and insurance payments in low-income areas of China. Similarly, Song et al. (2023) examined how income, security, and convenience of medical treatment influenced patients' decisions to utilize hospitalization services. These studies primarily focused on low- to middle-income households, who face greater challenges in accessing and affording health insurance, offering valuable insights for understanding NHIF uptake among Kenya's informal sector workers and rural populations.

Studies addressing the combined effects of income, insurance costs, and regional disparities on health insurance uptake have been published primarily in the last decade, reflecting an increased focus on universal health coverage. For instance, Zhang et al. (2022) and Song et al. (2023) conducted their studies within the last five years, when healthcare affordability became a global priority, especially due to the COVID-19 pandemic. Their research contributes to a broader understanding of how financial and geographical barriers affect health insurance uptake in LMICs.

Key variables examined in these studies include household income, insurance costs (premiums), geographical distance, and access to healthcare facilities. Zhang et al. (2022) explored how economic levels and geographic distance affect medical expenses and insurance payments, while Song et al. (2023) examined the role of income, perceived security, and convenience in patients' decisions to seek medical services. In Kenya, these same factors—particularly income and regional disparities in healthcare infrastructure—have been central to understanding variations in NHIF enrollment across different demographics. Ilinca et al. (2019) also explored socio-economic inequalities in healthcare utilization in Kenya, offering further insights into the significance of income disparities and regional accessibility.

Most of the research on the combined effects of income, insurance costs, and regional differences has been conducted in low-income regions of countries such as China, Kenya, and other parts of sub-Saharan Africa. Zhang et al. (2022) conducted their study in low-income areas of China, while Song et al. (2023) and Ilinca et al. (2019) focused on Kenya. These regions are characterized by significant income inequalities and limited access to healthcare, making them ideal locations for studying the impact of income and geography on medical insurance uptake.

Empirical studies on this topic have utilized a variety of quantitative and comparative analysis methods. For example, Zhang et al. (2022) employed a comparative analysis of economic levels and geographic distance on medical expenses, while Song et al. (2023) used a multi-variable analysis to assess how income, security, and convenience of medical services affected patient choices. These approaches help to quantify the relationship between financial and geographical barriers and insurance uptake. Ilinca et al. (2019) used socio-economic data and healthcare utilization surveys to examine inequities in healthcare access in Kenya.

The findings from these studies reveal that income levels, insurance costs, and geographical accessibility are significant determinants of medical insurance uptake. Zhang et al. (2022) found that higher income levels were associated with lower relative medical expenses, while geographical distance increased medical costs and reduced insurance uptake. Similarly, Song et al. (2023) found that higher income, along with perceived security and convenience in accessing medical care was linked to greater utilization of healthcare services, suggesting that these factors likely influence NHIF enrollment decisions in Kenya. Ilinca et al. (2019) confirmed that socio-economic inequalities were a key driver of healthcare inequities in Kenya, with lower-income and rural populations experiencing the greatest barriers to accessing medical insurance.

## **2.4 Research Gaps**

Despite considerable research on the determinants of medical insurance uptake, numerous gaps remain unaddressed in the empirical literature. One visible gap is the lack of studies focusing on informal sector workers and rural populations. Although studies such as Zhang et al. (2022) and Song et al. (2023) has investigated the effects of income and regional disparities in other low-income regions, there is unsatisfactory evidence on how irregular income streams, common in Kenya's informal sector, affect individuals' ability to reliably enroll in health insurance schemes. This is important, as a significant proportion of Kenya's population operates within the informal sector, where income instability poses a unique challenge to insurance uptake. This gap necessitates targeted studies that evaluate the unique challenges faced by informal sector workers.

Furthermore, most studies, comprising Zhang et al. (2022) and Ilinca et al. (2019) have fixated primarily on recent developments in health insurance programs, especially after health sector reforms. There is a lack of longitudinal data highlighting how socio-economic conditions, healthcare policies, and insurance programs have changed over time. Such

historical insights could provide valuable information on how household income dynamics, healthcare costs, and geographical disparities have influenced insurance uptake in the long run. Longitudinal studies could help pinpoint whether improvements in income levels or healthcare infrastructure have had long-term effects on insurance enrollment rates.

Another critical gap lies in the inadequate exploration of social factors influencing insurance enrollment. Despite existing literature largely focusing on financial and geographical barriers, there is little empirical data on how trust in insurance schemes, community perceptions and cultural beliefs impact health insurance decisions. This is mainly relevant for rural and marginalized populations, where mistaken belief about NHIF benefits or distrust of public insurance programs may discourage individuals from enrolling. Song et al. (2023) underscores the importance of perceived security and convenience in accessing healthcare services. However, further qualitative research is required to comprehend how personal experiences and community perceptions influence NHIF uptake.

Additionally, while urban-rural disparities have been investigated, there is a lack of comprehensive cross-regional comparisons within Kenya. Studies such as Ilinca et al. (2019) and Zhang et al. (2022) highlight the role of geographic distance in healthcare access, but more research is needed to evaluate how differences in healthcare infrastructure and regional income levels specifically affect NHIF enrollment rates in various counties in Kenya. These differences may necessitate region-specific interventions, yet the existing literature has yet to provide a nuanced understanding of how NHIF uptake varies across regions with different economic profiles and healthcare accessibility.

This study leverages the most recent 2021 FinAccess data, which offers a more up-to-date and representative perspective on the financial determinants of insurance uptake. Unlike previous studies that focused on specific sub-populations or used outdated data, this research

adopts a broader analytical scope by including various socio-economic groups across urban and rural regions. The study examines key financial factors such as household income, healthcare costs, access to financial services, and socio-economic elements like education level, providing a comprehensive view of how these factors influence health insurance enrollment.

This study seeks to address Kenya's persistently low medical insurance coverage despite the existence of both private and public insurers and various UHC initiatives. By utilizing contemporary data and examining a wider range of financial determinants, this research will provide fresh insights into the significant financial barriers to health insurance uptake. In doing so, the study aims to contribute to the development of policies that are more effective, and strategies aimed at increasing insurance coverage and moving Kenya closer to achieving UHC.

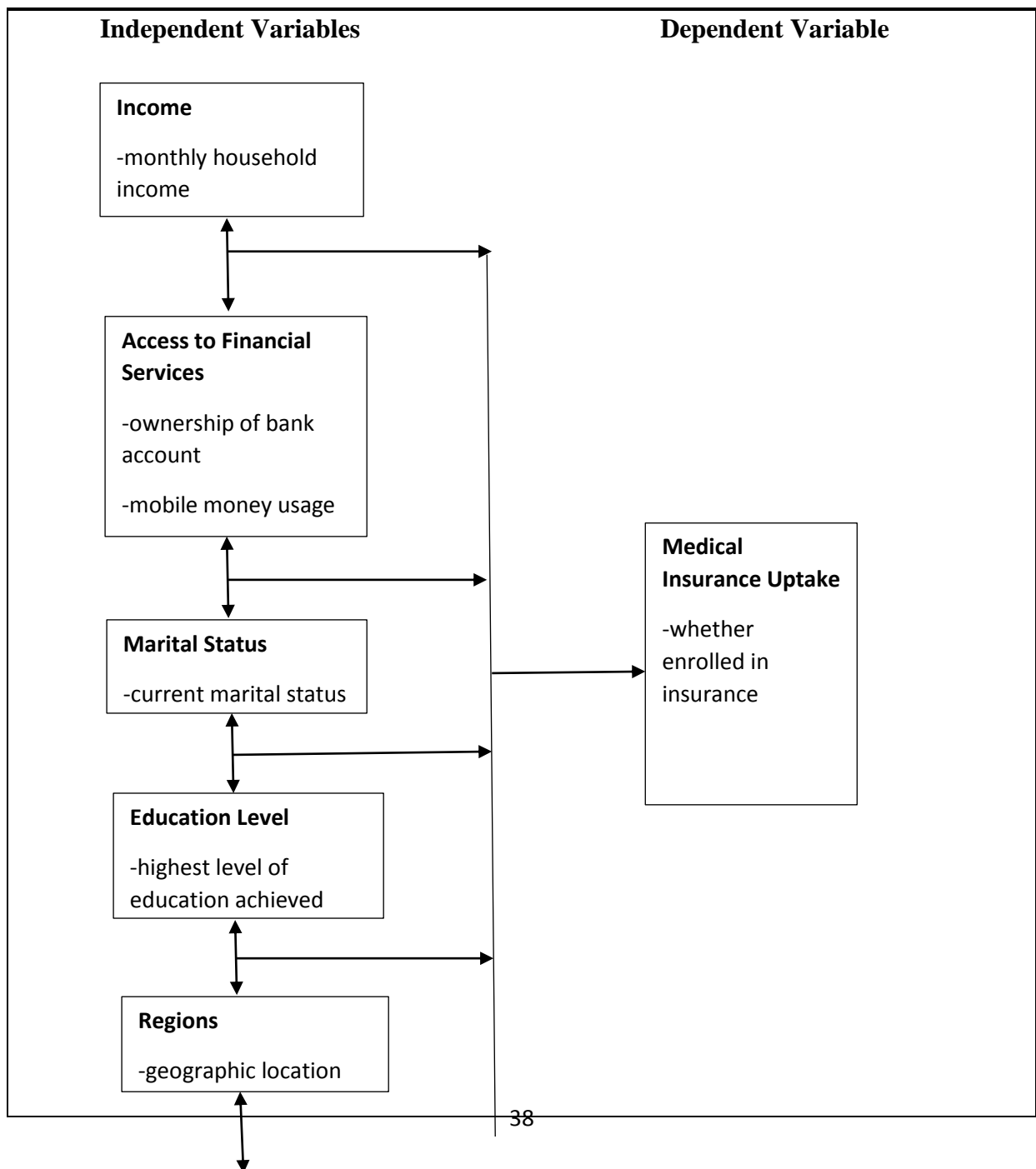
Finally, while quantitative studies have been widely carried out to measure the financial and geographical determinants of insurance uptake, there exists a gap in qualitative research that explores personal narratives and community perspectives on health insurance. Studies like Ilinca et al. (2019) have majorly relied on socio-economic data, leaving out the lived experiences of individuals in different income brackets and regions. Qualitative research could offer a deeper understanding of the psychosocial factors that improve or hinder enrollment, hence complementing the existing quantitative data with a more holistic view of the challenges faced by low-income and rural populations.

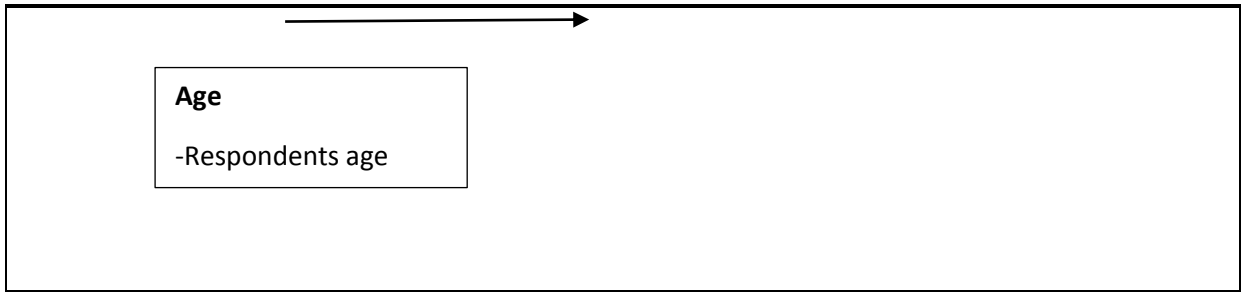
## **2.5 Conceptual Framework**

A conceptual framework provides visual depiction, in the form of a diagram that captures the core structure of the study. For this study, the conceptual framework will help visualize the relationship between various key financial and social determinant factors and the uptake of

medical insurance. The conceptual framework includes independent and dependent variables, and a brief explanation of the relationships among these variables.

**FIGURE 1**  
**Conceptual Framework**





*Source: Researcher (2024)*

In this framework, income levels are expected to positively influence medical insurance uptake, as individuals with higher incomes are better positioned to afford premiums. It is hypothesized that access to financial services facilitates payment methods (e.g., mobile banking), making insurance more accessible. It is hypothesized that individuals who are married are more likely to enroll in medical insurance to provide financial protection for their family members. Education Levels are hypothesized to increase awareness of the benefits of insurance, thus encouraging enrollment. It is anticipated that the geographical location of individuals, specifically whether they live in urban or rural areas, affects their access to healthcare services and financial institutions, which in turn influences medical insurance uptake. It is expected that as people age, their likelihood of enrolling in medical insurance increases.

## 2.6 Operationalization of Variables

**TABLE 1**  
**Operationalization of Variables**

Objectives	Variables	Indicators	Scale	Data Collection Instrument
To assess the impact of income on the uptake of medical insurance	Income	monthly household income levels	Ratio	FinAccess 2021 survey
To assess the effect of social factors on the uptake of medical insurance.	social factors	age	Ratio	FinAccess 2021 survey
		marital status	Nominal	FinAccess 2021 survey
		Religion	Nominal	FinAccess 2021 survey

To assess the effect of region on the uptake of medical insurance	Region	residence type (urban/rural)	Nominal	FinAccess 2021 survey
		regional location within Kenya	Nominal	FinAccess 2021 survey

*Source: Researcher (2024)*

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter presents the research methodology employed by the study. The term methodology refers to research design, data gathering methods, and data analysis techniques adopted to accomplish the research objectives. This chapter offers explanation of the research design, the target population, the sampling and sampling procedure, and the data collection procedure. The section will also expound the use of secondary data to understand factors affecting medical insurance uptake. Finally, the chapter describes the data processing and analysis techniques.

#### **3.2 Research Design**

This study employed a causal research design to analyze the financial and social determinants influencing the uptake of medical insurance in Kenya. This design suited the study as it allows for examination of established relationships and patterns within existing data, as is the case of the current study which uses secondary data from the FinAccess 2021 survey. The causal research design offers a structured way to summarize and characterize the variables under investigation, such as income, age, marital status, and regional differences as well as assess their influence on health insurance uptake.

The choice of a causal research design is well-suited for this study because it facilitates an in-depth exploration of variables using pre-existing data. This enables the researcher to identify and interpret patterns and relationships within a national dataset (Creswell & Creswell, 2018). By employing this design, the study effectively addressed its objectives without introducing new data collection instruments, focusing instead on secondary data interpretation. This is in line with best practices in secondary data research,

where the primary task is to observe, summarize, and analyze data to inform meaningful conclusions on the topic.

### **3.3 Target Population**

The target population represents the full group of individuals or entities sharing specific characteristics to which research findings will be generalized (Schindler (2003). In the FinAccess 2021 survey, the target population comprised individuals aged 16 years and above living within conventional households in Kenya. However, data analysis was conducted on individuals aged above 18 years, given that they hold national identity cards, a key requirement to access formal financial services in own name.

The target population for this study was defined as the respondents of the FinAccess 2021 survey. This group was chosen because it accurately represented the primary demographic and socio-economic factors relevant to this study, such as income, social characteristics, and insurance status. By incorporating respondents from various employment sectors, geographic regions, and insurance statuses, this target population enabled a broad and inclusive understanding of the determinants influencing medical insurance uptake in Kenya.

The unit of analysis for this study was the individual respondent within each household since the research aimed to assess personal characteristics (e.g., income, social factors, and region) that may influence medical insurance uptake decisions.

### **3.4 Sampling and Sampling Procedure**

This study utilized secondary data from the FinAccess 2021 Household Survey, which was designed to provide nationally representative estimates on financial inclusion, including health insurance uptake across Kenya's diverse socio-economic and demographic population. The total sample size of the FinAccess 2021 Survey consisted of 1,700 Enumeration Areas

and 30,600 households, strategically distributed across all 47 counties. This sample was designed to produce reliable estimates at national, rural/urban, and county levels.

The FinAccess 2021 Survey employed a multi-stage stratified cluster sampling procedure. Three levels of units were sampled: Enumeration Areas (EAs), households, and individual respondents within households. The EAs served as the primary sampling units, systematically selected with equal probability from each of the 92 strata in the K-HMSF. Given that the master sample was selected with Probability Proportional to Size, each EA was representative of its respective stratum. From each EA, 18 households were selected systematically using a central sampling procedure to avoid selection bias. This central selection ensured that only pre-designated households were surveyed, eliminating enumerator bias. Within each selected household, one eligible individual aged 16 years and above was selected using the Kish Grid random sampling technique, integrated into the CAPI software. This method ensured random, unbiased selection of household members for participation in the survey.

By employing a secondary dataset with a multi-stage sampling design, this research benefited from a wide-ranging, unbiased sample that accurately represents Kenya's diverse population. This is particularly suitable given the study's cross-sectional research design, which aims to explore existing relationships rather than gather new data. This design effectively addresses potential biases and facilitates the exploration of key financial and social determinants influencing health insurance uptake across diverse socio-economic groups, making it highly appropriate for this study.

### **3.5 Research Instrument**

The study utilized secondary data from the FinAccess 2021 survey, a well-established and widely recognized data source in Kenya. The FinAccess survey was conducted using

structured questionnaires that were carefully developed to capture a wide range of information related to financial inclusion. Key aspects applicable to this study included respondents' access to financial services, income levels, healthcare costs, and enrollment in health insurance schemes, along with various demographic characteristics. These comprehensive questionnaires were administered to a nationally representative sample; hence the data was robust and reliable for examining the factors influencing medical insurance uptake.

The appropriateness of using the FinAccess 2021 survey as the data collection instrument for this study was rationalized by its extensive, pre-collected dataset, which included data that directly related with the objectives of this study.

### **3.6 Data Collection Procedure**

This study utilized secondary data from the publicly accessible FinAccess 2021 survey. This dataset was chosen due to its relevance to the study's focus on financial inclusion and medical insurance uptake in Kenya. Data was directly downloaded from the official FinAccess website, ensuring a secure and verified source. Upon acquisition, the FinAccess data was systematically reviewed for completeness, accuracy, and relevance to the study's objectives. Key variables—such as household income levels, healthcare costs, access to financial services, education level, age, marital status, region, and health insurance enrollment—were carefully identified. The data underwent preparation for analysis, which involved data cleaning and variable coding.

### **3.7 Data Processing and Analysis**

This study employed a comprehensive data analysis approach to investigate the determinants of medical insurance uptake in Kenya using the 2021 FinAccess survey data. The analysis focused on identifying relationships between various independent variables (such as income

levels, access to financial services, education level, age, marital status, and region) and the dependent variable (medical insurance uptake).

Before analysis, the data was cleaned and preprocessed to ensure accuracy and reliability. Descriptive statistics were computed to provide an overview of the data distribution and characteristics of the respondents. Descriptive statistics were used to summarize the demographic and socio-economic characteristics of the study's population. This included means, medians, frequencies, and percentages for variables such as age, income level, education level, marital status, and region. The initial analysis highlighted the general profile of the respondents and the extent of medical insurance uptake within different demographic groups.

To examine the relationships between the independent variables and medical insurance uptake, inferential statistical techniques were employed. The results from the statistical analyses were interpreted in the context of the research objectives. Key findings were highlighted, focusing on significant determinants of medical insurance uptake and the implications of these findings for policy and practice.

Using tables, the findings were presented in a clear and organized manner. Descriptive statistics were illustrated using frequency tables and bar charts to visualize the demographic profile. To ascertain potential multicollinearity among the predictors, the study calculated the Variance Inflation Factor (VIF). High VIF values indicated strong correlations between independent variables, which affected the stability and interpretability of the regression coefficients.

Since the study involved cross-sectional data, it was mindful of heteroscedasticity. This phenomenon ensued when the variance of the error terms is not constant across different levels of the predictors. The researcher adopted the Bruesch-Pagan test to test for presence of

heteroscedasticity. The study also investigated the normal distribution of data. Shapiro wilk test was used.

## CHAPTER FOUR

### DATA ANALYSIS AND PRESENTATION

#### 4.1 Introduction

This chapter presents the descriptive and inferential statistics, which are important for understanding the connection between the variables. Descriptive statistics were employed to determine the mean, standard deviation, and summary tables to visualize the spread of the data (Mendenhall et al., 2020). Inferential statistics were used to determine collinearity test, multicollinearity, and the precise relationship between the output and independent variables. The relationship between medical insurance uptake and the independent variables (monthly income, affordability, and residence) were determined at the end of this chapter.

Age group, gender, marital status, and education level aspects were discussed under demographic analysis. The test of normality was conducted on monthly income, affordability of NHIF, and residence and medical insurance uptake using Shapiro whisky test. The relationship between insurance uptake and monthly income, insurance uptake and affordability of NHIF, insurance uptake and residence were determined using central tendency under descriptive statistics. Finally, this chapter covered multicollinearity test and logit regression in addition to model summary, test for independence and regression coefficient

#### 4.2 Descriptive Statistics for Determinants of Medical Insurance Uptake

**TABLE 2**

**Descriptive Statistics for Medical Insurance Uptake**

Variable	Observation	Mean	Standard Deviation.	Minimum	Maximum
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				um	
Medical Insurance uptake	20863	3.5%	.185	0	1
Income	20863	7641.902	12388.966	98	400000
Age	20863	40.079	16.849	18	116
Mobile Loan	20863	8.4%	0.278	0	1
Residence	20863	3.48%	0.476	0	1
<b>Education</b>					
None	20863	18.9%	0.392	0	1
Primary	20863	40.3%	0.491	0	1
Secondary	20863	28.6%	.452	0	1
Tertiary	20863	7.4%	.262	0	1
University	20863	4.7%	.211	0	1
<b>Marital Status</b>					
Widowed/Divorced	20863	30.3%	.459	0	1
Single	20863	12.4%	.329	0	1
Married	20863	57.4%	.495	0	1

**Source: Researcher (2024)**

TABLE 2 shows a summary of descriptive statistics of the determinants of insurance uptake. Demographic factors are critical determinants of health insurance enrollment. Understanding how these the factors interact with financial determinants can inform policy development and outreach efforts. This section analyses factors such as age, gender, sex, and education level of people who take medical cover. This demographic information determines the decision of a person to take a medical cover. The relationship between demographic factors and medical insurance uptake is crucial for policymaking.

The data demonstrates that many people are not covered by medical insurance ( $M=3.5$  percent,  $SD=0.185$ ). A standard deviation of 0.185 shows that there is extensive variation between those who have insurance and those who are not covered. On age, the data shows that most people who take insurance are middle age ( $M=40.079$ ,  $SD=16.849$ ). The distribution of the age bracket in terms of insurance uptake confirms that majority of young people do not have medical insurance cover. Based on this premise, it denotes that majority of people who take medical cover are older people. This could be because young people are less susceptible to diseases in comparison to old people.

The results in TABLE 2 showed that majority of Kenyans that is 40.3 percent have primary education. Those with no education account for 18.9 percent. Those with secondary Education level account for 28.6 percent of the Kenyan population. Those with tertiary education and university education account for 7.4 percent and 4.7 percent respectively. Maybe the low enrollment in the medical insurance can be attributed to the factor that majority of Kenyans do not have education that can make them earn enough income to pay for medical insurance premiums. The results show that majority of Kenyans are those with at most secondary education.

Income also plays a big role in influencing the decision to take medical cover. However, from TABLE 2 it is evident that majority of Kenyan have a monthly income of KES 7641.90. The results further depict the unequal income distribution. This is revealed by standard deviation of KES 12, 388.97 that is more than the mean. This is an indication that there are some Kenyans who earn quite higher incomes than others do. ( $SD=12, 388.97$ ). This illustrates that majority of the people earn low income thus hindering them from taking the medical insurance. The findings of this paper are aligned with the literature from other studies on the relationship between income and insurance uptake.

The results also revealed that quite a low percentage of Kenyan live in urban areas.

They accounted for 3.48 percent. This implies a large percentage of Kenyan live in rural areas. Agriculture is the main stay of rural dwellers. Most of them practice agriculture for subsistence and therefore may not get enough money to pay for medical insurance premiums.

TABLE 2 shows the patterns of health insurance uptake with respect to marital status. The data shows that single individual accounted for 12.4 percent of Kenyans. The widowed and divorced account for 30 percent while the married account for 57 percent of Kenyans.

### 4.3 Diagnostic Tests

To validate the results, various diagnostic tests were performed. Some of the test include multicollinearity, heteroscedasticity and normality. For this study, multicollinearity test was done using VIF while Heteroscedasticity was performed using Breusch Pagan method.

#### 4.3.1 Multicollinearity Test

**TABLE 3**  
**Multicollinearity Test**

	VIF	1/VIF
Secondary Education	2.148	.466
Primary Education	1.995	.501
Married	1.841	.543
Age	1.528	.654
Tertiary Education	1.473	.679
University Education	1.414	.707
Widowed/Divorced	1.394	.717
Income	1.197	.835
Residence	1.131	.884
Mobile	1.045	.957
Mean VIF	1.517	.

*Source: CBK FinAccess data 2021*

The TABLE 3 above show the output to test for multicollinearity between the predictor variables. The data illustrates that income, age, primary education, secondary education, tertiary education, university level, widowed/divorced, and Married shows a VIF of 1.197, 1.528, 1.995, 2.148, 1.473, 1.414, 1.394, and 1.841 respectively. All VIF values were less than 10 showing very low multicollinearity among the predictor variables (Voxco, 2023). The absence of multicollinearity in the data demonstrated that the predictor variables are efficient in predicting factors affecting medical insurance uptake in Kenya.

#### 4.3.2 Heteroscedasticity Test

**TABLE 4**  
**The Breusch Pagan for Heteroscedasticity Test Results**

<p><b>Ho: variance of error term is constant</b></p> <p><b>Variables: The predicted values of insurance uptake</b></p>
<p>Chi2(9) = 6591.29</p>
<p>Prob &gt; Chi2 = 0.0000</p>

*Source: CBK FinAccess data 2021*

The Breusch-Pagan test for Heteroscedasticity was performed to assess whether the standard errors of the independent variables are related to the outcomes of prior periods. The outcome of the table shows that there was heteroscedasticity because the chi-square probability is 0.00, which is less than 0.05. This study used robust standard errors to correct the econometric problem.

#### 4.3.3 Normality Test

The researcher conducted a normality test to determine whether the data is uniformly distributed. The results in TABLE 5 below indicate that the error term is not normally distributed. To correct this, we used a logistic regression model, an appropriate remedy to be

used when the error term is not normally distributed.

**TABLE 5**  
**Normality Test Results**

Shapiro-Wilk W test for normal data

Variable	Observations	W	V	Z	Prob>z
Residual	20,863	0.708	2700.996	21.539	0.000

*Source: CBK FinAccess data 2021*

#### 4.4 Regression Results

The empirical results showing the effect of income on health insurance uptake are outlined in TABLE 6 below.

**TABLE 6**  
**The Role of Income in Determining Uptake of Medical Insurance in Kenya**

VARIABLES	Empirical results
Natural log of income	0.008*** (0.001)
Natural log of age	0.031*** (0.004)
Mobile	0.004 (0.004)
Residence	0.005* (0.003)
Primary Education	0.026*** (0.005)

Secondary education	0.027*** (0.005)
Tertiary Education	0.046*** (0.006)

*Source: Author (2024)*

**TABLE 7**

**The Role of Income in Determining Uptake of Medical Insurance in Kenya Continued**

University Education	0.070*** (0.006)
Married	0.007 (0.005)
Widowed/Divorced	0.004 (0.003)
Observations	20,863

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Source: CBK FinAccess data 2021*

This study employs logistic regression to investigate the relationship between insurance uptake and independent variables. The regression analysis results show a direct proportion between insurance uptake and monthly income ( $\beta = 0.008$ ,  $***p < 0.01$ ). This pinpoints that when income increases, the likelihood of an individual to take the medical cover increases by 0.8 percent. Various studies have shown a positive and significant relationship between income and health insurance uptake in Kenya and other countries. Ng'ang'a (2021) noted that income levels had a positive and significant effect on health insurance ownership. This means that higher income increased the likelihood of individuals purchasing health insurance. On their part, Zweifel and Manning (2000) found that income is positively related to the demand

for health insurance. As income rises, so does the opportunity cost of ill health, making health insurance more affordable and attractive.

The association between insurance uptake and age shows similar trends of a positive relationship between the two variables. The regression output shows that when the age of an individual is increased by one year then the likelihood of an individual to take the medical cover increases by 3.1 percent. The distribution of the age bracket in terms of insurance uptake indicates that majority of young people are not covered with medical insurance. In terms of life expectancy, young people are less vulnerable to diseases as compared to old people. This implies that majority of people who take medical cover are older people. Targeted educational campaigns can stress the importance of early insurance enrollment. Responsibilities such as career, family, and financial planning intersect during this life stage. Some people prioritize insurance, recognizing its value, while others delay enrollment due to competing priorities. Life experiences highlight the importance of protection, making insurance policies akin to heirlooms. Gender differences do not play a big role in insurance uptake. While gender does not significantly affect enrollment, targeted outreach can address any disparities that may arise.

The relationship between education and medical insurance uptake indicates a positive relationship, with those of higher learning showing more likelihood of taking the cover. From the regression output, compared to those with no education, individuals who completed primary education are 2.6 percent more likely to enroll for medical insurance. Those with secondary education are 2.7 percent more likely to opt for insurance than those with no education. Similarly, people with tertiary and University education are 4.6 percent and 7 percent more likely to enroll for medical insurance than those with no education. These outcomes signify that education plays a significant role in the decision of an individual to enroll for insurance uptake. Institutional Theory suggests that an institution plays a

significant role on individuals' decisions regarding health insurance. It states that the formal and informal rules, policies, and norms of NHIF play a significant role in shaping the behavior of individuals in Kenya towards health insurance uptake (Scott, 1995; Meyer & Rowan, 1977). The data indicates that those with higher learning are more likely to take insurance cover as opposed to people with less education. This is shown by the higher coefficient for those at university level as compared to those who finished tertiary, secondary, and primary.

The regression output shows that there is a positive correlation between insurance uptake and marital status. From the regression analysis, people who are widowed or divorced have a 0.4 percent chance of enrolling for medical insurance. On the other hand, those who are married have more chances of enrolling for medical insurance 0.7, as compared to people who are single. Married couples, middle-aged individuals, and those with higher wealth indices are more likely to embrace insurance. The recommendations echo these threads: family-oriented messaging, age-specific products, and affordability considerations. This reveals that those who are married are more likely to take medical cover as compared to the single and widowed.

TABLE 6 also shows the regression results for the relationship between residences. The regression shows that living in town increases the chance of an individual enrolling for medical insurance by 0.5 percent. Additionally, the relationship between residence and medical insurance uptake is positive ( $\beta = 0.005$ ,  $**p > 0.1$ ), implying that when an individual moves from the rural to urban, the probability of them being enrolled in medical insurance increases by 0.52. The findings of this study are consistent with those from the theories on the relationship between geographical location and insurance uptake. The study by Lu & Pas (1999) highlights that effective transportation systems can enhance access to NHIF enrollment centers and healthcare facilities, making it easier for people to engage with

insurance programs. Investments in public transportation and infrastructure developments can thus play a crucial role in supporting higher enrollment rates in areas with limited geographic accessibility.

Mobile money provides an easy means to pay medical insurance premiums thus incentivizing its uptake among rural people that are mainly outside of formal employment. Although the results of the study showed a positive relationship between Mobile money and enrollment in a medical insurance scheme, the coefficient was insignificant. This implied that mobile money is not an important determinant of enrolling in a medical insurance scheme in Kenya.

#### **4.5 Discussion of Findings**

The study results confirm the widely recognized notion that income levels significantly affect health insurance enrollment. Higher-income households were found to be more likely to enroll in medical insurance compared to their lower-income counterparts. This finding is consistent with previous studies, such as Mugo (2023) and Kirigia et al. (2014), which also established a strong correlation between income and insurance enrollment. Higher income provides individuals with greater financial flexibility, making it easier to afford premiums and absorb the opportunity costs of coverage.

However, the findings suggest that income alone is not enough to drive higher enrollment rates. Despite government efforts to make insurance more affordable, particularly through initiatives such as the NHIF, low-income households remain disproportionately uninsured. This reveals a significant gap in the existing policy framework, as these initiatives may not sufficiently address the broader financial challenges faced by poorer populations, such as unstable income or higher healthcare costs.

The study highlights the important role of financial services in increasing health insurance coverage. Households with greater access to financial institutions, mobile banking,

and credit facilities were found to be more likely to enroll in medical insurance. This finding supports the notion that financial inclusion can significantly expand insurance penetration, particularly in rural and underserved areas where traditional banking services are limited.

This result aligns with the findings of other studies, such as Kirigia et al. (2014), which emphasized the role of financial services in improving healthcare access. However, the study also reveals gaps in the financial system that prevent broader insurance enrollment. A large portion of Kenya's population remains unbanked or underbanked, especially in rural areas, which limits their ability to engage with formal insurance products. Expanding financial inclusion through mobile banking or microfinance initiatives could provide an effective strategy for increasing medical insurance uptake.

Age, marital status, and region emerged as significant social determinants of health insurance uptake. The findings show that older individuals and married individuals are more likely to enroll in insurance schemes compared to younger, unmarried individuals. This supports the idea that life events and increasing health risks as people age encourage greater participation in health insurance programs.

Regional disparities were also observed, with urban households exhibiting higher enrollment rates than their rural counterparts. This is consistent with previous studies, such as those conducted by Mwaura (2019) and Ng'ang'a (2018), which identified geographic and social barriers that impede insurance access in rural areas. These findings suggest that policymakers need to focus on reducing regional inequalities by improving infrastructure and access to insurance services in remote areas.

Despite the existence of government insurance programs such as NHIF and private insurers, coverage remains low. The study found that any form of health insurance as of 2022, a finding that highlights the inefficiencies in the current system, covered only 22 percent of the population. Private insurance remains unaffordable for the majority, while

NHIF, despite being more affordable, struggles with operational challenges that limit its effectiveness, especially in covering informal sector workers.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION, AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter entails a summary of the key findings from the study based on the research objectives. The study aimed to examine the financial determinants of medical insurance uptake in Kenya. The specific objectives were to assess the impact of household income levels on the uptake of medical insurance, to evaluate how access to financial services affects medical insurance enrollment, and to examine the influence of healthcare costs on individuals' decisions to purchase medical insurance. The chapter also provides a comprehensive conclusion based on this analysis. In addition, it offers practical recommendations for policymakers. The chapter ends by highlighting areas that require further research to expand the understanding of the factors influencing health insurance enrollment.

#### **5.2 Summary of Findings**

The study found that household income levels significantly influence the likelihood of enrolling in medical insurance. Individuals from higher-income households were more likely to enroll in medical insurance in relation to those from low-income households. The study established that the affordability of insurance premiums is a key barrier to enrollment, with low-income households facing challenges in reliably contributing. This finding supports the expectation that household income plays a crucial role in determining the ability to afford insurance premiums.

The study findings revealed that access to financial services, such as banking and credit facilities, had a positive impact on medical insurance enrollment. Households with access to formal financial services were more likely to partake in medical insurance schemes.

This is because access to financial institutions assists in payment of premiums, either through savings or credit options. This makes insurance more accessible. On the other hand, households without access to financial services encountered greater difficulties in paying premiums and were less likely to have insurance coverage.

The influence of household income formed a complex dynamic that shaped insurance uptake. Low-income households with limited financial access and high healthcare costs were the least likely to enroll in medical insurance. This highlights the need for targeted interventions. On the contrary, households with higher incomes and better financial access were more likely to enroll, especially in regions with lower healthcare costs. This highlights the need for multifaceted approaches in policy design to address the diverse financial barriers faced by different demographic groups.

Education is a key determinant that plays a major role in shaping insurance decisions. The relationship between education and medical insurance uptake was found to have a positive relationship. Education boosts awareness enriches understanding of insurance benefits, and increases the importance of risk management. Incorporating insurance literacy into school curricula can further advance enrollment rates. The findings of the study highlight that those with higher learning levels are more likely to take medical cover as compared to those with low education. The reason for this is that the coefficient for people at university level is higher than those at primary, secondary, and tertiary level.

Regional disparities influence health insurance uptake. The data from the study shows that majority of the people who are covered (65 percent) are from urban setting, while a small number of people (34 percent) reported that they were from the rural area. Urban areas demonstrate higher enrollment rates, approximately 65 percent, and attributed to better access to insurance providers and awareness campaigns. Conversely, rural areas face barriers related to accessibility, infrastructure, and limited outreach among others. Policymakers should

develop interventions to bridge this urban-rural gap.

In summary, the findings from this study underscore the importance of financial determinants in influencing medical insurance uptake in Kenya. Household income levels, access to financial services, and healthcare costs were all found to significantly affect NHIF enrollment. These results provide valuable insights for policymakers in designing targeted interventions aimed at increasing medical insurance coverage, particularly for low-income households.

### **5.3 Conclusion**

In the comprehensive exploration of health insurance uptake, we examined the complex interplay of financial determinants, regional variations, and socio-demographic factors. The findings highlight the critical role of equity and access, underscoring that health insurance is more than a financial transaction. It is a pathway to achieving equitable healthcare. Income disparities were noted, affecting those who can afford protection against medical uncertainties. As a result, income-sensitive policies are urgently needed to bridge this gap. Education emerges as an influential tool for empowerment, enlightening the path toward insurance literacy. By incorporating insurance education into schools and places of work, we can nurture a generation of informed policyholders who recognize their options, benefits, and rights.

Furthermore, addressing the urban-rural disparities requires targeted outreach and advanced distribution channels. This is because while urban areas shine brighter in enrollment rates, rural regions remain indistinctly lit. Community engagement efforts, tailor-made to the unique needs of rural communities, can help mitigate this challenge. Demographic factors including marital status, age, and wealth were also shown to influence insurance adoption. Those who are married, middle-aged individuals and those with higher wealth indices are more likely to embrace insurance.

To end with, the logistic regression analysis identified income, education, and regional residence as major determinants of health insurance uptake. These findings suggest that policies targeted at increasing health insurance coverage should major on improving affordability for low-income individuals, improving insurance literacy through education, and addressing regional disparities to ensure equitable access to healthcare.

This study emphasizes the importance of addressing the multifaceted factors that influence health insurance uptake in Kenya. By recognizing the significant role of education, income and regional disparities, a one-size-fits-all approach is insufficient for expanding healthcare coverage. Strategies aimed at enhancing affordability among low-income individuals are critical in reducing the financial challenges that hinder access to insurance. Additionally, increasing insurance literacy by targeted education initiatives in schools and workplaces will empower people to make informed decisions about their health coverage.

Addressing the urban-rural divide needs a concerted effort to improve healthcare infrastructure and increase outreach to underserved populations. Tailored interventions that consider the unique needs of rural populations will help bridge this gap and ensure more equitable healthcare access across the country. Finally, a collaborative approach comprising policymakers, educators, and community leaders is indispensable to creating a sustainable system, a system where health insurance is not only accessible but also affordable and understood by all. This will help in advancing the goal of equitable healthcare for all Kenyans.

#### **5.4 Recommendations**

There is a need to develop insurance premium structures that put into account income levels. Subsidies or sliding-scale premiums can enhance affordability for low-income individuals. This can be done by identifying income groups with the lowest enrollment rates and tailoring awareness campaigns to address affordability challenges. In addition, there is need to

integrate basic insurance literacy into educational curricula. Students should be taught about insurance concepts, benefits, and enrollment procedures. Awareness could also be enhanced by leveraging workplaces for insurance education. Employers can organize workshops or provide informational materials to employees. The study also recommends continued awareness campaigns in urban centers. This can be done by leveraging digital platforms, community events, and local influencers, enhancing accessibility through mobile clinics, community health workers, and telemedicine, and simplifying enrollment processes for rural populations. Additionally, NHIF should adopt an awareness campaign targeting regions with low insurance uptake in Kenya.

From the deductions of the study, addressing income disparities is crucial. The expansion of insurance premium structures that consider varying income levels can greatly improve affordability, especially for those in the low-income bracket. Implementing a sliding-scale premium system, would allow more Kenyans to access health insurance. This approach can be boosted by offering subsidies to the most vulnerable populations. This would make health coverage accessible to even the lowest income earners. By conducting research to identify the income groups with the lowest enrollment rates, targeted campaigns can be launched to address affordability challenges and educate these groups on the benefits of insurance.

Education plays a key role in shaping health insurance decisions, making it critical to incorporate basic insurance literacy into educational programs. By training students on insurance ideas, benefits, and enrollment procedures at an early age, they can grow to become informed citizens that comprehend the importance of health insurance. Educational organizations, especially at the secondary and tertiary levels, should incorporate these lessons into their syllabuses to break down insurance for young people. These early preparations will create a generation that is well equipped to make informed financial and healthcare decisions.

Apart from the school system, workplaces also provide a great opportunity for advancing insurance literacy. Employers should be supported to organize insurance education workshops as well as provide informational materials to employees. These efforts can be incorporated into human resource programs and employee wellness initiatives. For those working in both formal and informal sectors, advancing knowledge about health insurance can accelerate higher enrollment rates. Employers can also form partnership with insurance providers to offer customized insurance packages that consider the financial capabilities of their staff. This would make it easier for employees to access affordable coverage.

Urban areas, which exhibit higher enrollment rates, should not be neglected in terms of awareness campaigns. Persistent efforts in these areas can help sustain and even increase insurance coverage. Digital platforms including social media, SMS alerts, and mobile apps should be employed to involve urban populations with accurate information about insurance options and procedures. Community events, partnerships, and health fairs with local influencers can also boost the reach and effect of these campaigns. Additionally, enhancing accessibility to healthcare services via mobile clinics, telemedicine, and community health workers will see to it that urban residents not only enroll in insurance programs but also make use of them.

For those in the rural areas, however, which experience low uptakes uptake, targeted interventions are needed. Streamlining enrollment processes is a critical strategy to boost insurance adoption. The NHIF should make it simply for rural populations to register. This can be done by reducing paperwork and restructuring procedures. Making use of local structures, for instance community leaders and health workers, to publicize information about insurance and assist with enrollment can greatly boost coverage. Moreover, awareness campaigns should be tailored to be region-specific, centering on the unique needs and challenges faced by rural residents. For example, campaigns that highpoint how insurance

can mitigate the financial burden of medical emergencies and chronic illnesses would strongly be accepted in these communities.

In conclusion, NHIF should implement comprehensive awareness campaigns focusing on regions with persistently low insurance uptake. These campaigns should comprise clear messaging on the benefits of health insurance, particularly in alleviating the costs of healthcare for households and individuals. Additionally, working hand in hand with local governments, community organizations, and health institutions will ensure that campaigns reach those who need them most. Educating local health workers as insurance advocates can help boost awareness efforts and build trust in the NHIF program.

Finally, a multi-layered approach is necessary to enhance health insurance uptake in Kenya. By putting more focus on affordability, education, and targeted awareness campaigns, policymakers and stakeholders can mitigate the barriers to health insurance and ensure that all Kenyans have access to quality healthcare coverage.

### **5.5 Limitations of the Study**

This study faced several limitations that must be acknowledged. Firstly, the reliance on secondary data from the FinAccess survey, while comprehensive and nationally representative, restricted the ability to control unobserved variables that could influence the uptake of medical insurance. Consequently, causal inferences may be limited, as the data may not have captured all relevant factors affecting insurance decisions. Secondly, the cross-sectional nature of the survey data constrained the ability to assess changes in medical insurance uptake over time, making it difficult to draw conclusions about trends or causal relationships. Additionally, the study's focus on financial determinants may have overlooked critical non-financial factors, such as cultural beliefs, social norms, and healthcare system perceptions, which could significantly impact insurance enrollment.

Furthermore, the data may have been subject to reporting biases, as respondents might

not accurately disclose their insurance status or financial circumstances. Lastly, while the sample included various demographic groups, there may still be underrepresentation of certain populations, particularly marginalized or hard-to-reach communities, limiting the generalizability of the findings. Addressing these limitations, in future research could enhance the understanding of the complex dynamics surrounding medical insurance uptake in Kenya.

### **5.6 Areas for Further Study**

To further the understanding of health insurance uptake, several key areas warrant further examination. First, behavioral economics insights can illuminate effective strategies. Researchers should explore behavioral factors like social norms that may affect insurance enrollment. This study used secondary data hence behavioral factors may not be possible to collect. The methodology of using primary data allows one to observe the social norms that may deter one from enrolling in health insurance. Moreover, social norms are not easy to quantify in a nominal scale, hence making it difficult to be measured.

Furthermore, behavioral economics can shed light on effective strategies to increase insurance uptake. Researchers should explore how cultural expectations, and individual preferences influence health insurance enrollment. This study could not capture these behavioral factors. Future studies that utilize primary data may more effectively gather insights into these dynamics and explore how social pressures or peer influences deter or encourage insurance enrollment. Behavioral factors are challenging to quantify, making their inclusion in more in-depth studies with primary data crucial.

Beyond behavioral economics, understanding how psychological factors like risk aversion, optimism bias, or health consciousness affect health insurance decisions is essential. Future studies could adopt psychological assessments or surveys to gauge the cognitive aspects of decision-making related to medical insurance, particularly among different income

groups or regions.

Cross-sectional data limits understanding of how insurance uptake evolves over time. Longitudinal studies that track individuals' health insurance decisions across their life stages (e.g., marriage, childbirth, retirement) can provide dynamic insights into how life events and changes in financial status influence insurance uptake. This study's focus on static data could be supplemented with research that assesses how people's insurance preferences and decisions evolve.

This study has identified geographic and regional disparities in insurance uptake, but further exploration is needed to understand the specific barriers faced by different regions in Kenya. Researchers should investigate how infrastructure, healthcare accessibility, and the presence (or absence) of insurance providers in rural areas influence uptake. Additionally, future studies could explore innovative delivery mechanisms like mobile insurance or telemedicine that may bridge the gap in underserved regions.

While this study touched on the role of social determinants (such as age, marital status, and region) in influencing insurance enrollment, more research is needed to delve deeper into how these factors interact with other determinants like education, occupation, and religion. For instance, research could explore how religious beliefs influence perceptions of insurance and the role of community-based insurance schemes in addressing cultural resistance to commercial insurance products.

Given the relationship between access to financial services and insurance uptake, future studies should explore how innovations in financial inclusion, such as mobile money or microfinance institutions, can increase insurance accessibility for low-income populations. Additionally, research could explore the role of fintech solutions in reducing barriers to entry for insurance products, particularly in rural and underserved areas.

While this study touched on the financial determinants of medical insurance, there is a

need for more research into the effectiveness of government policies aimed at increasing health insurance uptake. Future studies could investigate the role of subsidies, public awareness campaigns, and regulatory frameworks in expanding insurance coverage, particularly for vulnerable populations such as the informal sector workers.

In-depth qualitative research, such as interviews or focus groups, could further reveal personal motivations, perceived barriers, and attitudes toward medical insurance. Understanding the nuanced reasons behind individuals' reluctance to enroll in insurance can provide actionable insights that complement quantitative findings.

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