DETERMINANTS OF HEALTH INSURANCE DEMAND AMONG THE MIGRANTS IN KENYA

BY

JOSEPH ABUGA ORAYO

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DECLARATION

I declare that this research project is my original work and that it has not been presented for a degree award in any other university or institution.

Joseph Abuga Orayo Reg. No.: X53/64507/2013

Signature.....Date.....

This paper has been submitted for examination with my approval as the University supervisor

Dr. Moses K. Muriithi School of Economics Signature.....Date:

DEDICATION

This work is dedicated to my Parents Dr. Stephen Orayo Misiani & Mrs. Esther Moraa Orayo

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I would wish to say that the above mentioned individuals are not liable on any errors that may be found in this paper. In case of such errors, I shall remain fully responsible.

ABSTRACT

The Second MTP 2013-2017, outlines important predictable challenges which urgently need to be addressed; high cost of health care and financing and low coverage of health insurance. Accessibility of health care services to the general population is an important objective of the government's national health sector strategic plan and national development agenda as specified in the Kenya Vision 2030 policy framework. It recognizes that health insurance plays a major role in reducing the influence of high costs of health care on the economic wellbeing of its people especially the vulnerable population. Therefore, this paper sought to specifically understand factors behind consumption of health insurance among migrant communities in Kenya. The Kenya Demographic and Household Survey (KDHS) 2008was used to assess the pattern and estimate the determinants of Health Insurance Demand among migrants. Utilizing Binary Probit Regression model, the study found out that age of the migrants, education levels, marital status, religion, access to information and language proficiency were statistically significant factors which determined health insurance demand among the migrants in Kenya while employment status, duration of stay, place of current residence, wealth index and household size were found to be statistically insignificant. From the findings, it is shown that age, education levels, marital status and access to information increased consumption of health insurance services. It was further revealed that migrants who were either Roman Catholic, Protestants, Muslims or those who had some kind of belief including those migrants who were language proficient had low probability of purchasing health insurance. Therefore, based on the study findings, this paper recommends that there is need for creation of awareness through religious groups on the importance of health insurance on improving the livelihoods of the people through access to health care. The insurance industry need to establish the right insurance product for migrants that are recognized and acceptable by this heterogeneous population to enhance more consumption.

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ABBREVIATIONS AND ACRONYMS

CBOs:	Community Based Organizations
G.M:	Grossman Model
GOK:	Government of Kenya
NHA:	National Health Accounts
NHSSP:	National Health Sector Strategic Plan
NHIF:	National Health Insurance Fund
NGO:	Non - Governmental Organization
NSHIF:	National Social Health Insurance Fund
KDHS:	Kenya Demographic Household Survey
KHSSP:	Kenya Heath Sector Strategic and Investment Plan
КЕРН:	Kenya Essential Package for Health
SWAP:	Sector Wide Approach
WHO:	World Health Organization
IOM:	International Organization for Migrants
WHA:	World Health Assembly
MTP:	Medium Term Plan
KNBS:	Kenya National Bureau of Statistics
OOP:	Out of Pocket

CHAPTER ONE

INTRODUCTION

1.0 Background of the study

1.1 Overview of migration

Migration is defined as a form of geographical or spatial movement from one geographical unit to another. Also migration can be defined as a course of moving, either across an international border or within a country. It is a population movement, encompassing any kind of movement of people, whatever its length, composition and causes; it includes the migration of refugees, displaced persons, uprooted people and economic migrants (IOM, 2004). Migration is clearly a major issue across Africa. Indeed, migration – both within countries and across borders – can be seen as an integral part of labour markets and livelihoods across much of the continent for at least the last century. Particularly, people migrate to other countries basically for a good life, marriage, love, employment, education, adventure, psychological reasons, family tree, getting a professional advancement, a better economic situation, cultural stand arts, etc. Immigration to Africa by people born in regions outside of Africa is estimated at round 2.4 million in 2010, which is about 16% of total immigration into the continent, the rest being accounted for by migrants from the region.

Sub-Saharan Africa (SSA) has been a region of rapid population growth (generally above 3per cent per annum) which has stimulated both internal and international migration and spurred urbanization, posing diverse health challenges, especially in urban areas. On the other hand, East Africa continues to be one of the hot spots of major population movements within and out of the African continent. This is due to a multitude of factors including political, environmental and economic. Like most countries, in East Africa, Kenya is host to diverse groups of migrants who commonly include irregular migrants, asylum seekers, labor migrants, economic migrants, trafficked persons, urban migrants, commercial farm workers, internally displaced persons and refugees, refugee claimants, documented residents, undocumented residents and students. Other migrants also include mobile such as sex workers, pastoralists, fishing communities, transporters, civil servants, and uniformed personnel. Kenya also absorbs a variety of migrants and refugees from its neighbours, namely Sudan, Somalia, Ethiopia, Tanzania, and Uganda (IOM, 2011).

However, not all migrants and mobile populations are equally at risk to adverse health as suggested above. It is not people moving that only aggravates poor health, but the way in which they move and the context within which movement takes place (IOM, 2011). However, this has been backed up by World Health Assembly (WHA) 61.17 noting that some groups of migrants experience increased health risks. Taking the aforementioned factors into consideration, other key factors that have mainly attributed to migration within East Africa include; income disparities, separation from family, alcohol use, and a lack of effective prevention programming are driving risky sexual behaviour, and thus HIV transmission, along transport corridors. Despite these challenges, a number of other social factors, such as immigration status, stigma, and language barriers prevent migrants from accessing quality health care IOM, (2011).

1.2 Migration and Migration Health as a Global Phenomenon

Migration is now a global phenomenon, with 3 per cent of the world's population living temporarily or permanently outside their country of origin (World Bank, 2009). However, according to WHO (2010) on migration figures, have a contrary opinion that the numbers reflect an increased global population growth and, in this respect, migration is not a new phenomenon. Migration flows comprises diverse categories of individuals with more complex each with potentially different health determinants, needs, and levels of vulnerabilities. Climate change, urbanization, and expanded trade are likewise driving increased population mobility within and between countries (IOM, 2011).Between 1960 and 2005 the number of international migrants in the world more than doubled, from an estimated 75 million in 1960 to almost 191 million in 2005, according to a report by UN (2005). According to the *World refugee survey* in 2005, it estimated that there were seventeen million global refugees, most of who were hosted by African countries.

The consequences of rising rates of immigration for health services are hardly understood. Health-care provision for the many different migrant groups varies widely from country to country (WHO News, 2008). Perhaps, not surprisingly, among the governments that has worked hard to address health care for migrants are those most familiar with the challenges. Australia, for example, with nearly a quarter of its population born overseas, has a long experience in the delivery of specialized health-care services for migrants. Governments need to find ways on how to improve access to health services for culturally diverse communities. Migrant-health services needed to become socially and culturally inclusive where institutions are reformed on an attitude of social inclusion. There has been little if any emphasis made to check institutions practicing discrimination by simply by failing to include people. WHO News, (2008) holds that instead of focusing on the needs of specific migrants, the emphasis should be made towards improving health care accessible to everyone through health insurance.

1.3 Migration and Health in Kenya

The population of migrants in Kenya has been rapidly rising, yet there is considerable variation in their estimated figures and composition. Not only does this pose a significant challenge for exploring the needs of this population, but this also augments their invisibility and unrecognized contribution to the country. Their non-status situation leaves them and their families with little to no access to health care, education, social services, and legal rights that are basic to promote and protect one's health such as health insurance. In Kenya, these circumstances are poorly understood due to a scarcity of studies that examine migrants' health. To date, there are no sustainable efforts to promote or provide access to services to this population.

There are several challenges and obstacles encountered by migrants and mobile populations in their efforts to access essential health care services. This is due to a number of factors including irregular immigration status, language barriers, a lack of migrant-inclusive health policies, and inaccessibility of services due to inopportune opening times. Such disparities are impacting upon the well-being of migrants, mobile populations, and Kenya as a whole (IOM and WHO, 2011).

Migrants enter a country with their various health profiles, values and beliefs an indicator of the socio-economic and cultural background and the disease prevalence of their community of origin. According to the WHO, exposure to risk associated with population movements also raises migrants' vulnerability to psychosocial disorders, drug abuse, alcoholism and violence. These health characteristics introduced may be different from those of the host community and may negatively impact general health of the host. WHO, (2010) acknowledges that lack of social security and protection for migrants can lead to excessive costs for migrants who may pay out-of-pocket and to the exacerbation and yet preventable health conditions if lower-cost services had been available. Migrants are often excluded from social protection policies for example benefits related to unemployment, pensions, health

insurance programmes and social safety nets like vouchers and food transfers, which can lead to vulnerability/ marginalization and social insecurity. This hinders health and the productive mix of migrants in the just settled community thus showing how policies meant to facilitate access to health facilities, goods and services for migrants among others have been poorly institutionalized. It is important to note from many international agreements signed by Kenya as a country which proclaims health as a right which should be extended to non-citizens and migrants in general (WHO, 2010)

Since migrants are a solution rather than a problem to the society, their access to both social protection and security systems need to be increased due to the existing relationship between economic security and better health status. Studies have shown that better social and economic integration of migrant population with positive contributions in the long run are likely to be bound by the best systems of social support.

1.4 Migrants and Health Insurance Globally

According to WHO (2000), the main role of health financing in any health system is to make funding available, to set the correct financial motivations for health care providers and also to ensure that all individuals have access to both effective public and private health care. Social health protection systems are mechanisms that countries use to address the challenges related to providing access to health care services to their citizens, especially the vulnerable fragments of the population. Despite progress made in promoting the health of migrants and improving health services for migrant populations in some countries (e.g. see Table 1), there are trends that fuel social exclusion of vulnerable migrant groups(for example employment status) and leave their health needs unattended (WHO, 2010). The benefits of extending social protection in health include reducing financial barriers associated with access to health care services and protection from financial catastrophe and impoverishment related to health care expenditures.

As policy makers in developing countries consider social health insurance mechanism (Universal health coverage) as a method for insuring the vulnerable population or high risk population, some lessons are necessary from experienced developed countries. Considering the experiences of Germany, Sweden or the Netherlands on the transition towards universal coverage, private insurance coverage has been transformed, (Greb, et al, 2002 and Edebalak, et al 1999). This is because as the public funding is low, then private insurance as claimed by

Greb. et al (2002) will act as a transitional mechanism, and apart from building capacity, it provides financial protection to certain groups of people. When all these happen, the respective governments allow limited tax revenues which are directed to public goods and vulnerable population. According to Savedoff W and Sekhri N (2004) public coverage in high income countries is mainly used to insure the poor as opposed to the private coverage used as a secondary method preferred by those employed or can afford it to contribute directly to the expenses of health care. From (Table 1) below, there is a big challenge to health financing in the respective health systems in the selected countries. Averagely, it can be observed that majority of the migrants are elderly with a good number reporting poor health status yet health insurance ownership is very low. For example, migrants in Germany, Italy, Greece, Netherlands and Sweden among others record worst health status yet in terms of insurance, those who are fully covered include 3.7%, 0%, 4.7%, 0%, and 1.2% respectively. This is an eye opener to African continent where objectives related to accessing health care and avoiding impoverishment due to direct health care payments by migrants should be recognised from the start so that steady progress towards effective universal coverage across the population can be planned and achieved (Carrin G. et al, 2007).

MIGRANTS IN 11 EUROPE COUNTRIES						
Country	No. of Immigrants	Health status Bad or very bad health	Marital Status (Married)	Insurance coverage (Full coverage)	Age	Occupation (Employed)
Austria	173	37.9%	51.7%	8.0%	66.6	20.5%
Belgium	253	35.7%	67.6%	47.1%	65.1	19.6%
Denmark	59	38.4%	48.6%	4.6%	63.4	37.0%
France	454	49.7%	64.8%	33.7%	63.5	31.5%
Germany	550	55.7%	61.3%	3.7%	66.6	18.4%
Greece	64	54.4%	45.8%	4.7%	68.5	22.0%
Italy	37	41.9%	70.0%	0%	64.7	24.7%
Netherlands	173	49.6%	59.4%	0%	62.7	31.8%
Spain	52	30.9%	64.4%	4.9%	60.9	44.0%
Sweden	250	50.5%	54.6%	1.2%	63.9	37.5%
Switzerland	155	31.5%	66.2%	4.3%	63.5	36.3%

Tables 1.1: Health Insurance ownership among migrants in 11 countries in Europe

Source: SHARE data, 2004 (Individuals 50 and above)

Results from the Survey of Health, Ageing and Retirement in Europe (Solé-Auró Aïda, 2009).

1.5 Categories of Health Insurance in Kenya

Health insurance in Kenya is categorised into private health insurance, public health insurance e.g. National Hospital Insurance Fund (NHIF), Community-based health insurance, No insurance (out of pocket). The measure in which the health insurance is used includes the inpatients and outpatients services.

In Kenya we have both National social security fund NSSF and National Health Insurance Fund (NHIF) which are both public health insurance schemes and non-profit institutions created to provide access to health care. NHIF was created by the NHIF Act in 1966 as a department in the Ministry of Health (MOH). It was mandated to arrange for manageable health insurance for salaried public as well as private sector employees. The members of NHIF contribute a compulsory fee ranging from Kshs. 30 and Kshs. 320 per month, which is primarily low compared to other types of insurance. NHIF operates according to households and the insurance unit comprises the whole family and relatives who are dependent. It is only the breadwinner who contributes to the scheme. In families where two (or more) members are working and earning own salaries, they all have to pay contributions to NHIF. Entitlement to health care services includes all dependent household members. Children under 18 automatically benefit from NHIF through their parents' affiliation. Since its inauguration, NHIF has undergone several changes over the years to incorporate more benefits, target informal sector households, and to introduce outpatient care. However, integration of the expanding informal sector and inclusion of the poor remains a challenge. Even though the NHIF Act confers the fund with the mandate to cover inpatient and outpatient care, coverage extension to non-hospital health benefits has not yet been implemented, a reason likely to motivate informal sector workers' reluctance in enrolling since they might consider that an inpatient cover alone might not be sufficient for their health care needs.

On the other hand, Private health insurance which is provided by the private sector requires members to pay premiums depending on the package they want in the cover. This type of coverage in Kenya has been classified into two categories that is commercial health insurance and self-health insurance. Commercial health insurance is the type of insurance which is profit driven, but with a quest to promote the general health of a people (Government of Kenya, 2003). Self-health insurance is insurance where an organisation creates a pool to pay for the employees medical expenses. People are expected to pay premiums depending on the

expected cost of providing service to them. In this case, the employer provides care directly through employer owned on site health facility or through which the employer relies on contracts with health facilities or through which the employer relies on contracts with health facilities or health care organisations. Private health insurance is for the most part accessible to the middle and higher-income groups (Kimani et al., 2004).

Community-based health insurance fund (CBHIF)is also recognized in Kenya since its establishment in 1999. There are 38 CBHIF schemes, with over 100,510 principle members who contribute for a total of over 470, 550 insured beneficiaries (Kimani et al, 2012). This covers a limited portion of the total Kenyan population whereas the Health Insurance Fund (HIF) is an international not or profit organization dedicated to improving access to quality health care in sub-Saharan Africa, including Kenya. HIF is particularly focussed on both financing and delivery in order to increase access to health care as it recognizes that all elements of the healthcare system (patients, hospitals and clinics, administrative systems, financing, laws and regulations) must be in place to enable the delivery of quality health care. In this health insurance package, comprehensive primary healthcare services as well as limited list of registered and approved medication are covered.

1.6 Review of Health Insurance System in Kenya

According to the Kenya National Bureau of Statistics (2009), at the end of the National census the total population in Kenya was 38.6 million with an estimated population of 46.6% of Kenyans living below the poverty line. Data from National Health Accounts show that only a third of the rich who were ill sought care compared to more than a third of the poor. In Kenya, the private insurance sector is fairly developed. The NHA 2009/10 report showed that in 2009, there were 44 certified insurance companies providing both life and general business insurance with only twenty one were medical insurance providers. Previously, it was estimated that 36% of funds to the health sector came from households and out of these, more than 29% accounted for out-of-pocket expenditure (NHA, 2006/06). These findings raise concern about equity and financial accessibility to health care by vulnerable populations in Kenya result from catastrophic out-of-pocket health expenditure Kimani (2010). Gushulak (2010) also notes that; in locations where health care is provided on a fee for service basis, ability for new migrants to either seek or pay for health care may be limited due to poverty.

Available literature shows that the poor are more likely to get sick, less likely to use preventive and curative health care, and consequently, have higher mortality rates. From these observations, one of the main responsible factors for these challenges manifesting in our countries is high out-of-pocket payments for health care, WHO (2010).

In the Kenya health system financing, the current National Hospital Insurance Fund (NHIF) is in the process of transformation into a universal health coverage program, which will ensure equity and access to healthcare services by all citizens, Carrin, et al, (2007). National Social health insurance has widely gained support and government advocacy as social health protection system/ scheme which has the interest of the poor at the core Evans(2010). However, it is projected to yield high performance in relation to health financing targets which includes sufficient and sustainable resource generation as well as optimal resource use and financial accessibility of health care services which is all inclusive. To realize the impact, evaluation (for details on evaluation and performance see Kutzin, (2001)) shall be undertaken. Among the utilized health insurance schemes in Kenya, the NHIF as the most widely available medical cover in the country has more than 400 accredited hospitals across the country, including Government, Private and Faith-Based. Due to cost considerations on the other hand, private health insurance is mostly accessible to the middle and higher-income groups. Community-based health insurance is relatively new in Kenya having been established in 1999 prompting limited coverage. Unfortunately, with the diverse health insurance schemes mentioned, little consideration/ attention given on utilization levels of these services by migrants in Kenya.

1.7 Research Problem

Health care finance in developing countries is still characterized by the supremacy of out-ofpocket (OOP) payments and the relative lack of prepayment mechanisms such as tax and health insurance, (O'Donnell et al, 2008). Improving health is central to the Millennium Development Goals, and the public sector is the main provider of health care in developing countries including Kenya. Equity and financial accessibility to health care by a majority of migrant community in Kenya, particularly the poor are distressing. Of great concern, migrants are highly vulnerable to random economic shocks that result from catastrophic outof-pocket health expenditure compared to the host IOM(2011). Health insurance, in addition to being justified as a technique for controlling and managing health risks, has helped in placing the insured in a position for accessing health care delivery ahead of an illness. Although migrants, more often than not, use health insurance services differently across countries because they face different acquisition policies in the respective country (Solé-Auró Aïda, et al, 2009). With few exceptions, migration status prohibits access to social supports and services. Indefinite health problems can diminish migrants' ability to maintain productive employment, particularly given that majority of them work in physically spirited environment with high incidence of work-related injuries. Since many migrants lack the protections of health insurance, the cost of even a single hospitalization drives many into debt and financial bankruptcy.

Due to persistent political and social conflicts experienced in bordering countries like Southern Sudan and Somalia, there has been an ever-increasing migrant population in Kenya from the recent statistics. These migrants are likely to be uninsured. According to O'Donnell et al (2008) observes that in case of illness, individuals who lack full health insurance coverage face a risk of suffering large medical care costs. This uninsured risk decreases welfare. It is argued that the out-of-pocket purchase of medical care would upset the material living standards of the migrant. If the health care expenses are large relative to the resources available to this migrant, this disruption to living standards may be considered catastrophic.

Provision of health care for the new flows of migrants places extra burdens in Kenya health system financing as a receiving country. The Second MTP 2013-2017, outlines important predictable challenges which urgently need to be addressed; high cost of health care and financing and low coverage of health insurance. Because of the above imperatives, a better understanding of the determinants to health insurance demand among migrants in Kenya is unquestionable. By combining efforts in addressing the health inequities faced by many migrant communities and health financing systems, this is likely to benefit other vulnerable and or excluded population groups as well as the entire society. Key policy recommendations are provided on the way forward from the findings.

1.8 Research Questions

- i. What is the pattern of health insurance ownership among the migrants in Kenya?
- ii. Are there any other factors that contribute to the health insurance demand among migrants in Kenya?

1.9 The Study Objectives

1.9.1 General objectives

The General objective of the study was to investigate the determinants of health insurance demand among the migrants in Kenya.

1.9.2 Specific Objectives

The research sought to realize the following specific objectives:

- i. Establish the pattern of health insurance ownership among the migrants in Kenya.
- ii. Evaluate the determinants of the demand for health insurance among the migrants in Kenya.
- iii. To draw key policy recommendations from the (ii) above.

1.10 Justification for the Study

As population mobility is one of the defining components of our Century, migration must also be recognized as a social determinant of health. This contributes to health challenges which compromise various issues that are vague and compressing health concerns all of which pose different kinds of problems in a country if unrestrained. These challenges vary from one country to another.

In Kenya, a universal social health insurance scheme has not been fully implemented. However, according to Hakijamii Trust (2007) they argued in their parallel report to the committee on economic, social and cultural rights in Nairobi; that the program is very expensive to implement and financially unsustainable. As plans for implementation are underway, it is very important to have a better understanding of factors influencing/ associated with health insurance demand as suggested by Kimani J. K., Ettarh R and Bellows B, (2010), predominantly among the migrants, as well as assessment of the proportion of individuals without health insurance among this demographic group. The NSHIF is based on the existing NHIF framework and, therefore, such evidence is imperative in order to implement an all-inclusive and effective NSHIF.

Despite the great concern among policy makers and migration researchers about the health insurance coverage on vulnerable populations, research on explanations for the low rate of coverage among migrants is limited. In an effort to build and strengthen Kenya's health system, Fortia J.P (2010) argues that the migrant sensitive health systems and programmes should consciously and steadily focus in including the needs of migrants into all aspects of

health services financing policy as well as planning implementation and evaluation. Finally, the outset of fairness in health finance involves individuals/households being protected against such unnecessary catastrophic medical expenditures (World Health Organization 2000). This study therefore, seeks to add knowledge to the following research question: What are the determinants associated with demand for health insurance among the migrants in Kenya?

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews a number of past studies both theoretical and empirical that have been conducted touching on the topical issue of health insurance demand. The chapter starts with a review of theoretical literatures, followed by empirical literature and finally an overview of both set of literatures is given at the end.

2.1 Theoretical Literature Review

The principal essence of discussing the theoretical literature on determinants of health insurance demand here is either to provoke or motivate an empirical exercise which ultimately will assist in the choice of empirical model(s) that can be employed in our analysis as we endeavour to realize the study objectives. Friedman (1973) suggests that demand for all types of insurance begins from risk aversion. For health insurance, the unpredictability of health care expenditure is a major motivator. With a comprehensive inquiry into the framework of health insurance Cutler and Zeckhauser (2000) show the value from insurance comes from removing the risk of large, normally unanticipated medical expenses. However, the decision to go for a health insurance plan depends on more than just risk adversity.

Migrants are risk takers. Mostly they leave their country of origin for undefined outcomes in an often unacquainted environment/country. According to Chiswick (1978) migrants tend to be young and healthy individuals as economic migrants tend to be favorably self-selected. It is widely known that the illegal migrant populace has less access to the health insurance system and may vacillate to seek health care for fear of being reported to immigration authorities and being deported back as was recently observed during the crackdown at Eastleigh Nairobi. A lack of specific information and human capital accumulation results in confusion including language difficulties and reliance on traditional cures. In addition majority may decide to seek medical care back in their countries of origin. These show that so many other factors cause migrants to shy away from health insurance plans not forgetting the role of the cultural background. However, Bernd et al. (2011) suggest that while we recognize the role of health in the social well- being and economic development, we should also understand that migrants makes fundamental contributions to their host societies instead of being drain only in welfare systems.

Provision of health care packages in the source countries may influence demand for health insurance and thus usage of the Kenyan health services by migrants. Migrants growing up in an environment with ready access to high quality health care are expected to increase the demand for health insurance similar to elderly in a host country. If migrants come from countries with lower quality health care compared to Kenya, the opportunity cost of foregoing treatment in Kenya can be small. It is suggested that migrants are not as risk adverse, have a favorably selected health status, do not benefit much from tax advantages and may be subject to cultural influences different from most of the host population. However, their demand for health insurance especially that does not provide benefits for certain selective medication found in their respective countries of origin will be lower than for the host in Kenya. Demand for health care, as well as health insurance should increase with duration of stay in the Kenya as migrant advances in age, income, family size and also with reduction in informational and linguistic difficulties.

2.1.1 The Prospect Theory

While developing the Prospect Theory, Tversky and Kanheman (1979) demonstrated how people manage risk and uncertainty. This theory is against the proponents of conventional theory as suggested by Milton Friedman and Savage (1948) which argues that consumer purchases insurance because they prefer certain losses to uncertain losses. In essence, this theory explains the apparent regularity in human behaviours when assessing risk under uncertainty. That is, human beings are not consistently risk-averse; rather they are risk-averse in gains but risk-takers in losses. According to Tversky and Kanheman (1979) people place much more weight on the outcomes that are perceived more certain than that considered mere probable, a feature known as the "certainty effect". Peoples' choices are also affected by 'framing effect'. Framing refers to the way a problem is posed to the decision maker and their 'mental accounting' of that problem.

Consumer demands health insurance in order to obtain a transfer of income from the healthy if individual becomes ill. The value maximization function of the Prospect Theory is based on the premise that with health insurance coverage, sick consumer will be able to purchase more of medical care and other goods and services that he would not have otherwise purchased without it. As such, people may make different choices in situations with identical final wealth levels. Critical to the value maximization is the choice of the reference point emphasized by this theory from which gains and losses are measured. Usually, the status quo is taken as the reference point and changes are measured against it in relative terms, rather than in absolute terms. According to Schmidt (2012) from the insurance demand perspective, argues that two reference points i.e. state dependent initial wealth and final wealth after buying insurance are considered. Schmidt claims that the latter reference point gives a realistic explanation of the empirical evidence.

The proposition of this theory blends quite well with the intentions of this study in that consumers actually prefers to own health insurance for uncertain loss compared to certain loss associated with illness (Kahneman and Tverskey, 1979; Tversky and Kahneman, 1981, 1986, 1988). During the period of illness, welfare increases with increase in consumption of health care due to income transfer. Risk preferences in the prospect theory decreases health insurance. Purchase of health insurance has a quid pro quo aspect (Exchange of income when ill with insurance premium when healthy). Hence purchase of health insurance voluntarily makes consumer better off.

2.1.2 Grossman Health Production Model

This model was first proposed and developed by Michael Grossman (1972) and is based on expected utility theory. He established that health care is a both a consumer good as well as an investment good. Healthier people are happier since their welfare is improved and also health care enhances the quality of human capital. The productivity is as well improved since when an individual invests in health care hence the number of healthy days increases for other productive activities. The model investigates on how age, education, health status and income influence the production of health through the demand for health capital. He further outlines specific features that distinguish this kind of demand from other traditional demand approaches: that first, people want health hence they demand medical care inputs to produce it; second, health is not passively purchased from markets but rather it is **produced** after combining time with purchased medical inputs; thirdly, health is a capital good implying that it does not depreciate instantly. In his analysis of human capital theory, he suggests that the consumer apply health inputs as investment in health capital which later not only improves consumer's health but also maintains his stock of capital. This stock of health may grow, remain constant or decline slowly with age or more rapidly with illness or injury (Grossman, 2001). Grossman maintains that the final goal of a consumer is health output demonstrated by healthy days. This final goal dictates how much time and other resources e.g. money to invest in health stock in order to purchase inputs like medical care. Sometimes these inputs may be unaffordable in case of illness. This leads us to appreciate the role of health insurance in enhancing purchase and consumption of more health care.

Health insurance is a derived demand of health. The decision to purchase health insurance is explained by the utility theory. Individuals in this case migrants, will compare the benefits of purchasing insurance with health care expenditures without insurance, given their risk preference motivated by both social and economic shocks. If the benefits of health insurance are greater than the cost (OOP) payments, the household will purchase the plan. The benefits of health insurance are revealed only when individuals become ill; thus, their knowledge and forecast of future health conditions are expected to have a significant impact on their decision to purchase health insurance.

Therefore when expectation of illness is high with associated health care costs, migrants are more likely to purchase health insurance. The decision to purchase health insurance also depends on his/her reactions to risk for example increasing risk aversion also increases the probability of purchasing insurance. In this model the purchase of health insurance as the dependent variable is related to various explanatory variables. Several variables have been found to have an influence in households' or individuals' decisions to purchase health insurance, including access to health care services, quality of services in health care centres, health care expenditures, households' or individuals' income level, education level, age, family size, and number of adults in households.

2.1.3 A Discrete choice model on demand for Health Insurance

This is a standard demand model employed by Marquis and Phelps (1987). They claimed that the demand for health insurance among immigrants, which produces utility, is derived from the following vectors; Risk Aversion (RA), Tax Advantages (TA), expected demand for Medical Care (MC) and Immigrant Influences (I) as potential vectors. The authors assumed that since demand for insurance by immigrants was unobservable and there were no direct measures of these components, they suggested that the observable characteristics were to serve as proxies.

a) Risk Aversion

In the context of health insurance risk adversity is actually a derived financial risk from becoming ill and the unanticipated purchase of care. The expected utility model is useful for explaining most behaviour associated with buying health insurance, (Phelps 1997). Anyone with a utility function concave shaped is risk averse and prefers less risk to more. Most people seem to have concave utility functions given the wide purchase of all sorts of insurance in our society, though the less risk averse will have a straighter curve. Health insurance represents a major expense for much of the population. While we assume that the average person is risk adverse, individuals differ in the amount of risk they are willing to face, or spend to reduce it. Risk adversity clearly varies according to the type of medical care. The higher the demand for insurance, the more financial risk an individual faces and the less price-elastic the demand for care.

b) Demand for Medical Care

This is a derived demand for health. Phelps (1997) provides a good overview of the factors affecting the demand for care. They include the effects of age, gender, income, the value of time and perceptions of modern medicine on the demand for care as you will note.

Young adults, men in particular, are less likely to use medical services. From a biological standpoint, those who are young normally do not need large quantities of individualized health care. With aging, the stock of health decreases, quite rapidly in the late stages of life, so older individuals have a higher demand for medical care. Therefore, access to medical care becomes more important with aging. It was argued further that women utilize more medical services than men (Sindelar, 1982; Wilensky and Cafferata, 1983), indicating a higher demand for care than men. While childbirth is the most common reason for hospitalization, Sindelar notes higher female usage rates persist even controlling for gynaecological and obstetric care. Women are less likely to view themselves as being in good health, and are more likely to initiate and respond to medical treatment (Wilensky and Cafferata, 1983). The more comprehensive and costly insurance plans commonly offered would not appeal to individuals who are unlikely to frequent a physician's office.

c) Tax Advantages

It was suggested that premiums made by employers to purchase health insurance for workers or for workers' dependents, may be deductible as business expenses and hence not counted as part of employees' taxable income. Health insurance in this setting is purchased with untaxed currency, creating a tax advantage to opt into an employment-based insurance plan. This subsidy reduces the price of insurance, more so for those with high incomes as the advantage rises with the marginal tax rate. Unsurprisingly, group insurance has become a popular employee fringe benefit. Purchasing power gives big companies more weight with insurers. Large companies enjoy economies of scale hence lower health insurance prices. Lastly, the number of employees in large firms practically eliminates adverse selection problems since risk decreases with size. In the Kenyan health system financing, the government is focusing on the national social health insurance fund with pool of Kenyans from all walks of life.

d) Immigrant Influences

Immigrants are risk takers who leave their home country for uncertain outcomes in an often unfamiliar environment. It is claimed that recent immigrants tend to be young, low-income workers who will not reap marginal tax advantages, as they lack many of the characteristics associated with higher wages. They are probably, on average, healthy individuals as economic migrants tend to be favourably self-selected (Chiswick, 1978). The illegal immigrant population has less access to the insurance system and may hesitate to seek medical care for fear of being reported to immigration authorities. A lack of specific information and human capital accumulation results in confusion including language difficulties and reliance on traditional cures. In addition a lot of immigrants make regular trips home; so many factors cause immigrants to shy away from insurance plans.

While information problems and limited access to health care surely explain some of the disparities, cultural background may play a role. Source country health programs may influence demand for health insurance and usage of the Kenyan Medical system. Migrants growing up in an environment with ready access to high quality health care should increase the demand for health insurance as an adult living in a host country. If migrants come from countries with lower quality health care compared to Kenya, the opportunity cost of foregoing treatment in Kenya can be small.

Thus immigrants are not as risk adverse, have a favourably selected health status, do not benefit much from tax advantages and may be subject to cultural influences different from most of the host population. Immigrant demand for health insurance (which generally does not provide benefits for some selective medicine found in their respective countries of origin) will be lower than for the host in Kenya. Demand for care should increase with duration in the Kenya as individual's advances in both age, income, family size and also experience fewer informational and linguistic difficulties.

2.3 Empirical Literature Review

Ballestas (2008) investigated migrant workers who participated in self- imposed health disparities using US Census Bureau data and revealed out that Mexican immigrants do not benefit from health coverage, social security or disability benefits. It is estimated that 6.9 million or 77% of immigrants do not own health insurance. Further, she noted from census that more than 600,000 children are born to immigrants who lack health care insurance. This, she claims is a great concern and a threat to the health care system. The population without health insurance was increasing steadily placing a heavy demand on an already taxed health care system. Some of the major barriers claimed to contribute include language barriers hence unable to live well within the community and thus unsure of the available health care services. This demonstrates the difficulties faced by the migrants in access to complementary health insurance despite the fact that it is considered as essential to maintain access to healthcare among the most underprivileged populations. She concludes that an unfavourable socioeconomic situation may be an explanatory factor in the higher rate of healthcare foregone among certain groups of immigrants, financial difficulties being one of the primary reasons for healthcare foregone.

Wagstaff and Pradhan (2006) established that the introduction of social health insurance in Vietnam during the 1990s decreased out of pockets (OOP) and catastrophic health spending, while utilization increased and improving health outcomes. They argue that by reducing financial risk, households had to rely less on coping mechanisms such as savings. Therefore health insurance can be effective in increasing utilization and reducing OOP health spending, (Sparrow., et al., 2010). For rural China, Wagstaff et al., (2009) find positive effects of a voluntary health insurance scheme on the use of health services between 2003 and 2005, but find no effect on Out of Pocket expenditures. Moreover, Wagstaff and Lindelow (2008) show that, in urban China, health insurance has in fact increased OOP and catastrophic payments, which they attribute to a combination of increased utilization and behavioural responses by healthcare providers.

Yellaiah and Ramakrishna (2012) in their study of health insurance demand in India applied the logit model and found that the determinants of demand for health insurance in Hyderabad are occupation, income, health expenditure, and awareness on health insurance scheme. These variables influence health insurance significantly. The variables such as age, education, and age square are statistically not significant though they had expected signs. Therefore occupation, income, health expenditure, and awareness on health insurance scheme play a vital role in determining of health insurance schemes. However, they suggested that to include some more variables and to draw stronger conclusions, perhaps, a larger sample is needed.

Fronstin, et al., (1997) examined characteristics of private health insurance coverage among working male Mexican-Americans, Puerto Ricans and Cuban Americans. They employed a linear probability model of the odds that an individual has private insurance, followed by a decomposition analysis. From their models, they found out that 22-31% of the variation in coverage of the three groups. Older married men are more likely to have coverage. They established that education level has little effect on coverage for Puerto Ricans and Cuban-Americans and coverage probability is higher for full-time, white-collar workers in large firms. Regional differences also appeared important for Mexican-Americans who are concentrated in California and Texas where coverage is lower in general. All other things equal, they suggested that Mexican-Americans are less likely than their Hispanic counterparts to have private insurance due to lower wages/incomes, a younger workforce and industry choice. This implies for a need of a comprehensive and long-term perspective at issues of health insurance and health care provision.

Cooper and Schore (1997) inquired into the decrease in employer-based health insurance coverage from the late 1980s to mid-1990s. While access to coverage increased for most workers, excluding Hispanics, acceptance of work-based insurance declined. Cooper and Shore found that those choosing employer plans tend to be over the age of 25, non- Hispanic, high earners, and working for large firms. They conclude that the slack in employer-based take up is due to falling real incomes, a dramatic increase in health insurance costs, a large rise in employee contributions and the expansion of Medicaid coverage.

Perry and Rosen (2001) analysed how the self-employed differ from wage earners in health insurance coverage and health status. They used data from the Medical Expenditure Panel Survey in 1996. A probit model was employed in estimating the probability of having a self-classification of "healthy" as a function of being self-employed and various demographic variables. Measuring health status several ways, they found wage earners and the self-employed to be statistically indistinguishable from one another. They claim this result is not due to self-selection on the part of healthier individuals into self-employment. Though the self-employed are 25% less likely to have health insurance, Perry and Rosen argue that the lack of worse health outcomes for the self-employed means policy concern for this group is unwarranted.

Gruber and Poterba (1994) investigate the demand for health insurance among the selfemployed in light of the tax reform Act of 1986. They employed probit model and difference–indifference techniques. The Act allows self-employed individuals to claim a tax deduction of 25% of their health insurance expenditures. They claim that demand is a function of income, socio-demographic characteristics and the tax code. These researchers focus exclusively on the latter where they found that a 1% increase in the cost of insurance coverage reduces the chance than a self-employed household is insured by 1.8%.

Fronstin (2000) argues that employment characteristics are the most important determinants of having health insurance coverage; that individuals who are not insured tend to have several characteristics in common. A good portion is claimed, of the un-insured individuals lack U.S. citizenship. Non-citizens, of whom 45% are un-insured, compared to 16.5% of Americans, tend to have lower incomes, less workforce attachment and work for small companies. The findings further suggested that one-third of the workforce in that country is employed in wholesale and retail trade where 41% of them are not insured. Low-income workers are less likely to have health insurance due to less disposable income, less workforce attachment and employment in industries with low coverage rates. Single adults, usually without children, are more likely to lack health insurance than other family types. Workers who are young are insured at a lower rate than older workers, because they have less labour force experience, attachment and possible low demand from a perceived lack of need in youth.

Johnson and Crystal (2000) describe the current system as "the worst of both worlds:" unequal access to regular care with the large costs from serious illnesses shifted to taxpayers.

Their research on coverage at midlife shows that the uninsured avoid out-of-pocket costs by using few health services unless seriously sick, when they turn to a charity safety net. Conversely, Levy (2000) finds severe financial consequences for those without insurance who become seriously ill, and, unlike the insured, often deplete their household assets to pay for care.

Clancy and Stryer, (2001) suggests in their study that Asian-Americans have different expectations and worse primary care outcomes relative to other major racial and ethnic groups. They claim that many Chinese rely on their own traditional practitioners and turn to modern medicine for short-term relief. Whereas Hispanics tend to be concentrated in occupations with low health insurance coverage rates and lives in parts of the country with lower Medicaid enrolment.

Kirigia, et al., (2005) applied the logistic regression model in establishing whether demographic, social and economic factors influence health insurance ownership. They used the 1994 South African health inequalities survey. They found out that age, household size, education, marital status, income, employment/occupation were significant factors determining whether one purchases health insurance or not among the South African women. They also suggested that alcohol use and environmental factors also contributed as well to health insurance ownership.

Gustafsson-Wright, et al., (2013) suggests that health insurance lowers out-of-pocket health expenditures on chronic illness, improve the prevention and control of chronic disease and reduce lost income due to inability to work. From their study, the descriptive results unanimously support the theory that chronic disease poses a financial burden as well as other factors such as age, sex and education may be of influence. In their measurement of the burden of chronic diseases on households in Tanzania and Kenya, they show that there is a positive correlation between average OOP health expenditure and chronic disease and reveals that the higher prevalence of chronic disease is in the Kenya sample. Their study therefore sheds more light on the potential burden that chronic disease may have on households and the potential for health insurance to mitigate this burden. According to their findings, individuals with chronic disease have higher out-of-pocket expenditures on health than those without a chronic illness.

Bernd, et al. (2009) suggests that migrants with non-communicable disease seem to have a lower risk of cancer, but a higher risk of diabetes. This followed their study of migration and health in the European Union where they claim that migrants also have specific vulnerabilities in terms of communicable disease. They further claim that migrants may come from high-prevalence countries where health systems are weaker and rates of communicable disease (like HIV/AIDS, Tuberculosis, Hepatitis among others) are generally higher. Migrants, according to these researchers, are generally at higher risk of occupational injuries which translates to high costs for seeking medical care, characteristics increasing the likelihood of purchasing health insurance.

Takeuchi et al, (1998) applied a logistic model in their study where they found out that marital status, length of stay (duration of stay) in the united states, education, employment status, and household income as significant factors associated with purchase of health insurance among Chinese Americans in Los-Angeles.

Boating and Awunyor-vitor (2013) employs logistic regression model in assessing factors that influence household to take up and utilize health insurance services and renewal. They use a household level cross sectional study which is was conducted in the Volta region of Ghana with a total of 300 respondents randomly sampled and interviewed. The study suggests that marital status (unmarried or single respondents had low rate of utilization of health insurance and high enrolment rates by divorced or widowed respondents), religion and perceived health status had significant association with national health insurance scheme policy uptake. Education was significant factor whereby majority of those who were educated had health insurance compared to those who have no formal education. The study further assesses the influence of religion and it is found that more Christians are being enrolled compared to Muslims and it is significant factor with a p-value of 0.046. Finally, it is suggested that females are more likely to renew their health insurance compared to males.

Kimani, et al.,(2010) using Kenya Demographic and Household Survey KDHS (2008/09) conducted a study which analysed the determinants of health insurance ownership among women in Kenya. The bivariate and multivariate logistic regressions are employed in their analysis to describe the characteristics of the sample and to identify factors associated with health insurance ownership. The results establishes that only 7% of the women have health insurance and among these, a higher proportion are covered by employer-based health

insurance (4%), while less than 1% are covered by community-based health insurance (CBHS) schemes. Many of the women are unemployed while 30% and 25% are employed in the informal and formal sectors, respectively. In the multivariate analysis, the study results reveals that a number of factors are significant determinants of health insurance ownership including marital status, education, age, gender of household head and household wealth status. However, geographical region is also associated with a lower probability of having health insurance.

Kiplagat (2011) investigates and analyses determinants of choice of health insurance schemes available to Kenyans. The study employed multinomial logistic model using Kenya Demographic and Household Survey 2008/2009 data set. The study found out that wealth index, education and employment status are statistically significant in determining the type of health insurance scheme owned. On the other hand, the study revealed that larger household size as being associated more with social security fund and mutual health insurance schemes while smaller households associate more with private health insurance schemes The study further suggests that females are more likely to own health insurance cover compared to their male counterparts and that the uptake of health insurance increases with age which has statistically positive effect.

2.4 Overview of the Literature

Studies conducted in different countries on health care insurance show that, migration status has significant impact on households' demand for health insurance. Low income levels, age, employment status, small size of economic units, seasonal characteristics and types of employment and activities, and the lack of adequate information on health insurance are among the main barriers to health insurance development in rural as well as urban areas. However, there is contradiction between studies done by Yelliah and Ramakrishina (2012) who finds age not a significant factor and Kirigia, et al., (2005) who finds age to be very significant factor determining ownership of health insurance in India and Kenya respectively. The empirical literature has paid a particular attention to a given migrant coverage patterns as this group is over-represented among the uninsured. Recently (2014), the government of Kenya undertook a major operation in Eastleigh, Nairobi county and deported a good number of undocumented migrants to their countries of origins, which were most likely uninsured. This was well noted by Ballestas (2008) that many migrants who come to the country to work, lack expendable funds to purchase health services since their earnings are meagre and

well below that of poverty level. The demand for health insurance as it is suggested on the other hand depends on risk aversion, demand for health care, tax advantages and migrant influences, as theoretically illustrated by Phelps (1997).

Most studies we have reviewed (Perry and Rosen, 2001; Kiplagat, 2011) have heavily utilized probit and multinomial logit regressions that control for a rich set of economic, demographic, and migrant-related variables reveal that migrants are consistently less likely to be insured than the host population. In addition, work-related characteristics, particularly firm size, as well as personal income, marital status and nativity are termed as important coverage indicators for most of the samples (Ballestas, 2008). They further suggest that longer duration in the receiving country and citizenship positively affect migrants' coverage rates not forgetting the type of health insurance scheme. The existing studies are exploring cross country survey on the need for health insurance on mitigating burden of chronic illness; however, no country specific studies available in Africa focussing on the perception of chronic conditions of demand for health insurance among the migrants.

There are several studies among several issues regarding health insurance in Kenya, Kiplagat (2011) and Kimani, et al (2010). However, literature focusing on the determinants of participation in any health insurance scheme in Kenya and Africa by migrants in general is limited. Also there are very few such studies using national survey data set and involving appropriate econometric models. There is no such empirical study conducted in Kenya including the wider African continent, particularly, focusing the migrants forming part of the population affected by policies related to health financing. This study is an attempt to fill this gap.

CHAPTER THREE METHODOLOGY

3.0 Introduction

This chapter describes methods utilized to operationalize the study to unlock the migrant paradox to acquisition of health insurance in Kenya. The specific areas included are; analytical framework, econometric model, model specification, definition of variables and their measurements, diagnostic tests and data source.

3.1 Analytical Framework

The theory of consumer demand has been used as the basis for our study. According to Pindyck and Rubinfield (2008) they observe that individual demand curve under the theory is related to indifference curves preferences and budget constraints. On the other hand, the theory states that consumers allocate income among various goods and services with a concern of welfare maximization.

Suppose that a household maximizes his utility function illustrated below;

$$U = f(H, C)$$

Where; U is the utility of the household.

C is the consumption goods.

H is the health of the migrant.

This utility function is maximized by the household subject to a budget constraint and health production function, which depends on market purchased inputs e.g. paying for a gym, health insurance services in order to acquire more medical services.

The following is the expression of the budget constraint;

$$P_i I + P_j J + P_c C = Y$$

Where; P_i is the premium paid in order to acquire Health Insurance Services

 P_i is the price of other market inputs e.g. payment to access gym services.

 P_c is the price of consumption goods.

Y is the household income.

The health production function (H) is given by;

$$H = f(I, J, K)$$

Where J includes both migrants predisposing and enabling factors for instance; age, duration of stay, marital status, accessibility, information, quality etc.

2

1

3

We can use equation 1, 2 and 3 above and then develops the following langrage function below;

$$L = f(H,C) + \gamma_i (Y - P_i I + P_j J + P_c C) + \gamma_2 (H - f(I,J,K))$$
4

When we solve equation 4 above, we generate the following reduced demand function for health insurance among the migrants;

$$D_I = f(P_i, P_i, P_c, Y, K)$$
5

Where

 D_I is the demand for health insurance services, while P_i , P_j and P_c and Y and K are as defined earlier.

3.2 The Econometric Model

3.2.1 Probit model

In analysing the determinants of health insurance demand among the migrants in Kenya, this study employed binary probit model with predictions which lie within the limiting interval (0,1). Our main concern is to interpret the dependent variable as the probability of either choosing to purchase health insurance or not given other explanatory variables.

We assume that there exists a linear relationship between the latent variable y^* and explanatory variables (X_i). The structural model illustrates

$$y^* = X_i \beta + \varepsilon \tag{6}$$

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

 X_i is a vector of explanatory variables

 β is a vector of parameters to be estimated

 ε is error term

Also let the following measurement equation link the latent variable y^* and the observed binary variable y:

$$y = \begin{cases} 1 & if \qquad y^* > K \\ 0 & if \qquad y^* \le K \end{cases}$$
 7

Where y_i = is the probability of being covered by health insurance

(1 if covered by health insurance, 0 otherwise

K is the threshold point/ cut off, critical level of the index y^* beyond which the individual will purchase health insurance.

The probit model is designed as mentioned earlier to determine the individual's decision to purchase health insurance. We had assumed in equation 1 that individual's decision to purchase health insurance depends on an unobservable/incalculable scale index y^* (represents the extent/degree of his/her desire to purchase health insurance but determined by various independent variables X_i). The indexes y_s^* are assumed to be random, continuous and normally distributed;

$$y^* \sim N(\varepsilon_{y^*}, \delta_{y^*}^2)$$

How can y^* relate to the actual decision to purchase health insurance? (See equation 7). Since the probit model assumes that y^* is random, continuous and normally distributed with the same mean and variance as K, it is possible to estimate parameters β_s and get some information about the index (see Mukras, 1993). The probability that $y^* > K$ or $y^* \le 1$ can be computed from cumulative distribution function (cdf).

In our probit model, we assume that the errors follow a standard normal distribution $\varepsilon \sim N(0,1)$ with a resulting probability distribution function (pdf) as follows;

$$\phi(\varepsilon) = \frac{1}{\sqrt{2\pi}} e^{-\frac{\varepsilon^2}{2}}$$
8

Given the normality assumption, we can define the Binary Regression Model (BRM) as suggested by Green (2002) to transform $X\beta$ into a probability. When specifying the BRM, we shall make the following three identifying assumptions;

$$K = 0$$

$$E(\varepsilon / X) = 0$$

 $Var(\varepsilon / X) = 1$ for the probit model

From equation 2, we shall assume that K=0, and show that y = 1 when $y^* > 0$, we will have the following expression;

$$pr(y = 1/X) = pr(y^* > 0/X) = pr(X\beta + \varepsilon > 0/X)$$
9

For a symmetric distribution of the error term, it can be shown that;

$$pr(y = 1/X) = pr(\varepsilon > -X\beta/X) = pr(\varepsilon \le X\beta)$$
 10

Since this is the cumulative distribution function (cdf) of the error distribution evaluated at $X\beta$, we can write the following equation;

$$pr(y = 1/X) = F(X\beta)$$
11

The equation 11 above tells us that the probability of purchasing health insurance by an individual given the values of the explanatory variables *X* is the cumulative density function evaluated at $X\beta$. Note that, initially we chose F to be standard normal. Our probit model is given by the cumulative distribution function (cdf) as illustrated in equation 12 below;

$$pr(y=1) = \Phi(X\beta) = \int_{-\infty}^{X\beta} \frac{1}{\sqrt{2\pi}} e^{-\frac{t^2}{2}} dt$$
 12

The probabilities can therefore be interpreted without concern about the arbitrary assumptions that is made to estimate the model. We can go ahead to interpret changes in the probabilities. The estimates represent the impact of a one-unit increase in the independent variable on the inverse of the normal cumulative distribution of the odds of having health insurance, not on the probability of having insurance itself. Resulting coefficients are used primarily to determine sign and statistical significance. In order to evaluate magnitude and economic significance, results are also being reported as predicted probabilities. An increase in any of those variables spontaneously impacts on health insurance policy ownership, holding other factors constant.

3.3 Specification of the Model

The Multivariate regression model for health insurance demand is represented as shown; HID=f (MS, HD, HM, RC) 13 Where MS=Migration Status, HD=Household Demographics, HM=Household medical and insurance related variables and RC=Rural Characteristics. Therefore, our multivariate equation shall be expressed as; $HID_{ij}=\beta_0+\beta_1AG+\beta_2SEX+\beta_3EDU+\beta_4MSTAT+\beta_5FAMSIZE+\beta_6$ LANGPRO $+\beta_7$ WLTH $+\beta_8 EMPSTAT + \beta_9 DSTAY + \beta_{10} ACCESTOINFO + \beta_{11} PCR + \beta_{12} REL + \mu$ 14 Where HID_{ii} = Health insurance demand by an migrant from country i living in country j (Kenya) AG= Age of the migrant SEX= Gender EDU= Education MSTAT= Marital status FAMSIZE = family size EMPSTAT= Employment status ACCESSTOINFO= Accessibility to health information

PCR= Place of current residence/region

REL= Religion LANGPRO= Language proficiency DSTAY= Duration of stay in the country as a migrant WLTH= Wealth level $\mu = error term$

3.4 Definition, measurement and expected signs of variables

Table 3.1: Definition, Measurement and expected sign of variables

Variables	Measurement	Expected sign
Dependent Variable		
Health insurance Demand	Covered by health insurance=1 if migrant is covered under any insurance scheme, 0 otherwise	
Explanatory variables		
Age	Age of migrants in years	We expect a positive sign on insurance coverage. Grossman (2010) argues that the perceived and actual demand for medical care increases as one grow older, Fronstin, et al., (1997) and Kirigia, et al., (2005) who finds age to be significant.
Education	No Education; 1if (Yes), 0 if (No) Primary level, 1 if (Yes), 0 if (No) Secondary level, 1 if (Yes), 0 if (No) Tertiary level, 1 if (Yes), 0 if (No)	We expect a positive sign for those who are educated (Kiplagat 2011). More years of schooling are associated with higher salaries and a higher value of time. Demand for care may be higher for the more educated who may possess a better understanding of modern medicine and the intricacies of insurance, or lower if the educated are more efficient in protecting their stock of health Kirigia et al (2005).
Wealth index	Wealth quintiles;1 if poorest, 2 if poorer, 3 if middle, 4 if richer and 5 if richest	We expect a positive sign to those migrants with high wealth indexes. The likelihood of being insured increased as one moves up the household wealth index. Higher proportion of the population in the highest wealth quintile, are likely to own health insurance, Gruber and Poterba (1994).

Employment/Occupational	Occupational status=1 if	We expect a positive sign. See Kirigia et al
status	employed, 0 otherwise	(2005) on employment. Employed
		migrants are more likely to have health
		insurance which may be mostly work
		related compared to unemployed, see also
		Kimani, et al., (2010), Kiplagat 2011 and
		Ballestas (2008).
Marital status	Marital status=1 if	We expect a positive sign if married as
	married, 0 if not married.	suggested by Boateng and Awunyor-Vitor,
		(2013). We use married migrants as a
		reference category. See also Fronstin, et
		al., (1997) and Takeuchi, et al., (1998)
Place of current	Place of Residence= 1 if	Region of residence has also as a
residence/region	urban, 0 if rural	significant predictor of health insurance
		ownership. This variable could capture the
		geographical differential in health
		insurance coverage (Clancy and Stryer,
		2001).We expect a positive sign if migrant
		lives in urban region Kimani, et al., (2010).
		Those who reside in urban areas are
		expected to purchase health insurance
		since they can easily access the facility;
		they have relevant information than their
		rural counterparts, Fronstin., et al. (1997).
Household size	Family size under one	We expect a positive sign by those with
	household head	large family size (Kirigia, et al., (2005).
		Increasing number of children under 18, or
		total size of the family under one head of
		household increases the demand for family
		health care and insurance (Kiplagat, 2011).
Gender	Gender= 1 if female	We expect a positive sign by females
	headed household, 0 if	headed households (Kiplagat, 2011).
	male headed household	Women residing in female-headed
		households are more likely to be covered
		by health insurance compared to their
		counterparts in male-headed households.
		Women have a higher demand for medical
	X 7 0	care.
Duration of stay	Years of stay within the	We expect a positive sign for those who
	country since arrival; 1 if	have stay for a long duration (Takeuchi et
	permanent(7and above)	al, 1998). It is expected that those who
	years and 0 if temporary	have stayed more will understand the

	(1-6) years.	health system better and are likely to have	
	a health insurance cover compared to		
		who have stayed for less period.	
Language Proficiency	Language proficiency: 1	We expect negative sign if migrant do not	
	if migrant can read a	understand English mostly used as an	
	whole sentence, 0 if	official language in the country of	
	migrant cannot read at	destination. It amounts to foreign born	
	all.	characteristics Ballestas (2008).	
Access to information	Access to information =	We expect a positive sign to those	
	1 if possess radio, TV or	migrants who possess radio, TV or reads	
	reads newspapers, 0	newspapers. Frequency of listening to	
	otherwise	radio, watching a television, or reading the	
		newspaper is expected to increase the	
		probability of owning and using health	
		insurance. It acts as a measure of access to	
		information(Yellaiah and Ramakrishna,	
		2012)	

Source: Author

3.5 Diagnostic Tests

3.5.1 Multicollinearity

Multicollinearity is common in cross sectional data. It is present when two independent variables are linearly dependent (if p value is greater than 0.05). Its presence inflates the variance of parameter estimates leading to provision of wrong magnitude of coefficient estimates and signs hence poor and incorrect conclusions. Variance inflation factor or collinearity matrices will be used to check for its presence. If found to be there, one among the correlated variables is dropped, retained if not highly correlated or sample size is increased (Gujarati, 2004).

3.5.2 Normality test

We test the distribution of the error term whereby we apply the Shapiro Wilk test. The null hypothesis states that the error terms are normally distributed and alternative hypothesis states that the error terms are non-normally distributed. If the p value is less than the significant level of 5%, then we reject the null hypothesis (Mukras, 1993).

3.6 Data Source

The study used a household-based secondary cross sectional data which was sourced from Kenya Demographic Household Survey 2008/2009 (KDHS). This survey is usually conducted after duration of five years in Kenya with data meant to provide general crucial information including health condition of the population. The survey collected household information on the childhood place of residence where the respective respondent was asked whether he or she was born in the country of interview. From this response, we were able to break or divide the sample into the host/ native born and migrant group. Migrant respondents also reported their respective years of migration into the country of interview.

Also from the data set, the migrant respondents answered the question whether they owned/ covered by health insurance and the type of health insurance scheme (private, public or other social programs). This response enabled us identify the pattern as well as proportion of migrants covered by health insurance and distinguish between migrants preferring public/private insurance or any other social programs. Cultural and linguistic factors may however influence how migrants perceive and respond to questions about health status, utilization, and satisfaction, complicating how this data is interpreted.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter details analysis exploring the factors behind consumption of health insurance among the migrants and it utilizes Kenya Demographic and household survey which isa national cross sectional survey conducted in 2008/2009 in Kenya. We have used descriptive statistics to assess migrants' varied demographic characteristics while Binary Regression Model (Probit) is employed to realize the stipulated objectives in this study.

4.2 Descriptive statistics

Migrants form a small community of the larger population in Kenya. This is the first time health insurance ownership is assessed in the national survey in an effort to determine health care accessibility. From KDHS 2008, we find that out of 9544 respondents who were surveyed, 2.03% emerged as migrants with a proportion of 72.16% of migrants being women and 27.84% of migrants as men. The proportions of migrants who are covered by health insurance are 25.3%.

We further explore the pattern of migrants and non- migrants with respect to health insurance ownership that is the respective health insurance schemes available. From Table 1 below, we find that the proportion of each health insurance schemes utilized, non- migrants/ host community is dominating. However, we find that migrants who pay out of pocket to assess health care services with respect to their population are more than non-migrants.

Variable	Observation	Mean	Std. Dev.	Min	Max
Health insurance	194	0.2525773	0.4356147	0	1
Commercial based health insurance	194	0.0257732	0.158868	0	1
Employer based health insurance	194	0.1134021	0.317904	0	1
Private based health insurance	194	0.128866	0.3359184	0	1
Out of pocket	194	0.0154639	0.123708	0	1

Table 4.1: Pattern of Health insurance utilization by migrants per scheme in Kenya

Source: Author's Computation Based on KDHS 2008/09

From the Table 4.1 above, we found out that out of pockets payment which most studies have related and termed as promoting poverty through catastrophic health expenditure was found to be 1.55% on average. It was revealed that commercial based health insurance and employer based health insurance was utilized on average by 2,58% and 11.34% by migrants respectively. On the other hand, private based health insurance had 12.89% by migrants in Kenya. However, out of pocket health expenditures had minimal cases by migrants. This could be as a result of availability of other health insurance schemes (Wagstaff and Pradhan, 2006). This increases effectiveness of the rise in utilization of health care services (Sparrow, et al, 2010).

Variables	Observations	Mean	Std. Dev.	Min	Max
Health Insurance	194	0.2525773	0.4356147	0	1
Age	194	30.48454	7.89781	16	54
Education	194	1.572165	1.046805	0	3
Religion	194	0.8041237	0.3979006	0	1
Employment Status	194	0.5206186	0.5008673	0	1
Marital Status	194	0.8092784	0.3938866	0	1
Duration of Stay	194	0.5515464	0.4986226	0	1
Place of Current Residence	194	0.5360825	0.4999866	0	1
Access to Information	194	0.4948454	0.501267	0	1
Language Proficiency	175	0.7428571	0.4383129	0	1
Wealth Index	194	1.350515	0.8879299	0	2
Household Size	194	0.5927835	0.492587	0	1

Source: Author's computation based on KDHS 2008/09

The minimum assessed age of the migrants was 15 years and the maximum was 54 years. Also the survey grouped respondents into five age groups where we assessed those who were covered by health insurance. The mean age of the migrants is approximately 30 years (see Table 4.2 above). However, we further analysed through categorization of migrants into eight different age groups as illustrated by Table 4.3 below. We found that out of 194 migrants surveyed, 74.7% were not covered by any health insurance with the highest proportion of 26.9% falling between 20 to 24 years. On the other hand, out of 25.3% migrants covered by health insurance, the highest proportion of 30.61% fall between 25-30 years while between 20 to 24 years, none of the migrants own health insurance.

Age Group	Without health insurance	Covered by Health insurance	Total
15-19	0.06%	2.04%	4.64%
20-24	26.9%	0%	20.1%
25-29	24.83%	30.61%	26.29%
30-34	0.2%	12.24%	18.04%
35-39	13.79%	26.53%	17.01%
40-44	6.21%	12.24%	7.73%
45-49	1.38%	12.24%	4.12%
50-54	1.38%	4.08%	2.06%
Total	74.7%	25.3%	194

Table 4.3: Age and Health Insurance Distribution among the migrants

Source: Author's computation based on KDHS 2008/09

In this study, we assess marital status of the migrants in relation to the ownership of health insurance. This variable is into four different groups i.e. single, married, divorced and widowed. We find that out of 7.73% of migrant under single status, only 26.7% are covered by health insurance. Out of 80.9% of migrants who are married, 28.7% are covered by health insurance (See Table 4.2) while out of 3.1% of migrants who are divorced; no one is covered by health insurance. Note that, there are no migrants who are widowed.

We considered the place of current residence as a potential factor which can influence health insurance coverage. In the survey, migrants are grouped into urban and rural residents where the former are 53.6% and the latter are 46.4%. We find that urban migrants who are covered by health insurance are 44.23% while those residing in the rural areas forming 55.77%.

Education levels assessed involves highest level of education attained by respective migrant. Table below indicates education levels of the population surveyed with their respective averages. However, in the four categories identified, we have 13.9% migrants with no education, 43.3% have primary education while 14.4% have secondary education and 28.4% have tertiary education. On health coverage, we have only 2% of migrants with no education being covered by health insurance, whereas only 4.1% of migrants with primary level education are covered by health insurance. Those migrants with secondary education but covered with health insurance are 14.3% and migrants with tertiary education having a bigger share of 79.6%.

Variable	Observations	Mean	Std. Dev.	Min	Max
No education	194	0.1391753	.3470249	0	1
Primary education	194	0.4329897	.4967713	0	1
Secondary education	194	0.1443299	.3523332	0	1
Tertiary education	194	0.2835052	.4518655	0	1
~ · · · ·					

Table 4.4: Levels of Education

Source: Author's computation based on KDHS 2008/09

Information pertaining to religious background of the migrants is considered in this study to elicit its contribution in owning health insurance. However, we mainly consider Christian (represented by protestant and other Christians who are majority in the survey) and Muslim migrants. This is in the effort of establishing the influence of religious beliefs on health insurance acquisition. We find that 68.7% of these two groups are Christians and 31.3% being Muslims. Accordingly, 78.3% of Christian migrants own health insurance with only 21.7% of the Muslim migrants covered by health insurance. Overall, we found out that those who have religion were 80.4% migrants whereby only 17.3% purchased health insurance.

On employment status, we established that 52.1% of the migrants are in formal employment with 29.7% of that population being covered by health insurance. On the other hand, those migrants with no formal employment are 47.9% and out of this population, only 37.7% are covered by health insurance.

Since the survey did not collect information on actual income levels of the respondents, we assessed the respective wealth indexes which are in five different groups to illustrate their

relationship with the health insurance consumption. From Table 4.5 below, we have 20.1% forming poorest wealth index, 7.7% of migrants are in poorer wealth index, 9.3% of migrants are in middle wealth index, 10.8% are in rich wealth index while 52.1% of migrants are in richest wealth index. However, we have classified these categories into first; poor (poorest and poorer wealth index), second; middle wealth index and the third is the rich wealth index (richer and richest wealth index). The first category has 1.85% of the migrants in this class covered by health insurance, while in the middle wealth index we have none who own health insurance and in the rich wealth index, approximately 39.3% own health insurance cover.

Variable	Observation	Mean	Std. Dev.	Min	Max
Poorest wealth index	194	0.2010309	0.401808	0	1
Poorer wealth index	194	0.0773196	0.2677889	0	1
Middle wealth index	194	0.0927835	0.2908795	0	1
Richer wealth index	194	0.1082474	0.3114965	0	1
Richest wealth index	194	0.5206186	0.5008673	0	1

 Table 4.5: Wealth Index Levels

Source: Author's computation based on KDHS 2008/09

Duration of stay is one of the assessed factors in determining acquisition of health insurance among the migrants. We made an assumption that those migrants who have stayed or lived in their place of residence for less than seven years as temporary migrants while those who have stayed for seven years and above as permanent migrants. From this assumption, we find that 55.2% of the migrants are permanent migrants and 44.8% of migrants being temporary migrants. Health insurance coverage in these two specific groups is close. Among the permanent migrants, approximately 23.36% own health insurance and among temporary migrants, 27.59% own health insurance.

The number of household members under one household head is assessed as well to illustrate the effect of household size on health insurance coverage among the migrants. This variable has a maximum of 19 household members. We categorized household members into two different groups and found out that 40.72% of the migrants are in the first category of between 1 and 4 household members and 59.28% of migrants form second category of household membership (class) of 5 household members and above. In the first category, 59.2% of migrants are covered by health insurance and in the second class, only 40.8% of migrants own health insurance cover.

Language proficiency was considered and it was found that those migrants who are language proficient were 74.29% out of whom, only 95.8% had health insurance coverage while those who did not understand English language were 22.85% and the proportion that was covered by health insurance was 4.2%. This implies that understanding English language led to more insurance uptake by migrants which may be attributed to the spread of information through language understandable to them.

Finally, we assessed health information distribution where it was found out that about 49.5% of the migrants accessed media through listening to the radio, watching television and reading the newspaper. It was further showed that out of those who accessed media, 40.8% purchased health insurance while 59.2% of those migrants who were not lucky to access any of the above media, purchased any health insurance.

4.3 Diagnostic tests

4.3.1 Multicollinearity

This bias arises when one or more pairs of independent variables are perfectly correlated to each other. To this effect, the Variance Inflation Factors (VIF) and the correlation matrices are examined

4.3.1.1 Variance Inflation Factors

The VIF test measures how much variance of an estimated coefficient increases due to collinearity. In other words, the variance inflation factors are used to determine if any pair of independent variables becomes highly collinear. Therefore, for VIF values greater than 10 and 1/VIF values less than 0.10 Multicollinearity is deemed to be presence.

$$VIF = \frac{1}{1 - R^2}$$

Where VIF= variance inflation factor, R^2 = Coefficient of determination and 1/VIF= Tolerance (Tolerance is the amount of variance of a specified quantity).

From Table 4.6 below, we confirm the absence of Multicollinearity since all variable have coefficients which conform to the requirements stated earlier.

Variable	VIF	1/VIF
Language Proficiency	6.73	0.148652
Education	6.27	0.159481
Age	4.60	0.217459
Wealth Index	3.66	0.273159
Marital Status	3.01	0.332226
Duration of Stay	2.99	0.334049
Employment Status	2.98	0.335266
Household Size	2.69	0.371115
Place of Current Residence	2.05	0.488546
Mean of VIF	3.89	

Table 4.6: Variance Inflation Factors

Source: Author's computation based on KDHS 2008/09

4.3.1.2 Correlation Matrix

This study used a spearman's rank correlation matrix to measure the existing relationship in terms of both magnitude and direction between the health insurance demand among the migrants and the various determining variables and among various independent variables. The strength of the association among these variables is explored whereby strongly and weakly correlated variables are measured by the coefficients close to absolute value of one and zero respectively. The spearman's rank correlation is as shown by Appendix 1 with the significance of association indicated in bold figures.

From Appendix 1, we found out that migrants covered by health insurance are positively associated with all other variables except duration of stay, household size and employment status which shows negative association. Age squared is positively correlated with all other variables but only negatively associated with language proficiency. On the other hand, married migrants are negatively associated with all other variables except with household size which demonstrates positive relationship whereas education levels are positively associated with all other variables except with duration of stay and house hold size which illustrates negative relationship.

The study further revealed that the coefficients of duration of stay correlate negatively with place of current residence, language proficiency and wealth index while correlate positively with household size and employment status whereas place of current residence has negative relationship with household size and positively related with other variables. Household size as well illustrates negative relationship with employment status, language proficiency and wealth index while employment status is positively associated with language proficiency and wealth index as language proficiency exhibiting a positive relationship with wealth index.

From these relationships, there is no Multicollinearity since all coefficients of correlation matrix are less than |0.6| which is a threshold upon which if correlation coefficient exceeds elucidates Multicollinearity. Exploring the significance of the correlation coefficients, we established that most of the coefficients were significant. We found that most relationships were significant however; we singled out insignificant correlation coefficients. We found out that the relationship between the migrants with health insurance and employment status is insignificant at 0.6765. Age and wealth index have insignificant correlation at 0.8466. This study further established that the relationship between married migrants and place of current residence, household size and employment status are insignificant at 0.6345, 0.9925 and 0.3876 respectively. Also, the relationship between duration of stay and employment status is insignificant at 0.4006 and lastly the place of current residence has an insignificant relationship with employment status at 0.1051.

4.3.2 Normality Test

The Shapiro Wilk is used to test for normal distribution of the random error terms. The null hypothesis in this case is that the error terms are normally distributed as;

$H_0: \varepsilon \sim N$

In this study we made use the Shapiro wilk "W" value for each of the variable used in the study to found out which variable had normal data. The Shapiro Wilk "W" test for normality of data has a threshold of 70% for the W statistic, out of which if it exceeds the threshold then data is normally distributed and if it does not exceed, it is said not to be normally distributed. From the Table 4.7below, we found out that all the study variables are normally distributed, although employment status, marital status, duration of stay, place of current residence, language proficiency, wealth index and household size are insignificant. This might be attributed to the way we constructed our variables to allow utilization of the Binary Probit Model(BPM).

Table 4.7: Shapiro	Wilk test for	[•] Normality of the Data
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VARIABLES	OBSERVATIONS	W	V	Z	PROB>Z
Health Insurance	194	0.98038	2.851	2.406	0.00805
Age	194	0.96988	4.376	3.391	0.00035
Education Levels	194	0.98411	2.309	1.922	0.02728
Religion	164	0.97709	2.878	2.407	0.00804
Employment Status	194	0.99969	0.044	-7.157	1.00000
Marital Status	194	0.97223	4.034	3.204	0.00068
Duration of Stay	194	0.99952	0.069	-6.134	1.00000
Place of Current Residence	194	0.99966	0.049	-6.928	1.00000
Access to Information	138	0.95988	4.347	3.317	0.00046
Language Proficiency	175	0.98473	2.028	1.616	0.05304
Wealth Index	194	0.98943	1.536	0.986	0.16197
Household Size	194	0.99861	0.203	-3.667	0.99988

Source: Author's computation based on KDHS 2008/09

4.4 Econometric results

The main objective of this study is to estimate the determinants of health insurance demand among the migrants in Kenya using the probit model. The results from Table 4.8 below reports the probit regressions for health insurance coverage with coefficients associated with the unobserved linear equation described in details in chapter three ($y^* = X_i\beta + \varepsilon$). This implies that the coefficients are interpreted as changes in the probit index. To this effect, we estimated the marginal effects and average effects for continuous and dummy variables respectively. The marginal effects computed for various independent variables shows the change in the probability of being covered by health insurance. For example, as the dummy for marital status changes from zero to one, we observe the change in the probability of owning health insurance cover.

Table 4.8: Probit Regression results of the probability of owning health insurance cover

Robust Health insurance Coefficients Std. Err.Z-statistic								
Education Levels	2.658666	0.4852	5.48**					
Religion	-1.474315	0.4078	-3.62**					
Employment Status	0.0037377	0.6724	0.01					
Marital Status	2.948658	0.8417	3.50**					
Duration of Stay	-0.6746791	0.4586	-1.47					
Place of Current Residence	0.3904089	0.7606	0.51					
Access to Information	1.811759	0.5432	3.34**					
Language Proficiency	-3.852337	0.9307	-4.14**					
Wealth Index	-0.4615946	0.4673	-0.99					
Household Size	-0.282995	0.6743	-0.42					
Constant	-11.13068	2.3992	-4.64**					
Number of Observations =100								

LR chi2(11) = 48.33

Prob> chi2 =0.0000

Pseudo R2=0.7782

Log likelihood = -12.223023

** Significant at 5% significant level (Critical value is 1.96)

Source: Author's computation based on KDHS 2008/09

4.5 Assessing the overall model fitness

We used the WaldChi-Square Tests in determining the overall goodness of fit of the probit model. Table 4.8 reveals that the model fit the data generally well since the p-value of 0.0000 is less than a significant level of 0.05%. The Wald Chi-Square test statistic and p-values for this test is given in Table 4.8 above, together with McFadden's adjusted Pseudo R-squared, which is comparable to the adjusted R- squared in OLS regression. The high value of R-Squared77.82% is not surprise since variables were well identified and actually fitted in the model well. This implies that approximately 77.82% of the variations explain the model while the rest of the variations are accounted for by the error term or variables not included in the model.

Besides, predicting utilization of health insurance services by migrants in Kenya is of course a difficult task, as it is a multifaceted behavioral phenomenon comprising exogenous influences and a regression model may not possibly account for all relevant factors. Note that the Wald Chi-Square test reveals that the study variables are significantly different from zero.

4.6 Interpretation of the Estimation results

Since interpretation of our estimation results relies on the Average marginal effects of the independent variables on the probability of being covered by health insurance, Table 4.9 below presents these effects.

The results show the probability of migrant owning health insurance as a function of a set of explanatory variables. This study first considered factors which are significant that is age, marital status, education levels, religion, access to information and language proficiency. Secondly, those variables which were not significant were observed includes; employment status, duration of stay, place of current residence, household size and wealth index.

Variables	Marginal Effects	Std. Err.	Z-statistic
Age	0.0093636	0.0022308	4.20*
Education	0.1728217	0.0297853	5.80*
Religion	-0.0958351	0.0223349	-4.29*
Employment Status	0.000243	0.0437177	0.01
Marital Status	0.1916721	0.0568065	3.37*
Duration of Stay	-0.0438563	0.0294031	-1.49
Place of Current Residence	0.0253778	0.049114	0.52
Access to Information	0.1177701	0.0337742	3.49*
Language Proficiency	-0.2504141	0.0689572	-3.63*
Wealth Index	-0.0300051	0.0322211	-0.93
Household Size	-0.0183956	0.0445354	-0.41

 Table 4.9: Average Marginal Effects of the Determinants of Health Insurance Coverage

*Significant at 5% significance level.

Source: Author's computation based on KDHS 2008/09

4.5 Further Discussion of the Regression Results

From Table 4.9 above, age is positively related to health insurance ownership among migrants. Increase in migrant age by a year increases the probability of using health insurance services. Therefore, an additional age,(increase in the age) of the migrant increases the probability of purchasing health insurance coverage by 0.94%. This implies that the probability of utilizing health insurance services by older migrants significantly increases by 0.94% holding all other factors constant. This may be attributed to the introduction of a program which involved giving out cash transfers to the elderly throughout the country by the government of Kenya and this may motivate majority of them to enrol in various health insurance schemes. These findings were contrary to the results by Yellaiah and Ramakrishna (2012) who explored health insurance demand in India. They found out that variables such as age, education, and age square are statistically not significant. However, Kirigia et al. (2005) found out that age was a significant factors determining whether one purchases health

insurance or not among the South African women. As one advances in age, the immune system reduces and demand for more health care services increases implying that health insurance assists them by reducing the cost of acquisition as suggested by Grossman (1972).

Migrant's education level has a positive relationship with health insurance ownership. From Table 8, it can be seen that an additional level of migrant's education holding other factors constant increases the probability of purchasing health insurance coverage by 17.28%.

Religion was found to be statistically significant in determining migrant health insurance demand. The negative relationship portrayed implies that if one has a religion (Christian, protestant or Muslim), there is a likelihood that the probability of purchasing health insurance declines by 9.58% holding other factors constant. Religion is associated with foreign born characteristics which may lead to reduction in consumption of health insurance by migrants. This is in line with the suggestions by Boating and Awunyor-vitor (2013) who claimed that religion and perceived health status had significant association with national health insurance scheme policy uptake.

Marital status influences health insurance usage. Married migrants have high probability of utilizing health insurance services. The probability of purchasing health insurance services by married migrants is 19.17% compared to migrants who are not married, if other factors are held constant. This finding concurs with the study carried out by Fronstin, et al., (1997) while examining characteristics of private health insurance coverage among working male Mexican-Americans, Puerto Ricans and Cuban Americans whereby it was found out that older married men are more likely to have coverage. Also it concurs with the findings found by Boating and Awunyor-vitor (2013) who assessed factors that influenced household to take up and utilize health insurance services and renewal in Volta region of Ghana. The study found out that unmarried respondent had low rate of utilization of health insurance and high enrolment rates by divorced or widowed respondents.

On employment status that is considering migrants who are employed and working with those who are unemployed. It can be seen that the probability of utilizing health insurance services will be higher by 0.024% holding other factors constant if migrant is working. This is as per our prior expectation. This may be attributed to the fact that working migrants may be in formal employment where they own employer based insurance compared to self-employed/ informal migrants. Therefore, these findings are consistent with the study

conducted by Perry and Rosen (2001) who found that informal workers are 25% less likely to purchase health insurance cover compared to formal employed workers. This can be backed by the knowledge that with financial stability, health care can be obtained regardless of the cost.

Language proficiency was assessed by our study reveals that holding other factors constant, the probability of purchasing health insurance coverage will be lower for those migrants who understand English by 25.04% compared to those migrants who are not proficient in English language. This variable is against what we predicted earlier where we postulated a positive relationship. This is also contrary to the findings by Ballestas (2008) who claimed that low utilization of health insurance by migrants was contributed by language barriers and thus unsure of the available health care services. This outcome may be as a result of migrants understanding the health system of the country and thus could be able to diagnose simple illness by obtaining medication over the counter instead of seeking health care services from the health facilities.

Duration of stay is negatively related to health insurance utilization by migrants. Migrants who have stayed in the country for seven or more than seven years have a lower probability of owning health insurance cover compared to those who have stayed for less than seven years. The probability of purchasing health insurance by permanent migrants is insignificantly lower by 4.39% compared to temporary migrants holding other factors constant. Permanent migrants may be said to have adapted to the environment (climate) of the Kenya compared to temporary migrants who are susceptible to various diseases e.g. tropical diseases hence utilization of health care services and consequently health insurance coverage to ease accessibility. This study is contrary to the study conducted by Takeuchi et al, (1998) who found out that the length of stay that is duration of stay in the United States as significant factor associated with purchase of health insurance among Chinese Americans in Los-Angeles.

Place of current residence show that the probability of purchasing health insurance by those migrants who are staying in urban areas is likely to be higher by 2.54% holding other factors constant compared to those migrants staying in the rural areas. This variable was found to be statistically insignificant in determining health insurance utilization by migrants in Kenya. Higher utilization of health insurance services in urban areas may be associated with increase

in not only high technological advances but also cost of acquiring health care. These findings were contrary to the findings obtained by Clancy and Stryer, (2001) who found out regional setting was significant factor and that that Hispanics tend to be concentrated in occupations with low health insurance coverage rates and lives in parts of the country with lower Medicaid enrolment. In addition, the findings were further inconsistency with Kimani, et al., (2010) who established that geographical region was significantly associated with a lower probability of having health insurance.

Household size also known as family size also reduces the probability of purchasing health insurance cover. The results shows that large family size under single household head has lower probability of being covered by health insurance. The probability of purchasing health insurance will be lower by 1.84% for migrants staying in large household under single household head compared to small household under single household head holding other factors constant. This may be attributed to the fact that the premiums of relevant health insurance cover for large household sizes may be higher which may discourage purchase and utilization of health insurance. However, household size was found to be statistically insignificant in determining when one utilizes health insurance services. However, from the literature, Kiplagat (2011) found contradicting results while investigating and analyzing determinants of choice of health insurance schemes available to Kenyans. The study revealed that larger household size were being associated more with social security fund and mutual health insurance schemes.

Access to information which involved the frequency of listening to the radio, watching television or reading the newspaper by migrant was considered by our study. This was revealed as a significant factor which illustrated a positive relationship with health insurance utilization. Migrants who had access to mass media increased purchase of health insurance cover by 11.78% holding other factors constant. Mass media created awareness on health insurance schemes available in the country and thus led to utilization of health insurance by migrants. This was in line with the findings established by Yellaiah and Ramakrishna (2012) while studying health insurance demand in India. Considering theoretic assumptions presented above, it can be concluded that that migrants utilize health and that they decide

what type of health insurance scheme to purchase, using the information available to them. This depends on the costs (premiums) for that particular package and the associated benefits.

Lastly, Wealth index was revealed as a variable which although it decreased the likelihood of utilizing health insurance, it was an insignificant determinant of health insurance demand by migrants in Kenya. Migrants in higher wealth index were likely to reduce utilization of health insurance by 3% holding other factors constant. This was inconsistent with the results found by Gruber and Poterba (1994) while exploring the demand for health insurance among the self-employed people and claimed that demand is a function of income and that income was positively related to health insurance and was significant determinant of health insurance demand.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study in relation to the objectives, literature review and key variables in our study. It later makes comprehensive conclusions based on the established relationship between the determinants of the demand for health insurance among migrants in Kenya from which key recommendations are based. Suggestions for further areas of study are captured as a way of filling the gaps identified in the study.

5.2 Summary of the study findings

This study has reviewed two key theoretical literatures and several other empirical literatures relating to migrants that elucidate the need to understand the fear factors and the programs which can be designed in order to meet their needs all in the effort to increase consumption of health insurance services. Since majority of migrants lack health insurance, many are tempted to seek health care only when their health condition reaches a critical point. The study has utilized Kenya Demographic and Household survey (KDHS, 2008) to assess factors associated with usage of health insurance services. Descriptive statistics and Binary probit model have been employed in exploring the characteristics of variables and respectively in estimation process. The study results show that the age of the migrant, education levels, religion, being married, access to information and language proficiency are significant factors that influence purchase of health insurance by migrants in Kenya.

Health insurance coverage indicates the ease at which health care services are accessed implying reduction in systematic variation related to socio economic conditions of migrants rather than need. From the results age of the migrants showed a significant positive association with health insurance utilization among the migrants whereby older migrants had higher probability of consuming more health insurance services. Marital Status (Married migrants) on the other hand contributes to significant increase in usage of health insurance services and had a positive relationship with health insurance ownership. Similarly, utilization of health insurance services is significant and positively related to the education level of migrants. Migrants with higher education levels are more likely to purchase more health insurance services. On the other hand, religion reduces the probability of owning

health insurance cover implying that migrants who have religion less likely to own health insurance cover compared to migrants who do not have any religion.

The results further revealed a negative significant relationship between health insurance ownership with employment status and language proficiency. Utilization of health insurance services is more likely to be lower for employed migrants and language proficient migrants. Duration of stay and household size demonstrate insignificant negative relationship with health insurance ownership while wealth index shows a positive association with health insurance coverage but it is not a significant factor.

5.3 Conclusions

Migrants for a long time have been characterised by social marginalization and thus loss of social networks. This has extended to utilization of health care services which might impact negatively to the kind of work force relied by the country to contribute to economic growth. Therefore, there is need to consider the important factors described as contributing to the decline of health insurance services in order to improve utilization of health insurance services. Basing on our study, we have only two critical factors that is religion and language proficiency which are associated with reduction of the probabilities of acquiring health insurance services among migrants in Kenya.

5.4 Policy Recommendations

Kenya through the ministry of health is in the path of laying down the best and immediate strategies meant to realize its vision 2030. One of them is the development of the second medium term plan of 2013-2017 which outlines the strategies meant to ensure provision of equitable, affordable and quality health care to all groups of citizens who are heterogeneous in nature. As a way of implementation, the government has introduced universal health coverage as a method of insuring high health risk. From the results, there is a need for the government to consider the sandwiched generation of working population that is young population by reducing the cost of the premiums to enable more uptake of health insurance coverage which is utilized more by older generation.

On religion, we recommend to the government to encourage migrants who have different faiths to consider purchasing health insurance services and maybe extend the compulsory health insurance policy which will fit their diverse beliefs. From our findings, it was clearly shown that on overall, migrants who had a religion were 80.4% out of which only 17.3%

purchased health insurance. This implies that the uptake of the product is greatly discouraged by various religious groups. Therefore, as a custodian of the policy, the government need also to consider developing health insurance products which are familiar and acceptable by migrants' diverse faiths including those they understand from their countries of origin.

Migrants who are language proficient can be able to read and understand information relating to the available health insurance services. The government should utilize the available avenues to create more awareness to this group on the importance of seeking health care services from our health facility using health insurances. Since they understand English language, more message need to be passed on the catastrophic expenditure associated with out of pocket health expenditure given health insurance. This may improve and thus increase ownership of health insurance coverage among migrants in Kenya.

5.5 Limitations of the Study

From empirical analysis we suspect the presence of endogeneity which was not accounted for since we had challenge of the scarcity of data as migrants surveyed were few. This may lead to bias of estimated results whereby we can overestimate or under estimate its influence on Health Insurance Purchase by migrants. For example we considered Religion and Language Proficiency as endogenous variables which show a reduction in the probability of owning health insurance. Also this study has been conducted for the first time and thus did not have its comparison and therefore we just utilized the results the same way they were produced.

5.6 Areas for further Study

In this study, we explored howage of the migrants, education levels, religions, access to information, language proficiency, employment status, duration of stay, place of current residence, wealth index and household size determined health insurance demand among the migrants in Kenya and how theyempirically affect patterns of consumption of health insurance services. However, this study did not consider the influence of chronic illness on consumption of health insurance services which is claimed to pose financial burdendespite Gustafson-Wright, et al., (2013) suggesting that health insurance improve the prevention and control of chronic disease which in return reduces lost income due to inability to work. In their measurement of the burden of chronic diseases on households in Tanzania and Kenya, the authors showed that there was higher prevalence of chronic disease in the Kenya sample.

This study therefore, proposes further considerations on the contribution chronic illness to demand of health insurance services among the migrant communities in Kenya.

REFERENCES

Acuna D.L., (2013). Migrants Health, the 61st World Health Assembly Resolution and the Madrid Global Consultation.101st Session of the IOM Council (WHO).

Ballestas, H,C., (2008). Why Migrant workers participate in self- imposed health disparities.

- Bernd, R., Philipa, M., Walter, D., Barbara, R., et al (2011).Migration and health in the European Union. World Health Organization; on behalf of the European Observatory on Health Systems and Policies. McGraw Hill Open University press. New York. Pp 218-224; 246-248.
- Boateng, D and Awunyor-vitor, D., (2013).Health insurance in Ghana; Evaluation of policy holder's perceptions and factors influencing policy renewal in the Volta region. International journal of equity in health 12: 50 also available at http://www.equityhealthj.com/content/12/1/50.
- Carrin G., James, C., Adelhardt, M., et al. (2007): Health financing reform in Kenya Assessing the Social Health Insurance Proposal. South Africa Medical Journal, 97(2):130-135.
- Chiswick, B.R., (1978). The Effect of Americanization on the Earnings of Foreign-born Men. Journal of Political Economy 86:897-921.
- Clancy, C and Stryer, D., (2001). Racial and Ethnic Disparities and Primary Care Experiences. Health Services Research 36:979-986.
- Cooper, P.F and Schore, B.S. (1997). More Offers, Fewer Takers for Employer- Based Health Insurance: 1987-1996. Health Affairs 16:142-155.
- Cutler, D.M and Zeckhauser, R., J.(2000). The Anatomy of Health Insurance. In: Handbook of Health Economics, eds. Anthony J. Culyer and Joseph P. Newhouse, pg. 563-643. Amsterdam, Elsevier.
- Edebalk, Per Gunnar and Jonas Olofsson, (1999).Sickness Benefits Prior to the Welfare State. Scandinavian Journal of History, 24(3/4), pp. 281-297.
- Ermann, D. (1988). Hospital Utilization Review. Past Experience, Future Directions. Journal of Health Politics, Policy, and Law, pp. 683–704.
- Evans D and Etienne C (2010).Health systems financing and the Path to Universal Coverage. Bulletin of the World Health Organization, 88:402.

- Fortia, J.P (2010). Thematic paper: Migrant sensitive health system. Diversity Rx-Resources for Cross Cultural Health Care.
- Friedman, B (1973). Risk Aversion and the Consumer Choice of Health Insurance Option. Review of Economics and Statistics, 56, May: pp. 209–214.
- Friedman, M and L.J Savage (1948). The utility analysis of choices involving risks Journal of political economy; 56, pp. 279-304.
- Fronstin, P.(2000). Small Employers and Health Benefits: Findings from the 2000 Small Employers Health Benefits Survey. Employee Benefit Research Institute Issue Brief No.226.
- Fronstin, P., Goldberg, L.G., and Robins, P.K. (1997).Differences in Private Health Insurance Coverage for Working Male Hispanics. Inquiry 34:171-180.
- Government of Kenya Health Systems 2020 Project (2009).Kenya National Health Accounts 2005/2006. Bethesda, MD: Health Systems 20/20 project, Abt Associates Inc.
- Greb, S., Okma, KGH and Wasem, J., (2002). Private health insurance in social health insurance countries market outcomes and policy implications.
- Grossman M. (1972). On Concept of Health Capital and Demand for Health. Journal of Political Economy, Reprint 2001: pgs 223-225.
- Gruber, J and Poterba, J. (1994). Tax Incentives and the Decision to Purchase Health Insurance: Evidence from the Self-employed. The Quarterly Journal of Economics 109:701-733.
- Gujarati, D.N (2004). Basic Econometrics.4th Edition. McGraw-Hill, Book companies, New York.
- Gushulak, B. (2010). Thematic paper: Monitoring Migrants Health. Migrant Health Consultant. WHO consultation report.
- Gustafsson-Wright, E,. Anne D., Jacques, G., Schultsz, C.,(2013). The Burden of Chronic Disease on Households in Tanzania and Kenya: Evidence from the Health Insurance Fund Operational Research. A Study for USAID.
- Hakijamii (2007). The Right to Social Security in Kenya: The Gap between International Human Rights and Domestic law and policy. Trust Economic and Social Rights Centre - Parallel Report to Committee on Economic, Social and Cultural Rights. Nairobi, Kenya.
- Horowitz, J. L and Savin, N.E., (2001). Binary Response Models: Logits, Probits and Semiparametrics. The Journal of Economic Perspectives 15:43-56.

- IOM (2008). World Migration Managing labour mobility in the evolving global economy. Geneva, International Organization for Migration.
- IOM (2011). An Analysis of Migration Health In Kenya-Healthy Migrants In Healthy Communities.
- IOM and WHO (2011). The National Consultation of Migrants Health, Kenya.
- Johnson, R.W and Crystal, S. (2000). Uninsured Status and Out-of-Pocket Costs at Midlife. Health Services Research 35:911-932.
- Kahneman, D. and Tversky, A., (1979). Prospect Theory: An Analysis Of Decision Under Risk. Econometrica, 47(2), Pp. 263-291.
- Kenya Ministry of Health: Reversing the Trends: The Second National Health Sector Strategic Plan of Kenya - NHSSP II: Midterm Review Report. Ministry of Health -Sector Planning and Monitoring Department (2007).
- Kenya National Bureau of Statistics, ICF Macro (2009): Kenya Demographic and Health Survey 2008-2009. Calverton, Maryland: KNBS and ICF Macro.
- Kenya National Health Accounts 2009/2010. Ministry of Medical Services and Ministry of Public Health and Sanitation.
- Kimani J. K., Ettarh R and Bellows, B (2010).Determinants of Health Insurance Ownership among Women in Kenya: Evidence from the 2008-09 Kenya Demographic and Health Survey. Population Council, Nairobi, Kenya. PP2.
- Kimani, D., Muthaka, D, and Manda, D., (2004). Healthcare Financing Through Health Insurance in Kenya. The Shift to A National Social Health Insurance Scheme. Nairobi, Kenya: Kenya Institute for Public Policy Research and Analysis, 1-71.
- Kiplagat J.I (2011). Determinants of Health Insurance Choice in Kenya. A Research paper submitted to the school of Economics, University of Nairobi for the award of a Masters of art Degree in Economic Policy and Management.
- Kirigia, J.M., Preker, A., Carrin, G., Mwikisa, C., Diarra-Nama, A.J., (2006). An overview of Health Financing patterns and the way forward in the WHO African Region. The East African Medical Journal, 83(8):S1-S27.
- Kirigia, J.M., Sambo, L.G., Nganda, B., Mwabu, G.M., Chatora, R. and Mwase, T. (2005), Determinants of Health Insurance ownership among South African women.BMC Health Services Research, Vol. 5 No. 17, also available at: http://www.biomedcentral.com/1472-6963/5/17.
- Kutzin J. (2001). A descriptive framework for country level analysis of health care financing arrangements. Health Policy. 56: 171-204.

- Ministry of Health (2007).Reversing the Trends: The Second National Health Sector Strategic Plan of Kenya - NHSSP II: Midterm Review Report. Ministry of Health -Sector Planning and Monitoring Department.
- Ministry of Planning and National Development (2009). Ministry of Planning and National Development and Vision 2030, Nairobi, Kenya.
- Mukras M.S. (1993). Elementary Econometrics. Theory, Application and Policy. *East Africa Education Publishers Ltd.* 162-163.
- O' Donnell Owen, Eddy Van Doorslaer, Adam Wagstaff, Magnus Lindelow (2008). Analyzing health equity using household survey data. A guide to techniques and their implementation. World Bank. Washington D.C. pg 183-204.
- Oucho J. O and Linda A Oucho (2008). Migrant, Urbanization and Health Challenges in Sub-Saharan Africa.
- Perry, Craig W. and Rosen, Harvey S. (2001). The Self-Employed are Less Likely to Have Health Insurance than Wage Earners. NBER Working Paper No. 8316.
- Phelps, Charles E. (1997). Health Economics. Reading, Addison-Wesley Educational Publishers, Inc.
- Pindyck, R.S and Rubinfeld, D.L., (2005). Microeconomics.6th Edition. New Jersey; Pearson Education Inc.
- Savedoff W AndSekhri N., (2004). Private Health Insurance: Implications for Developing Countries. World Health Organization. Geneva. Pg 8-9.
- Schmidt, U., (2012). Insurance Demand And Prospect Theory. Kiel Institute For The World Economy, Hindenburgufer 66,24105. Kiel Working Paper No. 1750.
- Second Medium Term Plan 2013-2017. Transforming Kenya: Pathway to Devolution, Socio-Economic development, Equity and National Unity. Macro -Economic Framework.Pg 78.
- Solé-Auró Aïda, Montserrat Guillén, and Eileen M. Crimmins (2009).Health care utilization among Immigrants and native-born populations in 11 European countries. Results from the Survey of Health, Ageing and Retirement in Europe.Pg 2.
- Sparrow. R, Suryahadi. A, and Widyanti .W (2010).Social Health Insurance for the Poor: Targeting and Impact of Indonesia's Askeskin Program. The International Institute of Social Studies of Erasmus University Rotterdam & IZA. The SMERU Research Institute, Jakarta. SMERU Working Paper.
- Takeuchi, D., Chung, R. and Shen, R. (1998).Health Insurance Coverage among Chinese Americans in Los Angeles County. American Journal of Public Health. Pgs 451-453.
- United Nations (2010): The Millennium Development Goals Report 2010. New York, U.S.A.

United Nations, (2005). A Report on; Trends in total migrant stock, a Revised Edition.

- Wagstaff, A. and M. Lindelow (2008). Can Insurance Increase Financial Risk? The Curious Case of Health Insurance in China. Journal of Health Economics 27 (4): 990–1005.
- Wagstaff, A. and M. Pradhan (2006).Health Insurance Impacts on Health and Nonmedical Consumption in a Developing Country. World Bank Policy Research. Working Paper; 563. Washington D.C.: World Bank.
- Wagstaff, A., M. Lindelow, G. Jun, X. Ling, and Q. Juncheng (2009). Extending Health Insurance to the Rural Population: An Impact Evaluation of China's New Cooperative Medical Scheme. Journal of Health Economics 28 (1): 1–19.
- World Health Assembly -Sixty-first (2008). Resolutions and Decisions. Geneva. (WHA 61.17).
- World Health Organization (2000). World Health Report. Geneva: 95.
- World Health Organization (2008). Overcoming Migrants' Barriers to Health. News.
- World Health Organization (2010).Health of Migrants- The way forward. Report of Global Consultation. Madrid Spain.Pg 23-30.
- Yellaiah, J. and Ramakrishna, G. (2012). Socio economic determinants of health insurance in India: the case of Hyderabad city. International Journal of Development and Sustainability, Vol. 1 No. 2, pp. 111–119.

Variable	Health insurance	Age	Marital status	Education	Duration of status	Place of current residence	Household size	Employme nt status	Language proficien	Wealth index
Health insurance	1.0000					residence			Ċý	
Age	0.0653 (0.0000)	1.0000								
Marital status	0.0384 (0.0003)	0.3881 (0.0000)	1.0000							
Education	0.1225 (0.0000)	0.0213 (0.0370)	-0.1199 (0.0000)	1.0000						
Duration of stay	-0.0255 (0.0171)	0.1786 (0.0000)	-0.0652 (0.0000)	-0.1121 (0.0000)	1.0000					
Place of current residence	0.1232 (0.0000)	0.0024 (0.8123)	-0.0049 (0.6345)	0.2959 (0.0000)	-0.2211 (0.0000)	1.0000				
Household size	-0.0365 (0.0006)	0.1135 (0.0000)	0.0001 (0.9925)	-0.1566 (0.0000)	0.2377 (0.0000)	-0.2618 (0.0000)	1.0000			
Employme nt status	-0.0045 (0.6765)	0.2375 (0.0000)	-0.0089 (0.3876)	0.2146 (0.0000)	0.0086 (0.4006)	0.0166 (0.1051)	-0.0603 (0.0000)	1.0000		
Language proficiency	0.0393 (0.0007)	-0.0747 (0.0000)	-0.1430 (0.0000)	0.6669 (0.0000)	-0.0888 (0.0000)	0.1803 (0.0000)	-0.1256 (0.0000)	0.2242 (0.0000)	1.0000	
Wealth index	0.0844 (0.0000)	0.0020 (0.8466)	-0.0497 (0.0000)	0.4480 (0.0000)	-0.2465 (0.0000)	0.5871 (0.0000)	-0.2848 (0.0000)	0.1088 (0.0000)	0.3746 (0.0000)	1.0000

Appendix 1: Correlation matrix of Dependent and Independent variables

Note: Figures in the parentheses show statistical significance at 5%.