

**Inclusive and sustainable financial risk protection for the informal
sector: Institutional and household factors influencing health
insurance coverage in Kenya and Cameroon**

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“I believe in the complexity of the human story...

That there is no way that you can tell that story in one way and say “this is it”.

Always, there will be someone who can tell it differently depending on where they are standing... this is the way I think the world's stories should be told: from many different perspectives."

Chinua Achebe

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List of peer-reviewed manuscripts as of May 2019

MANUSCRIPT I

The influence of gender and household headship on voluntary health insurance: the case of North-West Cameroon

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How does membership in local savings groups influence the determinants of national health insurance demand? A cross-sectional study in Kisumu, Kenya

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MANUSCRIPT III

Policy levers and priority-setting in universal health coverage: A qualitative analysis of healthcare financing agenda setting in Kenya

Tessa Oraro-Lawrence and Kaspar Wyss

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Contribution of Bamenda Ecclesiastical Provincial Health Assistance (BEPHA) Scheme towards Universal Health Coverage: A Quantitative Household Survey in North-West Cameroon

Tessa Oraro

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WORKING PAPER II

Factors influencing the uptake of National Hospital Insurance Fund (NHIF) membership in informal settlements in Kisumu, Kenya: Stakeholder report

Tessa Oraro

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Abbreviations

BEPHA	Bamenda Ecclesiastical Provincial Health Assistance
CBHI	Community-Based Health Insurance
CHE	Current Health Expenditure
CHWs	Community Health Workers
CNPS	Caisse Nationale de Prévoyance Sociale
DAH	Development Assistance for Health
DHS	Demographic and Health Survey
ESKAS	Swiss Government Excellence Scholarship
FCFA	Central African Franc
FCS	Swiss Federal Commission for Scholarships for Foreign Students
FMS	Free Maternity Services
GDP	Gross Domestic Product
GIZ	German Development Cooperation
GNI	Gross National Income
HHEUS	Health Household Expenditure and Utilisation Survey
HISP	Health Insurance Subsidy for the Poor
HIV	Human Immunodeficiency Virus
ICD	International Statistical Classification of Diseases and Related Health Problems
IRB	Institutional Review Board
IS	Informal Sector
KEPHS	Kenya Essential Package for Health Services
LC	Local Committee
LMICs	Low- and Middle-Income Countries
NHIF	National Hospital Insurance Fund
NSSF	National Social Security Fund
ODK	Open Data Kit
PCA	Principal Component Analysis
ROSCAs	Rotating Savings and Credit Associations
SACCO	Savings and Credit Cooperative Organisation
SDGs	Sustainable Development Goals
SES	Socioeconomic Status
Swiss TPH	Swiss Tropical and Public Health Institute
THE	Total Health Expenditure
UHC	Universal Health Coverage
WHO	World Health Organization

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1. Summary

Introduction

The research comprising this doctoral thesis examines the institutional and household factors that influence sustainable health financing coverage among the informal sector in Kenya and Cameroon. The dynamics of the informal sector in the sub-Saharan African context are complex, with the sector being highly variegated and difficult to generalise. This fact is particularly important when interrogating the interactions between the informal sector and more formalised establishments such as the healthcare system.

Compounding these concerns has been a dearth of pragmatic social analysis that interrogates the intricacies of health decision-making at both institutional and household level. Existing health financing and policy literature has taken a largely empirical approach to research, ignoring the impact of context-specific considerations on decision-makers' perceptions and choices. This limits our insights of the framework within which health decisions are made at government and household level, complicating the application of existing research to the real-world setting.

This thesis seeks to investigate the factors which influence inclusive and sustainable financial risk protection among the informal sector in Kenya and Cameroon by focusing on two specific objectives:

- 1. Investigating the influence of priority-setting by key health systems actors on universal health coverage (UHC) and health financing strategy*
- 2. Estimating and critically analysing the factors that influence the value proposition of voluntary health insurance among different constituent groups of the informal sector*

It further seeks to understand the contextual social conditions that influence health decision-making and the substantive outcomes expressed within the health system.

Methodology

In order to investigate the influence of priority-setting by key health systems actors on UHC, this thesis sought to identify the fundamental priorities and values related to the achievement on UHC in Kenya. This was carried out by targeting a variety of national- and county-level health stakeholders with specialist knowledge on Kenya's health priority-setting process through in-depth key informant interviews. The data collected were analysed using the Framework Method and focused on interpreting the similarities and differences amongst stakeholders on: (i) the challenges that hinder the achievement of UHC in Kenya's health system; (ii) potential solutions to the problems identified; and (iii) the political and real-world considerations that aided or hindered the achievement of the articulated solutions.

In order to investigate the household factors influencing voluntary health insurance demand, cross-sectional household surveys were conducted in Kenya and Cameroon to elicit responses on the determinants of scheme enrolment. Structured questionnaires were administered in each setting on health insurance membership; household attributes; headship characteristics; and health-seeking behaviour. Logistic regression was carried out to estimate the association between the explanatory variables and voluntary health insurance enrolment.

In its analysis, this thesis focused on two informal sector sub-groups which exercise control over household investment decisions: local savings group members in Kenya and household heads in Cameroon respectively. Two regression models were utilised

in this research. The first model measured the association of each variable and health insurance enrolment within each targeted population sub-group. The second model included interaction terms for each targeted population sub-group and explanatory variable to determine the influence of sub-group membership on the association of each variable and health insurance enrolment. Finally, pragmatic social analysis was integrated into our interpretation of empirical findings, with a view to gain a greater understanding of the context within which health insurance decision-making is undertaken.

Results

Our findings suggest that Kenyan stakeholders recognise UHC as a major goal in the country's health policy and priority-setting landscape. However, the national government has been unable to centre itself as the main steward of this policy objective, leading to a cacophony of interpretations of UHC's contextual objectives and special considerations. As a result, we observed material differences between stakeholders on the country's recommended priorities for population coverage, healthcare service provision, and cost-sharing under the UHC dispensation. Progressive universalism was nevertheless considered as the preferred approach towards UHC in Kenya, with most interviewees prioritising an equity-based approach towards increasing access to healthcare services and financial risk protection. However, divergence on UHC's contextual values in the country suggests ongoing difficulties in objectively and holistically defining the priorities driving health financing investments in Kenya. It is therefore likely that the country's health system will continue to be plagued by the misattribution of resources as it seeks to drive the country towards

UHC. The imbalance leaves the Kenyan population susceptible to ill health due to limited access to quality healthcare services, and increases the risk of impoverishment due to ill health due to a poorly-implemented financial risk protection system.

With regards to the second thesis objective, our findings identify three key patterns across our studies in Kenya and Cameroon. Firstly, we suggest that social position may play an important role in determining a household's exposure to certain social stratifiers that influence health insurance demand. In the Cameroon study, we found that wealth was associated with voluntary health insurance demand regardless of the household head's gender. Women's enrolment decision was associated with their income levels (OR=5.842 [CI:1.589-21.484]), while men's demand was positively correlated with their socio-economic status (OR=2.207 [CI:1.173-4.153]). Similarly, men's enrolment decision in the Cameroon study was linked to their education level (OR=2.238 [CI:1.228-2.552]) and age (OR=2.238 [CI:1.151-4.352]). In the Kenya study, we found that both members and non-members of local savings groups with high socioeconomic status showed stronger health insurance demand compared with poorer households; there was no evidence that the strength of this association was influenced by savings group membership status (p -value=0.47).

Secondly, our findings suggest that access to resources that create social interdependence or provide access to economic resources may reduce the power asymmetry inherent within the societal framework. This is apparent in the Cameroon study amongst female household heads, whose health insurance demand is linked to their possession of economic power. Indeed, our findings suggest that enrolment decisions are likely to prioritise women's direct knowledge of potential household health risks (presence of children (OR=3.734 [CI:1.228-11.348])) if they have access

to sufficient financial and decision-making resources. In the Kenya study, participants who were self-employed were significantly less likely to enrol into the NHIF if they did not belong to a local savings group (interaction test p -value=0.03). NHIF enrolment was found to be lower among female-headed households. There was a borderline effect of ROSCA membership on this association, with a lower odds ratio amongst non-ROSCA members (p -value=0.09). These findings suggest that savings group membership may play a role in increasing health insurance demand amongst some traditionally under-represented groups such as women and the self-employed.

Finally, given the association between certain social characteristics such as education on one's position within the labour market we posit that the power inferred by one's economic position may override their inherent disadvantages when interacting with the health insurance sector. This adds credence to the hypothesis that it is important to correctly contextualise the population under study in order to better understand how health decisions are made at household level.

Conclusion

This exploratory and interpretive thesis highlights the complex and cross-cutting nature of research on health-related decision making at institutional and household level. It posits that the socio-cultural and political contexts within which decision-making is conducted is as important to health financing research as the empirical investigation of health-related outcomes. In doing so, it submits that integrating pragmatic analysis into empirical research facilitates a greater depth of understanding of the ways in which social structures play into voluntary health insurance decision-making.

The thesis further demonstrates the importance of reflecting the complexity of decision-making groups in health financing research design in order to provide more representative analyses that can be applied to the real-world setting. Indeed, it is clear from our findings that reflecting the heterogeneity of decision-making groups better represents the realities of groups' differential interaction with their environment, and presents research that is easily digestible and relatable to policymakers. We therefore posit that the nuanced methodological approach applied in this thesis is more likely to reflect real-world variations in the way different groups make the health financing-related decisions.

2 Introduction

2.1 Universal Health Coverage and its local application

Universal Health Coverage (UHC) has been framed as a unifying platform for global health systems development within policy circles (3). It is defined as “*ensuring that all people can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship*” (4). UHC is ultimately a progressive and aspirational goal which is characterised by the achievement of equity through three key dimensions: population coverage; service coverage; and cost-sharing (5). By focusing on these crosscutting objectives, it aims to provide a holistic strategy for tackling the formidable health systems challenges faced across a variety of settings, as highlighted within the global Sustainable Development Goals (SDGs) (6).

While most stakeholders agree on the basic definition of UHC, a diversity of practical interpretations have emerged reflecting their differing perspectives on each country’s unique social, political, economic and epidemiological realities (7). This plurality of interpretation renders it imperative for governments to steward a participative decision-making process through which a defined approach towards UHC may be developed (8). In spite of this, many sub-Saharan African governments have maintained a haphazard approach towards health systems priority-setting, resulting in arbitrary and inconsistent planning decisions (9). This makes it difficult to implement coherent health systems strategies towards achieving UHC. Given that UHC is a democratic process through which the attribution of limited financial resources is decided, it is important to understand the values and trade-offs underpinning countries’ health strategies (10).

This cannot be done without fully interrogating the political and economic dynamics that may influence a country's chosen path towards UHC.

Within existing health policy literature, there is recognition of the inherently political nature of health systems priority-setting and decision-making (9,11,12). However, this reality is often not reflected in research. Current scholarship on UHC in various sub-Saharan African settings has largely overlooked the sociopolitical and economic considerations that impact health planning processes, with many existing studies focusing instead on the technical and managerial aspects of health reform implementation. In Kenya, for example, health policy research has tended to explore the hurdles emerging from the implementation of UHC-related interventions such as devolution (13–15) and free maternity health services (16). While these studies give an indication of the special interests inherent within the health system, they have largely neglected the contextual factors that influence the values and direction of the health reforms (15,17). This leaves a gap in our understanding of how the political economy of health affects health policy planning processes within these settings.

In addition to discounting the political economy of health planning in the sub-Saharan African context, there has been a tendency in the sparse existing scholarship to equate UHC with health insurance reforms (18–21). This misconception suggests a limited appreciation for the holistic nature of UHC in health policy academia, especially given the wide range of health systems reforms needed to achieve UHC. For example, existing UHC studies in Rwanda have focused almost exclusively on population coverage efforts through health insurance reforms, while ignoring the country's cost-sharing and health service coverage endeavours through health infrastructure improvement and community-health program strengthening (22). Similarly, most UHC research in Ghana has focused on population and service coverage efforts through the

National Health Insurance Scheme, disregarding reforms to improve the quality of healthcare provision, as well as changes to district-level planning and management (23,24). These oversights leave a number of unanswered questions regarding UHC in the sub-Saharan African context: what exactly does UHC mean in terms of service coverage, population coverage and cost-sharing when considered in resource-limited country settings? What are the key values and trade-offs driving the interpretation of UHC within these settings? How do these values and systemic realities shape the direction of UHC priorities?

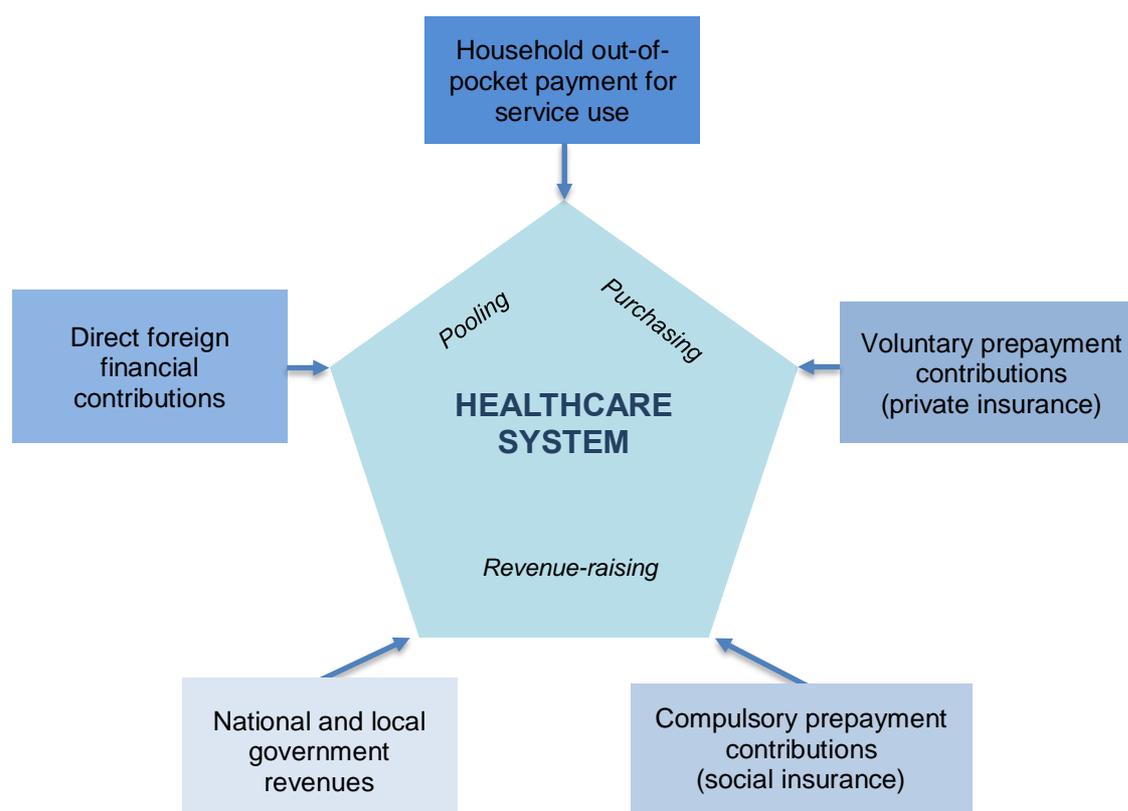
In light of the limited scholarship investigating these questions, we will seek to address them as part of this thesis.

2.2 Health financing realities of sub-Saharan African countries

Against this backdrop, the availability of financial resources has remained central to the achievement of UHC. The World Health Organization (WHO) estimates that an annual financial investment of \$58 *per capita* is required to achieve global health targets by 2030 – a figure well above current health expenditure levels of many sub-Saharan African countries (25).

The global financial architecture for health available to fund UHC is highly complex, involving a network of local and international players. Each of these players contributes to the healthcare system through a number of sources as highlighted in Figure 1, including: national and local government revenues; compulsory prepayment contributions; voluntary prepayment contributions; direct foreign financial contributions; and household out-of-pocket payment for service use.

Figure 1: Funding sources contributing to a healthcare system



Governments are typically expected to provide broad budgetary support for health, while foreign players and individual households grant supplementary support to plug the remaining gaps in health financing. In spite of this, most sub-Saharan African governments fall short in their abilities to fund health services relative to their global commitments through agreements such as the Abuja Declaration (26). The government of Cameroon, for example, allocated only 4% of its total expenditure to health in 2014, while the Kenyan government gave 6% during the same period (27,28). This falls short of the 15% of government health expenditure agreed to by all African governments in the Abuja Declaration, and raises salient concerns about their willingness to invest sufficient funding towards their health agendas.

At the same time, development assistance for health (DAH) has slowed or stagnated, reducing the level of foreign financial contribution to various sub-Saharan African countries (29). While the proportion of DAH in the region is low in comparison to countries' overall health expenditures, this channel provides an important source of funding for primary health care services and focus intervention areas in low-income settings (30). These diminishing funding channels leave the region's health system underfunded and in need of alternative sources of financing.

2.3 Households and health financing choices

In order to fill the above-mentioned gaps in funding, households have been forced to pay directly into the health system in order to access services. Private household health expenditure – which is primarily comprised of regressive out-of-pocket payments – is associated with a disproportionate risk of being pushed into poverty (31,32). In acknowledgement of the potential impoverishing effects of household health payments (33,34), policymakers have promoted the idea of mandatory pre-payment mechanisms as a means of optimising access to healthcare services and offering financial risk protection to populations in low-resource settings. The most common of these in the lower- and middle-income country (LMIC) setting is health insurance schemes, which are ideally implemented as mandatory systems that are highly subsidised by government investment. However, the complex realities of developing economies greatly reduce their ability to effectively implement the archetypal health insurance structure for a number of reasons.

The success of a functional health insurance system is typically reinforced by an effective and sustainable revenue collection system, as well as an efficient risk pooling

system that optimises equity irrespective of one's social, financial or health status. However, many sub-Saharan African governments suffer from limited resource mobilisation for health due to a narrow tax base linked to low formal employment figures (35). These low levels of tax compliance are further exacerbated by insufficient government prioritisation of health services within their development agendas (28). As a result, governments are forced to ration their contributions towards the health sector, leaving individual households to plug the financing gap.

Additionally, the high proportion of informally-employed individuals complicates the enforcement of mandatory health insurance enrolment in many sub-Saharan African settings. Estimates suggest that 85.8% of working-age sub-Saharan Africans are employed within the informal sector (1): a demographic that is often unwilling or unable to contribute to social services that do not meet their priority needs (36). This has resulted in a situation where the decision to enrol into health insurance is voluntary in practice, and dependent upon individual household decisions in line with their substantive economic and social realities. The delicate balance in household decision-making requires important interrogations in order to identify the objective factors that may influence the choice to enrol into health insurance.

2.4 State of the art: Current research on the informal sector and the determinants of voluntary health insurance enrolment

Contemporary debate on voluntary health insurance is largely predicated on the centrality of economic, social, political and environmental factors on healthcare-related decisions (37,38), acknowledging the cross-cutting influence of the social determinants of health (39). These features – which include socioeconomic and political context, as

well as individual characteristics and associations – help explain the association between health outcomes and the differential distribution of power and resources. While current research presents an important first step in understanding the household considerations that influence the decision to enrol into health insurance, it possesses some key drawbacks that limit its internal and external validity, as highlighted below.

i. Tendency to overgeneralise the informal sector

A large part of health financing scholarship in the sub-Saharan African setting has been dedicated towards understanding the influence of structural and relational stratifiers on the decision to enrol into health insurance (40–48). These studies have identified associations between health insurance demand and sociodemographic factors such as the age, gender and occupation of the household head, as well as household composition. While it provides an understanding of the structural factors that influence the decision to enrol into health insurance, existing research seems to disregard inherent differences within the population groups under study. Indeed, when probed in detail, we note a tendency in this scholarship to analyse informal sector members as a monolith, reflecting an obsolete perspective of labour market dynamics that has been overtaken by recent characterisations (49–51). It is now widely accepted now that the informal sector is highly heterogeneous, covering a broad spectrum of unorganised economic activities that do not conform to normative definitions (1). This line of thinking has been further developed by several empirical studies within the development economics space, which identify two distinct groups in the sub-Saharan African context that join the informal sector: an upper tier and a lower tier (52–55). The upper tier of the informal sector comprises individuals that voluntarily carry out informal sector activities to gain a competitive advantage over their peers, while the lower tier

encapsulates individuals that are forced to work in the sector due to entry barriers in the formal labour market. These intricacies render the informal sector as a highly complex corpus for whose defining characteristics are exceedingly difficult to specify. It is therefore problematic to apply broad characterisations to the sector, as has been done in a large part of existing health financing literature (56–62).

ii. Tendency to conflate group membership and decision-making power

In addition to the above-mentioned generalisations, several studies have sought to investigate the interaction between social position and health insurance demand. Accordingly, a limited body of research has focused on the determinants of health insurance enrolment among specific vulnerable groups such as women and the elderly (63–67). While these studies have affirmed the association between social stratification, vulnerability, and health insurance demand, they largely confound group membership with their role as primary household decision-makers. This oversight on whether the study population is, in fact, responsible for household investment decisions makes it difficult to draw meaningful conclusions from this scholarship. A second concern has been the dearth of comparative analysis with other population subgroups, making it difficult to ascertain exactly *how* vulnerable group membership influences health-seeking behaviour. To our knowledge, only a single empirical study has considered the role of gendered household decision-making in the decision to enrol into voluntary health insurance (65). This analysis found crucial educational, socioeconomic and marital differences in the determinants of health insurance enrolment between male and female individuals. While it is indicative of potential distinctions in the gendered determinants of health insurance demand, it is once again notable that this study did not confirm whether the populations under investigation were

actually responsible for the decision to enrol. This limits the external validity of this study. In spite of these concerns, it is important to view this body of scholarship as illuminating in its ability to shine a light on marginalised population groups that are systematically excluded from participating in the formal economy and health system.

iii. Tendency to overlook the contextual social conditions that influence differential exposure to determinants of health insurance demand

Overarching the above-mentioned concerns is the propensity of existing studies to view voluntary health insurance enrolment as an empirical phenomenon that is explained exclusively through solid data and statistical approaches. This positivist approach certainly has its methodological and analytical advantages: it encourages a highly scientific approach that allows for objective analysis of the factors associated with health insurance demand. However, it assumes that data on its own can explain human behaviour, which is problematic in a field that seeks to understand household decision-making (2). Given that the decision to seek health insurance is a complex interplay between epidemiology and social behaviour, this approach may misrepresent the realities of the populations under observation, as Bryman and Bell state (68):

“The study of... people and their institutions is fundamentally different from the natural sciences... [and] requires a different logic of research procedure”

While pragmatic analytical approaches are still nascent in the context of empirical voluntary health insurance research, we note a trickling of efforts to explore the linkages between contextual social conditions and the empirical factors influencing health insurance demand. Mladovsky *et al.* found that association with local economic or decision-making groups increased the likelihood of enrolling into a voluntary health

insurance scheme due to the improved social positioning (69). Similar approaches may offer an opportunity to introduce better framing of the empirical data associated with current voluntary health insurance research.

Our research identified a gap in knowledge on UHC priority-setting and on the multiple factors that influence government priority-setting and adherence to voluntary health insurance. This thesis anchors the above-mentioned existing research as an important foundation for understanding the gaps in health systems funding that necessitate the application of voluntary health insurance, as well as the determinants of voluntary health insurance demand as a health-seeking behaviour. Before discussing the methodology used in this thesis, we will first provide an overview of the Kenyan and Cameroonian health systems under investigation.

2.5 UHC and voluntary health insurance in Kenya

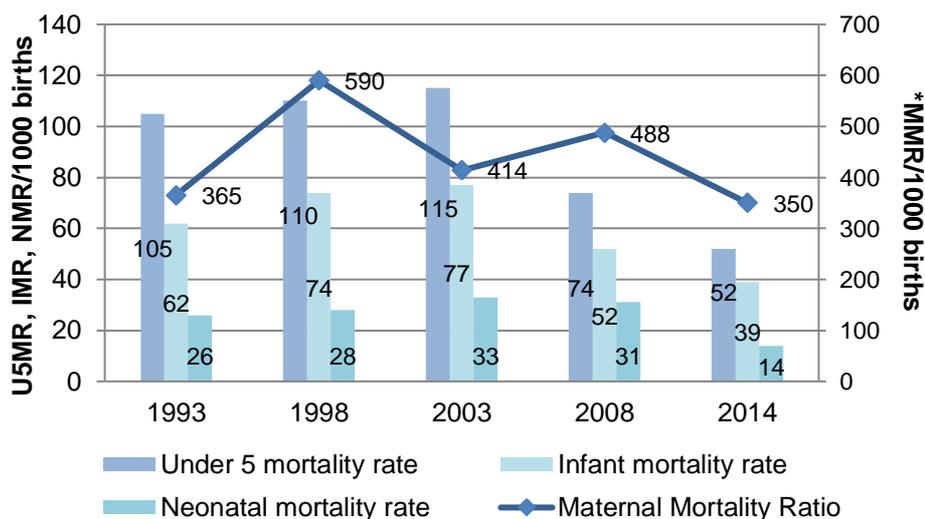
2.5.1 Country context

Kenya is a lower-middle income country in East Africa with a population of 46.6 million (70). The country is currently in the midst of an economic boom, with a sustained gross domestic product (GDP) of between 4.5% and 6% in recent years (70). In spite of its increased economic output, the Kenyan Government budget consistently runs at a deficit with recurrent and development expenditure exceeding revenues. This situation is exacerbated by a narrow base due to low tax compliance, a high dependency ratio, and limited taxation on corporate revenues (35,70). This has resulted in high levels of domestic and external borrowing to plug the country's widening funding gaps, with 61%

of government revenues focused towards servicing debt in 2019 (71). As a result, only a limited amount of funding is made available for essential social services such as health, with government investment towards health languishing at 6.7% of its total expenditure in 2016 (27). This amount is well below 15% of annual government budget agreed to in the Abuja Declaration.

Against this backdrop, Kenya’s health sector has largely achieved marked improvements in reducing the burden of a number of key disease areas in the past two decades, as shown in Figure 2.

Figure 2: Trends in health impact indicators in Kenya (1993–2014)



(72)

* U5MR: Under 5 mortality rate; IMR: Infant mortality rate; NMR: Neonatal mortality rate; MMR: Maternal mortality rate

Concurrently – and in light of the rising burden of non-communicable diseases in the country – the low level of financial investment into the health sector risks undoing the gains made in health outcomes (26,72). Indeed, while total health expenditure in the country has increased by 167.5% in real terms since 2001/02, the amount spent *per*

capita on health has stagnated (27). This has significantly impacted the country's ability to adapt to its changing demographic and epidemiological profile, and build a resilient healthcare system.

2.5.2 Health financing priorities and strategies

Kenya's health financing system is comprised of a mix of public and private sources. The main sources of revenue for supporting health financing in Kenya are government taxation, insurance premiums from employers and employees, development assistance for health, and households through OOP payments and voluntary insurance contributions.

The Kenyan Government is the main financier of health in Kenya, contributing 40% of the country's total health expenditure (THE) (27). In order to ensure effective health systems planning, the Kenyan Ministry of Health maintains a varied list of priorities and strategic investments governed by a robust health policy framework, including the Kenyan Constitution 2010; Vision 2030; Kenya Health Act 2016; Kenya Health Policy Framework (1994-2010); Kenya Health Policy (2014-2030). When perused in detail, the country's health strategy largely focuses on programmatic health goals through the achievement of core national health indicators, such as maternal and child health indicators. While this approach is important in combating specific health concerns, there remains an investment gap in systems-wide activities that would facilitate the UHC process within the Kenyan context. This complicates the country's ability to build an equitable, resilient and responsive health system through which all can obtain quality healthcare services regardless of their social and economic status.

In spite of this, the country has carried out a number of UHC-related activities focusing on improving access to health services at sub-national level and increasing population

health insurance coverage through the country's national health insurance scheme. These interventions are discussed briefly below.

i. Devolution of health services

In 2010, Kenya promulgated a new constitution in order to improve social, political and economic representation within the country (73). As part of the new constitution, the Kenyan Government decentralised healthcare provision to the country's designated 47 counties in order to reduce health disparities and increase health systems performance (74). This development further conferred the responsibility for policy implementation, budgetary allocation and revenue-raising to the sub-national level: functions that were previously shared with the national level. This created a need for empowerment and capacity-building at sub-national level in order to optimise health service planning and provision. However, the hasty implementation of this reform has limited the impact of devolution within the health sector (14,75).

In 2012, the Kenyan Parliament passed the public finance management law – the Public Finance Management Act – to formalise county autonomy over funding received at sub-national level (76). This has had an unintended effect of the health sector, given that all funding – whether allocated by national government or collected at health facilities as user fees – must be pooled in a County Revenue Fund controlled by the county government. This means that county governments are the ultimate decision-makers on whether or not to prioritise health over other development priorities. This creates several problems: firstly, while the national government still maintains control of health policy, it has no way of enforcing implementation at county level. Secondly, county departments of health face uncertainty on whether requested funding may be received, thus hindering the effectiveness of healthcare planning processes.

ii. Household health costs and the National Hospital Insurance Fund (NHIF)

In light of the limited funding provided by the national government, Kenya's population continues to be plagued by high OOP expenditures, with household payments constituting 28% of the country's current health expenditure (CHE) (27). This reinforces concerns about the government's ability to protect its population from catastrophic health expenditure and inequitable access to healthcare services.

In order to cushion its citizens from the impoverishing effects of illness (77), the Kenyan Government has advocated for all members of the public to join the publicly-run national health insurance scheme, the National Hospital Insurance Fund (NHIF). The NHIF is the government-run national health insurance scheme in Kenya. Established in 1966 to provide inpatient health services to the formal sector, this scheme provides coverage for approximately 14.6% of the Kenyan population (70). The Scheme was expanded in 1972 to cover the informal sector through its voluntary Informal Sector (IS) Scheme. Informal sector enrolment into the NHIF is elective. In order to enrol informal sector workers and their families into the NHIF, potential enrolees are charged a monthly flat-rate premium of KShs. 500/= (~USD 4.90). This fee can be paid annually, semi-annually, quarterly or monthly depending on the enrolee's financial realities.

Since being identified as the Kenyan Government's chosen vehicle for achieving UHC in 2012, the NHIF has focused on the informal sector as a target market for growth (78,79). While the sector constitutes 83.5% of the country's working population, only 27.5% of its members are enrolled into the NHIF (70). The NHIF has therefore embarked on far-reaching reforms in priority areas to incorporate the sector, and has launched a number of government-funded flagship programs in the past five years as part of the Kenyan President's *Big Four* priority areas:

- i. *Linda Mama* program: providing free maternity services to all Kenyan women
- ii. Health Insurance Subsidy for the Poor (HISP): providing free comprehensive health insurance coverage to 9 million indigents by 2020
- iii. *Inua Jamii* program: providing free comprehensive health insurance coverage to the elderly and those with physical disabilities.

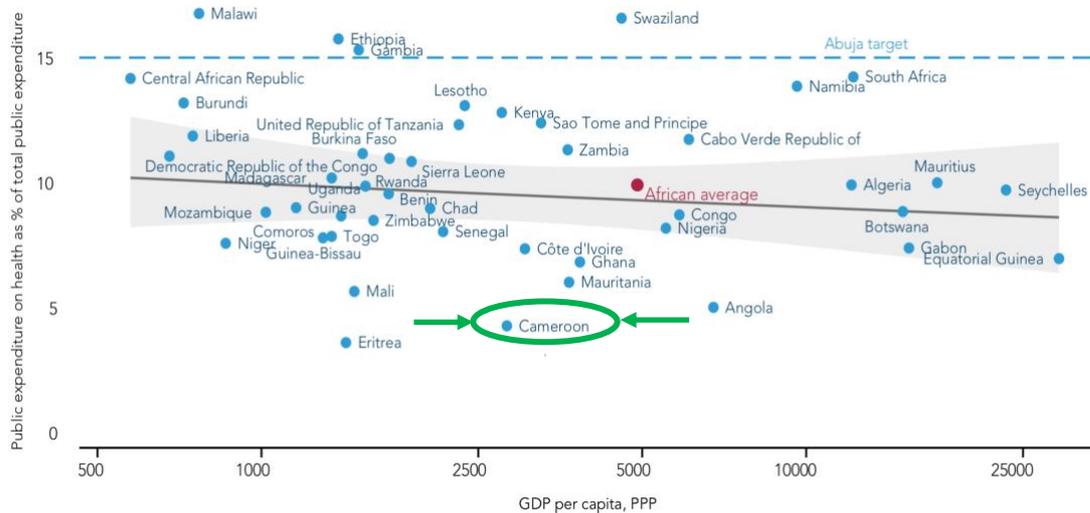
While political rhetoric has championed these programs as a stepping stone towards UHC, government budgetary allocations towards the NHIF have remained limited. The Fund thus continues to face challenges in achieving the enrolment numbers necessary to fulfil its mandate, making it reliant upon individual members of the public enrolling on their own volition. It is for this reason that it is important to understand the factors influencing the decision to voluntarily enrol into the NHIF.

Several studies to date have investigated the determinants of NHIF enrolment in Kenya (57,64,80). These studies generally have targeted both the formal and informal sector, leaving a significant gap in our understanding of the informal sector in the context of voluntary health insurance enrolment in Kenya. Indeed, to our knowledge, only a single study has exclusively targeted the informal sector to understand the empirical factors associated with voluntary health insurance demand (81). This makes it important to develop research to better understand the influencers of voluntary NHIF demand amongst the informal sector, in order to better target this vast population group for enrolment.

2.6 Voluntary health insurance enrolment in Cameroon

Cameroon is a lower-middle income country in Central Africa with a population of 22.7 million. As an oil-exporting country, Cameroon has faced a recent lag in its economic growth due to low global commodity prices (82). The country has therefore had to reduce its government spending in order to minimise its budgetary deficit. As a result, government health prioritisation in Cameroon remains amongst the lowest in Africa, with only 4% of its budget spent on health expenditure as shown in Figure 3 (28).

Figure 3: Government health prioritisation and GDP per capita in 2014



(83)

Against this background, Cameroon is undergoing an epidemiological transition, with reducing morbidity linked to communicable diseases and increasing rates of non-communicable diseases. Between 1990 and 2015, the country significantly increased its life expectancy, reduced its under-five mortality rate, and reduced its burden of disease by 16,000 disability-adjusted life years (81). In spite of this, the country's epidemiological profile is still consistently ranked amongst the most worrisome in the African region (84). This problem can be attributed to a myriad of supply- and demand-

side barriers including poor health financing and resource allocation, and inadequate health-seeking behaviour. This is well-illustrated by the fact that only 2.9% of the country's health budget is targeted towards health promotion and prevention programs: services that could significantly ameliorate the country's emerging disease burden if appropriately implemented (85).

2.6.1 Health financing priorities and strategy

Cameroon's health financing system is comprised of a mix of public and private sources, with households contributing 52% and the Government contributing 33% of healthcare funding in the country (86). Mechanisms to facilitate the pooling of financial resources in Cameroon are limited, with the central government offering two health insurance schemes for the formally-employed: a civil servant scheme (Régime de la Fonction Publique) and the Caisse Nationale de Prévoyance Sociale (CNPS) for workers under the Labour Code. The Régime de la Fonction Publique provides cash payments for maternity cover for all government employees. CNPS covers medical costs associated with occupational ailments and provides reimbursement for all maternity costs, in addition to its primary role of providing pensions and other familial benefits to formal sector workers and their dependents.

Coverage of the informal sector through health insurance is the remit of both the private and public sectors, with many private microinsurance schemes operating at a localised level. Congruently, the Cameroonian Government has committed to covering 40% of its population through microinsurance schemes in line with its universal health coverage goals (86,87). However, the Government's efforts have been hampered due to:

- Varied knowledge and awareness among potential beneficiaries

- Significant regional disparities in health insurance coverage
- Poor relationships with partner health facilities
- Limited financial and technical support from government.

As a result, the country has made limited progress towards universal financial risk protection, with only 2% of its population covered by microinsurance schemes by 2013, compared to approximately 70% of the population who are not in formal employment (88,89).

Given the challenges faced in achieving UHC using its existing strategy and the Cameroonian Government's plan to achieve 10% coverage of the population with microinsurance schemes by 2020 (86), the Cameroonian Government in collaboration with the WHO, the German Development Cooperation (GIZ) and the French Development Cooperation began work in 2015 to map out an alternative strategy for achieving universal financial risk protection. While these efforts are laudable, there is still an urgent need to investigate the influence of existing microinsurance schemes on financial risk protection in order to identify what strategies could be effective in expanding health insurance coverage across the Cameroonian population. Indeed, existing research into the determinants of health insurance enrolment in Cameroon is very limited, with the few studies on voluntary health insurance enrolment focusing either on willingness-to-pay or awareness of health insurance (90,91).

2.7 Summary

In this introductory section, we have discussed the considerations underpinning UHC and health priority-setting scholarship within the sub-Saharan African context, as well

as contemporary debates on the informal sector and determinants of voluntary health insurance enrolment. We have also provided an overview into the Kenyan and Cameroonian health systems, which we will be exploring further within this doctoral thesis.

The subsequent chapters will focus on the research conducted during this doctoral study. Chapter 3 below aims to describe the aims and objectives of this thesis, as well as methodology used.

3 Methodology

3.1 Goals and objectives of the thesis

This thesis seeks to investigate the institutional and household factors which influence inclusive and sustainable financial risk protection among the informal sector in Kenya and Cameroon by focusing on two specific objectives:

3. *Investigating the influence of priority-setting by key health systems actors on universal health coverage and health financing strategy*
 - a. Identify the values and priorities of policymakers and strategic partners in achieving universal health coverage
 - b. Document the perceived impact of key health financing stakeholders' priorities on the health financing options for informal sector members
4. *Estimating and critically analysing the factors that influence the value proposition of voluntary health insurance among different constituent groups of the informal sector*

While these topics have been broadly explored within existing scholarship, we seek to add an additional emphasis on articulating the intricacies of health decision-making and the substantive outcomes expressed within the health system. In doing so, we aim to provide a more realistic and representative analysis of health financing decision-making processes at institutional and household level.

This research was originally designed to focus exclusively on the Kenyan healthcare system. However, we chose to leverage an existing Swiss Tropical and Public Health Institute (Swiss TPH) mandate in Cameroon in order to obtain further data of the household determinants of voluntary health insurance in a different setting. This

mandate sought to investigate the contribution of a mutual health insurance scheme, the Bamenda Ecclesiastical Provincial Health Assistance (BEPHA) Scheme, in North-West Cameroon towards UHC. We thus centred this doctoral study in Kenya, with a sub-study carried out in Cameroon to investigate the factors influencing the value proposition of voluntary health insurance in this setting. Table 1 below provides an overview of the study type and setting for each objective.

Table 1: Study overview

	Specific objective	Study type	Study setting
1	To investigate the influence of priority-setting on health financing strategy for the informally employed	Qualitative	Kenya
2	Estimate and critically analyse the factors that influence the value proposition of voluntary health insurance	Quantitative	Kenya and Cameroon

Before exploring the research setting, a brief overview of the methodological considerations of the research constituting this thesis will be provided below.

3.2 Research approach

This doctorate follows a published article thesis format and thus discusses the methods used for each study separately in each individual manuscript chapter. That notwithstanding, it is important to highlight the general methodology used, as well as any methodological differences between this body of research and existing convention

within health financing research. The philosophical and methodological foundations of our research are described below.

Objective 1: To investigate the influence of priority-setting by policymakers and key opinion leaders on universal health coverage and health financing strategy

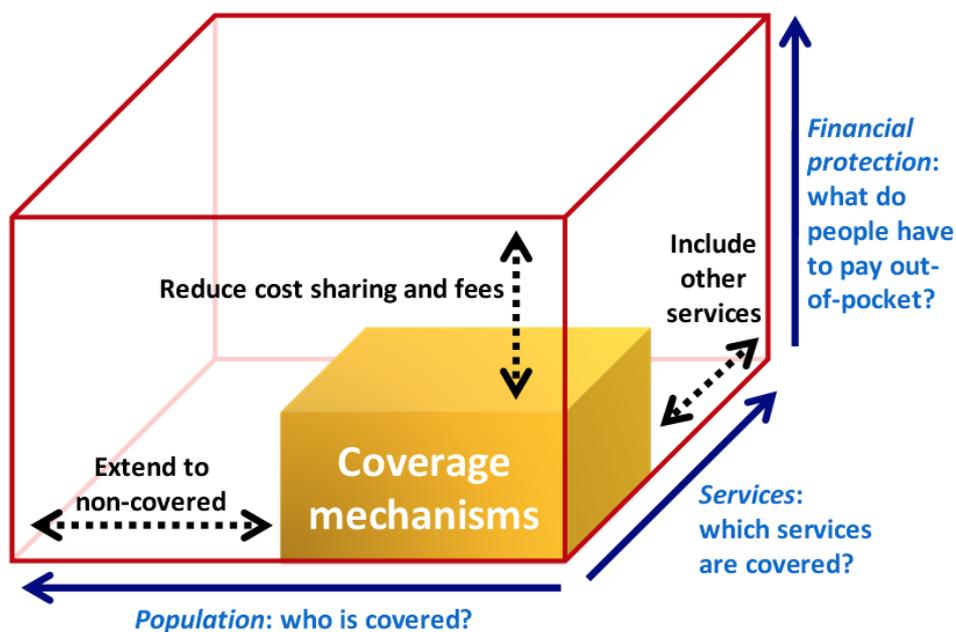
The study of UHC priority-setting in LMICs is still in its nascent stage, with limited examples of its application in these contexts. Nevertheless, it is well-recognised in existing health systems research that policy development is a highly political process through which many competing values are considered and prioritised (11). The current standard within health priority-setting research design has been the application of an interpretivist approach, which acknowledges the complexity of human decision-making (2,92). It engages health systems actors to understand their subjective interpretations of a situation under investigation. Given that UHC priority-setting is a participatory process (10), it is imperative to understand the socio-political realities that shape societal values and goals in the healthcare system. This means that the philosophical perspectives of key health system actors must be documented in order to decide upon a unified and realistic approach towards Kenya's UHC policy.

In light of the emerging complexity of the UHC debate, we chose to apply the established interpretivist approach to understand the stakeholder values and priorities underpinning the move towards UHC. A series of in-depth interviews (IDIs) were carried out with key health system actors including government policymakers, development partners, and technical experts in order to identify the strategic framework underpinning Kenya's health financing strategy. Thirteen target interviewees were

purposely selected based on their existing financial and technical support activities within Kenya’s health financing space.

In order to accurately represent the considerations and trade-offs contextualising the UHC debate at country level, a discussion guide was developed centring on the three key UHC dimensions highlighted in Figure 4: population coverage; service coverage; and financial protection.

Figure 4: Necessary steps towards achieving universal health coverage



(93)

The discussion guide was used to steer discussion at the beginning of interviews, as well as when stakeholders deviated from the topic at hand. However, respondents were largely allowed to shape the direction of the conversation in order to best articulate their preferred health systems values and priorities under the UHC banner. The key questions included within the discussion guide are provided in Appendix 11.5.

In order to analyse our results, the textual data were analysed using the Framework Method that enables the systematic analysis of textual data (94). This analytical tool allows the collation of emerging themes within and between different stakeholder groups in order to compare and contrast their policy perspectives. Details on the analytical process are expounded upon in Section 4.3.3.

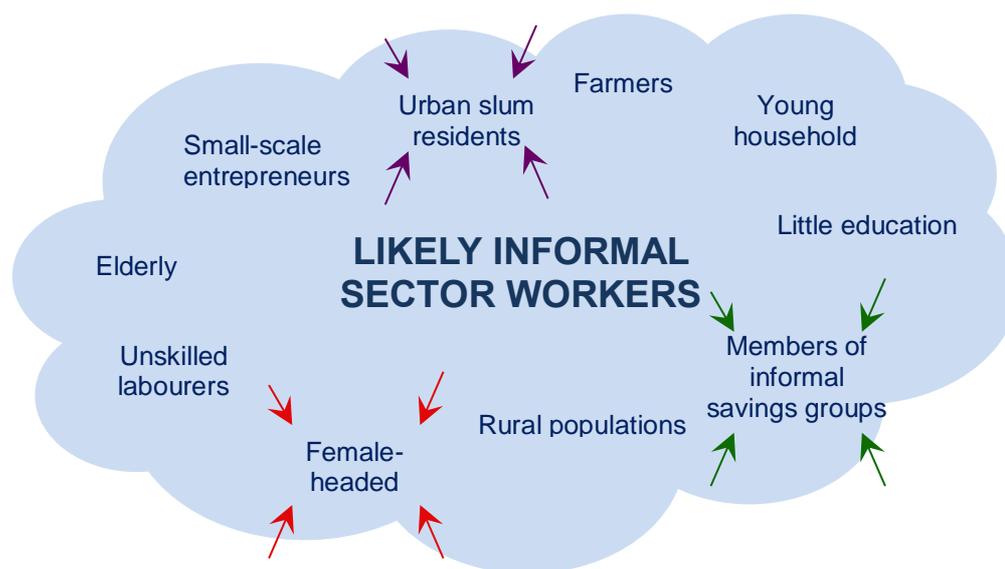
Objective 2: To estimate and critically analyse the factors that influence the value proposition of voluntary health insurance among different constituent groups of the informal sector

As highlighted within the literature review, existing studies into the household determinants of voluntary health insurance demand have tended to cluster informal sector members as a monolith. This ignores established convention on labour markets that adopts the position that informal sector dynamism complicates efforts to effectively identify its members (95). Concurrently, there is increasing recognition that the complex interplay between specific group characteristics and their social position may influence exposure to certain determinants of health insurance demand. As an example, informal employment exacerbates the already-significant income gap between men and women (53), making it plausible to expect disparities in the way micro-level factors influence each group's health decisions. These subtleties are scarcely incorporated within existing health financing research, and expose existing studies on voluntary health insurance demand to a methodological conundrum: how can they claim to objectively identify the factors influencing a health-seeking behaviour while simultaneously confounding members of a highly heterogeneous group?

In spite of the substantive differences in informal sector characteristics, one generality that can be applied is the sector's tendency to be overrepresented amongst certain

population subgroups, such as the young and old; those with lower levels of education; those who face economic uncertainty; and households with female headship (1). We applied this nuance into the research in Chapters 5 and 7 by focusing our research and analysis on specific population groups overrepresented in the informal sector as shown in Figure 5.

Figure 5: Study approach for Objective 2



Adapted from (1)

This notwithstanding, it is important to note that our research question ultimately sought to understand the determinants of health insurance enrolment among the informal sector. Our sampling for this quantitative research was thus based on the estimated proportion of the population insured with a certain precision. This coverage rate was obtained from official government and insurance scheme data, depending on data availability.

Cross-sectional household surveys were conducted to elicit responses on the factors influencing enrolment into the national health insurance scheme in Kenya and a

church-run micro health insurance scheme in Cameroon respectively. A structured questionnaire was administered in each research setting in order to identify the extent to which health insurance enrolment is influenced by a number of factors, including socioeconomic status, household-specific characteristics, and household head characteristics. These variables were adapted from existing health financing literature and country health surveys. The specific methods used for each study carried out under this objective are included in their respective chapters, and the questionnaires administered in each research setting are provided in Appendices 11.3 and 11.4 for the Cameroon and Kenya studies respectively.

The data were analysed using STATA version 14.1 for Windows (STATA Corporation, College Station, Texas). The main outcome variable was voluntary health insurance enrolment in the year preceding the study. The explanatory variables were divided into five components: household composition and attributes, household head factors, mean perceived household health status and proxies for exposure to financial risk pooling. In order to prevent the excessive use of dummy variables, the explanatory variables to be tested were based on existing literature findings. Logistic regression was used to estimate the association between the explanatory variables and health insurance enrolment, with one key difference with the majority of existing research methodology: the use of interaction terms for informal sector subgroups under examination and each explanatory variable to analyse the influence of subgroup membership on the association of each variable and health insurance enrolment. In this way, the studies sought to understand *how* exposure to specific informal sector subgroups influenced the interactions between health insurance demand and each explanatory variable.

Recognising the analytical complexities of these interplays, social analysis was applied to each research study in order to better understand how groups' social and economic

realities affected their health-seeking behaviour. This pragmatic approach aligns to existing recommendations for the combination of empirical research with more inductive analysis in order to better understand and apply health financing scholarship (96). The theories and frameworks applied to each study were specific to the unique considerations of the population group under investigation, and are highlighted in each individual manuscript.

3.3 Ethical considerations

The study protocols for this thesis were reviewed and approved by the Institutional Review Board (IRB) of Strathmore University, Kenya (Ethics Reference No. SU-IRB 0057/16; Date of approval: 23rd February 2018) and the Institutional Review Board (IRB) of the Catholic University of Cameroon in Bamenda, North-West Cameroon (Ethics Reference No. 001/HEPM/CATUC-IRB/16; Date of approval: 17th May 2016). The ethical approvals for both studies are provided in Appendices 11.1 and 11.2. The ethical procedures utilised during the duration of the study emphasised the need for all respondents to understand the project's aims and objectives, as well as necessitated individual informed consent prior to any data collection.

3.4 Thesis structure

This thesis consists of five Results chapters. Chapter 5 and 7 will seek to directly address Objective 2 of this thesis, while Chapter 4 focuses on answering Objective 1. Chapters 6 and 8 comprise of working papers written to inform stakeholder actions on

UHC and health financing in Cameroon and Kenya respectively. The contents of each chapter is described sequentially below.

Chapter 5 below seeks to examine the value interests that influence agenda setting in the country's health financing space. It further aims to understand how viewpoints within and across policy networks may influence how health financing priorities are set within the country.

Chapter 5 presents the influence of gender and household headship on voluntary health insurance in North-West Cameroon. This manuscript seeks to expand the discourse on the determinants of voluntary health insurance demand - an area where male household headship is typically assumed within existing literature.

Chapter 6 is a working paper investigating the contribution of the Bamenda Ecclesiastical Provincial Health Assistance (BEPHA) Scheme towards universal population coverage and financial risk protection in North-West Cameroon. This Swiss TPH report was written as part of an existing mandate with BEPHA to provide technical assistance developing evidence on its impact in the Anglophone Cameroon.

Chapter 7 presents the influence of localised savings groups and social capital on the uptake of national health insurance. In line with documented efforts to increase informal sector membership of the National Hospital Insurance Fund (NHIF) in Kenya, this manuscript seeks to investigate if and how localised rotating savings and cooperative association (ROSCA) membership influences national health insurance demand in Kisumu, Kenya. It further aims to understand how the social capital underpinning ROSCAs influences health insurance enrolment.

Chapter 8 is a working paper that focuses on helping Kisumu County stakeholders better understand the factors influencing informally-employed households' decision to enrol into the NHIF. The development of this report was particularly pertinent given the

emerging role of county governments in facilitating universal NHIF population coverage amongst their citizens through marketing and indigent subsidisation.

The final chapter (Chapter 9) provides a summarisation and analysis of the findings from Chapters 5, 5, and 7. It further seeks to justify the contribution of this thesis to existing knowledge. In so doing, it seeks to interrogate the theoretical, methodological, and policy contributions of this thesis.

4 Policy levers and priority-setting in universal health coverage: A qualitative analysis of healthcare financing agenda setting in Kenya

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4.1 Abstract

Background: Competing priorities in health systems necessitate difficult choices on which health actions and investments to fund: decisions that are complex, value-based, and highly political. In light of the centrality of universal health coverage (UHC) in driving current health policy, we sought to examine the value interests that influence agenda setting in the country's health financing space. Given the plurality of Kenya's health policy levers, we aimed to assess how the perspectives of stakeholders involved in policy decision-making and implementation shape discussions on health financing within the UHC framework.

Methods: A series of in-depth key informant interviews were conducted at national and county level (n=13) between April and May 2018. Final thematic analysis using the Framework Method was conducted to identify similarities and differences amongst stakeholders on the challenges hindering Kenya's achievement of UHC in terms of its the optimisation of health service coverage; expansion of the population that benefits from essential healthcare services; and the minimisation of out-of-pocket costs associated with health-seeking behaviour.

Results: Our findings suggest that the perceived lack of strategic leadership from Kenya's national government has lead to a lack of agreement on stakeholders' interpretation of UHC and its contextual values and priorities. We observe material differences between and within policy networks on the country's priorities for population coverage, healthcare service provision, and cost-sharing under the UHC dispensation. In spite of this, we note that progressive universalism is considered as the preferred approach towards UHC in Kenya, with most interviewees prioritising an equity-based approach towards increasing access to healthcare services and financial risk

protection. However, the conflicting priorities of key stakeholders complicate the likelihood of successfully achieving towards this policy objective.

Conclusions: This study adds to existing knowledge of UHC in Kenya by rationalising and contextualising the values and priorities driving the process within the county. As such, it provides new insights about the broad range of considerations that should be taken into account as the country strategises over its UHC process.

Key words

Kenya; UHC; Priority-setting; Health financing; Health policy; Political economy

4.2 Introduction

Priority-setting is a central part of building efficient, responsive and resilient healthcare systems (93,188). In many low- and middle-income countries (LMICs), efforts to strengthen healthcare planning and delivery systems are often complicated by a plethora of epidemiological, social, economic, and administrative challenges. These issues necessitate difficult choices on which health actions and investments to fund: decisions that are complex, value-based, and highly political. Priority-setting aims to provide the best use of financial and other resources in line with population value choices, demand, and need. This government-led process theoretically allows a diverse range of healthcare stakeholders to articulate their preferred values and agendas in order to achieve consensus on the direction for a country's health agenda (8). In practice, however, healthcare decision-making in many LMICs is often *ad-hoc* resulting in inefficient and inequitable resource allocation (12).

Against this backdrop, universal health coverage (UHC) has been identified globally as the ultimate blueprint for a country's health policy direction (189). It is defined as the aspiration of a country's citizens to obtain access to essential health services based on need without the risk of financial hardship. At a notional level, UHC is measured by the progressive achievement of three key objectives: the optimisation of health service coverage; expansion of the population that benefits from essential healthcare services; and the minimisation of out-of-pocket costs associated with health-seeking behaviour (4). However, there are concerns about the diversity of interpretations of UHC and the lack of frameworks to guide its application in a context-specific manner (7). This concern has manifested itself in Kenya, where the national government has integrated UHC into its health policy documents and medium-term development agenda (190–192). While there has been vocal support for this health policy goal within political and

bureaucratic circles, there remains limited articulation of the explicit choices and trade-offs to be considered in steering the country's UHC policy direction. There is therefore an urgent need to define the values underpinning Kenya's UHC agenda, as well as the divergences that may limit the success of these endeavours. This paper seeks to investigate the fundamental priorities driving provisions towards UHC and its health financing strategy in Kenya. In doing so, we examine the political economy of UHC in Kenya and its impact on the country's health financing decisions. This paper will be structured as follows: We will first provide an overview of existing health systems strengthening efforts carried out under the banner of UHC in Kenya, and the centrality of the multi-stakeholder approach in identifying health systems values. We will subsequently report our methodology and results, and finally follow up with an analysis of our findings.

In order to understand Kenya's ambitions within its current context, it is first necessary to identify the specific systems-wide approaches undertaken under the UHC banner. The national government has sought to promote interventions that apply six key principles highlighted within the current Kenya Health Policy: equity; people-centeredness; participation; multi-sectoralism; efficiency; and social accountability (190). In terms of health service coverage, the Kenyan Government has promoted investments that passively encourage equity, people-centeredness and participatory approaches. Accordingly, healthcare provision in the country was decentralised to county level in 2012 in order to reduce regional disparities in health outcomes and increase responsiveness to the unique local epidemiological and social contexts (13,14,193). The government has further expanded service offerings within the country's national health insurance scheme, the National Hospital Insurance Fund (NHIF), in order to improve formal sector service coverage and to attract informal

sector members (73,190). This has included the provision of fully-subsidised services for all Kenyans, including free maternity services. In order to increase the county's population health coverage, Kenya's national government sought to encourage social accountability by hiring local agents such as community-health workers (CHWs) to conduct NHIF population sensitisation and targeting activities (194). Through this process, it aims to convince informal sector members to join the NHIF, as well as to identify indigents who may benefit from the full subsidisation of their NHIF premiums. The government has also sought to integrate different health funding sources in order to optimise resource use, as well as to provide full NHIF premium subsidisation for vulnerable groups such as indigents and the elderly in order to minimise the financial risk associated with ill health. In spite of these efforts, we note that there is a lack of coherency in Kenya's health priorities, which can be linked to the lack of definition of the values and trade-offs competing for resources within Kenya's limited fiscal space. This has resulted in limited resource and strategic investment into health policy goals, thereby limiting the potential impact of actions and investments towards UHC in Kenya (185,191,195).

Given the intrinsically participative nature of health priority-setting, the inclusion of a broad range of stakeholders is essential for the success of UHC in the Kenyan context (11). Indeed, the multiplicity of stakeholder interests and values has been highlighted in various studies investigating the political economy of various health systems reforms in the Kenyan healthcare sector (14–16). As such, it is imperative to identify and consider the ideological divide amongst key policy stakeholders when considering Kenya's ideal path towards UHC. This study seeks to examine the value interests that influence agenda setting in the country's health financing space. Given the plurality of Kenya's health policy levers, we aim to assess how the perspectives of stakeholders

involved in policy decision-making and implementation shape discussions on health financing within the universal health coverage (UHC) framework. We further seek to understand how viewpoints within and across policy networks may influence how health financing priorities are set within the country.

4.3 Methodology

4.3.1 Study setting

This manuscript reports the analysis of a series of in-depth key informant interviews at national and county level (n=13) carried out between April and May 2018. The interviews targeted national- and county-level policymakers with specialist knowledge on Kenya's health priority-setting process in order to identify the fundamental values related to provisions for population coverage of UHC in Kenya; the range, scope and quality of health care service provision; and the investments necessary for reducing the financial impact of ill health amongst the Kenyan population.

The rationale of these dimensions as a guide for the decision-making context underpinning UHC in Kenya was driven by a lack of existing frameworks through which dialogue on UHC policy could be approached. Given that the above-mentioned UHC dimensions have received near-universal backing amongst World Health Organization member states (189), we applied them to the study design in order to rationalise discussions on the country's health systems priorities. This approach, in our view, was more likely to present a holistic perspective of the values and trade-offs to be considered in the push towards UHC.

National stakeholders were stratified into three policy circles: national government stakeholders responsible for defining national health financing policy in the country; development partner stakeholders who provide both financial and technical support on health systems strategies to the national and county governments, and the technical experts advising both groups. County-level stakeholders included current and former Chief Health Officers responsible for formulating and implementing county health strategies in Kisumu County.

The presented research was undertaken in Nairobi – where most national stakeholders and technical experts are domiciled – and Kisumu. The key informant interviews at county level were embedded within a larger quantitative study in Kisumu, which aimed to investigate the factors influencing voluntary enrolment into the NHIF amongst residents of urban informal settlements (196).

4.3.2 Data collection

Thirteen in-depth interviews were conducted using a semi-structured discussion guide. Each interview lasted approximately 45 minutes, and elicited discussions on stakeholder value interests in Kenya's health financing space. In order not to pre-empt the value interests of respondents, the direction of conversation was steered as much as possible by preceding interviewees' responses.

Of the thirteen interviews conducted, three were national-level government stakeholders, two were county-level government stakeholders, three were development partners, and five were technical experts. Of the technical experts, two had played a role providing technical expertise to the NHIF directly, two had advised the Ministry of Health on its universal health care strategy directly, and three had played a role advising development partners at the time of the study. One of the

development partners had previously been a national government policymaker in the five years preceding this study.

Table 1: Overview of key informants and where they worked (health system level)

Research Phase	Total
In-depth interviews with national-level government stakeholders	3
In-depth interviews with county-level government stakeholders	2
In-depth interviews with development partners	3
In-depth interviews with technical experts	5
Total	13

4.3.3 Data analysis

Ten of the thirteen interviews were audio recorded and summary notes were taken. Audio files were transcribed verbatim. Three interviews were not recorded with respect to interviewee requests, but detailed notes of the interviews were written. Data were subsequently analysed using the Framework Method, which enables comparison of emerging themes across different policy networks through inductive and deductive approaches (94). This method was applied in this study using the following approach: (i) the transcribed data were compared with the audio files in order to ensure its veracity; (ii) the audio recordings were played severally in order to ensure familiarisation with its contents and themes; (iii) open coding of the transcripts was conducted in MaxQDA in order to categorise a preliminary set of themes based on the key UHC building blocks; (iv) iterations were made to the coding system as new themes emerged from the interview data; and (v) emerging themes were analysed across individual interviewees and policy groups using MaxQDA analysis functions.

Final thematic analysis focused on interpreting similarities and differences amongst stakeholders on the challenges facing Kenya's health system that hinder the achievement of UHC in terms of its three building blocks; potential solutions to the problems identified; and the political and real-world situation that aided or hindered the achievement of the articulated solutions.

4.4 Results

4.4.1 Universal Health Coverage in Kenyan context

Stakeholders across the policy divide viewed UHC as a complex process within which a variety of players, structures and concerns should be incorporated. While there was congruence on the multi-faceted nature of UHC, several stakeholders accused the national government of lacking a holistic approach towards UHC, suggesting that it often limited its interventions to healthcare financing through the NHIF:

“... the main agenda has not always been about providing comprehensive public information about what UHC is about. If you go to the Ministry of Health [they] just tell you to enrol with NHIF.” (Development partner)

4.4.2 Population coverage

Our interviews revealed a lack of consensus on the definition of the population to be covered with essential health services in order to achieve UHC. When queried, respondents within and across policy networks oscillated between defining population coverage as providing UHC to the whole Kenyan population; at least 80% of the population; and focusing solely on the poorest Kenyans. In spite of this variance, we

noted convergence amongst stakeholders on the role of the NHIF as the organisation responsible for pooling population groups in order to facilitate equitable access to healthcare services in Kenya.

Stakeholders identified two target population groups as integral to efforts on optimising the NHIF under the UHC banner: the informal sector and indigents. Respondents across all policy networks acknowledged concerns about the low enrolment numbers amongst these population groups, citing difficulties in market segmentation. This, they intimated, was linked due to the mutability of these populations and weak household identification systems within the country. In order to mitigate these concerns, stakeholders submitted that the actions of the national government, county governments, and individual informal sector members were key to the success of the NHIF. The degree to which each group was held responsible for increasing population coverage within the NHIF, however, varied across policy networks.

National and county government

Respondents across all groups expressed strong expectations that the county government would play a central role in identifying and targeting households for enrolment into the NHIF. While acknowledging their role in identifying indigents, county stakeholders felt that the national government should provide the financial resources for increasing population coverage through the NHIF.

“The national government should first tell us how much money they have for UHC... if they are going to cover the indigents, then the county does not need to worry about that.” (County stakeholder)

Respondents across policy networks acknowledged the NHIF's efforts to improve the process of population targeting by engaging community health workers (CHWs) – who make up the first level of the Kenyan healthcare system – to sensitise and register all local households in a number of pre-selected counties. Given the positioning of CHWs under the county government system, respondents emphasised the need for counties to develop strong, sustainable CHW payment policies. It was noted that counties varied in their CHW payment policies: some paid CHWs directly, while others relied on donors for their payment. This, in stakeholders' view, raised the possibility of donor priorities superseding government UHC strategy, thereby weakening the authority of governments to effectively use CHWs for implementing official Kenyan health policy. Few concrete solutions were offered on how to better facilitate the role of county governments in targeting and enrolling residents into the NHIF, highlighting the complexity of population coverage in Kenya. However, some general suggestions offered by stakeholders ranged from the use of innovation for population mapping to the complete integration of the NHIF into government services to enforce NHIF premium payment.

“There should be some legal provisions to put some level of discipline on the population. For example, you can tie access to government services to NHIF enrolment...” (Technical expert)

Individual informal sector households

In light of the difficulties in enforcing mandatory NHIF coverage in Kenya due to ineffective household identification strategies, stakeholders across the policy divide

conceded that individual households would continue to play a major role in NHIF's risk-pooling strategy.

Stakeholders showed unanimity in their reservations about the NHIF's ability to effectively attract voluntary members. Some stakeholders considered financial instability as a key barrier to voluntary NHIF enrolment and expressed concerns about the equity implications of targeting heterogeneous informal sector groups.

"Let's say we have two informal sector members who [provide motorcycle transport].

How will you be able to identify who [is in a financial position to afford NHIF]?"

(County stakeholder)

Limited solutions were offered for the underlying inequity within the NHIF's population coverage, with respondents diverging on who ought to receive NHIF premium subsidisation. We did not identify any clear patterns on this issue within or across policy networks, with many stakeholders offering no opinion on the topic.

"The question is, do we request the government to finance all households within the informal sector, or do we provide incentives or partial subsidies so that people can

join the NHIF?" (Development partner)

Another point of discussion was what stakeholders viewed as the complexity of financial decision-making amongst those with limited disposable income: in their view, the decision to enrol into the NHIF was complicated by a low NHIF value perception amongst informal sector members and ineffective NHIF outreach mechanisms. Technical stakeholders expounded on the need to simplify communication targeting

informal sector members, urging the targeting of specific population groups such as women, churches, and savings groups as a means of expanding voluntary NHIF enrolment. However, we were unable to identify through our interviews under whose purview the creation and dissemination of these sensitisation materials would fall.

A small proportion of development partners and technical experts deplored what they viewed as obsolete enrolment procedures, such as requiring birth and marriage certificates for enrolment. They noted that this disregards the evolution of Kenyan societal norms by underestimating the difficulties faced by underprivileged communities in getting official documentation.

“The NHIF has policies that are so archaic, such as availing marriage certificates. Go to slum areas... you'll find women of reproductive age who have multiple children but no identification card, much less a marriage certificate.” (Technical expert)

It was further noted that perceived punitive measures for defaulting on premium payment disincentivised NHIF uptake. These concerns were, however, in the minority.

4.4.3 Service coverage

A majority of respondents felt that the priority of UHC in the context of service coverage was to avail adequate and quality healthcare services to the general public. There was, however, divergence on how this would be achieved in Kenya. Broadly, two areas of focus were mentioned as the main policy levers that directly impacted service coverage in Kenya: healthcare service planning and provision.

Healthcare service planning

Stakeholders generally felt that health system needs were highly county-specific, noting the different levels of investment across the country.

“... Each county has very specific needs. Some struggle with equipping facilities. Others have problems with the distribution of facilities, while others have issues with how facilities are managed.” (Technical expert)

In spite of this, stakeholders across the policy divide generally agreed that healthcare service provision across the country was inadequate, highlighting concerns about limited investment into infrastructure and the human resource base. Some NHIF and technical expert respondents deplored what they viewed as misplaced healthcare investment decisions at national level.

“Instead of buying high-end equipment, instead of doing all these fancy, politically visible, expensive things... they should be building more dispensaries, more health centres, making sure that everyone is within five kilometres of a health centre”
(Technical expert)

Further, some respondents expressed frustration about county governments' unwillingness to allocate funds collected at health facilities towards improving local health systems. Several county government stakeholders and technical experts felt that many county governments often paid lip service to UHC, focusing on enrolling residents into the NHIF but not on providing the required capital investment into

healthcare facilities. This strategy, in their view, was counterproductive and risked exacerbating poor healthcare service provision at the local level.

Concurrently, while acknowledging efforts to increase the population's access to healthcare services through the NHIF, stakeholders across the policy divide expressed concern that there had been insufficient focus on increasing the number of NHIF-empanelled healthcare facilities that target under-served populations.

“Those in pastoralist and sparsely-populated communities may have to travel up to seventy kilometres to access healthcare services even after paying for NHIF. That doesn't add up” (Development partner)

Respondents acknowledged that the requirements for NHIF empanelment were often too high to be achieved by lower-level healthcare facilities, which were over-represented in rural areas. This in turn led to an imbalanced system where healthcare facilities in urban and wealthier areas were over-represented on the NHIF-approved facilities list.

Further, while some counties were collaborating with the NHIF to increase empanelled facilities, several respondents deplored what they viewed as political interference in the empanelment process. It was intimated that some counties had lobbied for lower-quality facilities to be empanelled by the NHIF, which had led to concerns about maintaining the quality of care in NHIF-approved facilities. In order to mitigate this, respondents suggested strengthening the NHIF accreditation and quality improvement system. Details on how this would be achieved were, however, scarce.

In order to mitigate concerns on the resilience and adaptability of local healthcare service provision, several technical experts proposed that the national and county

governments work to create distinct public-private healthcare networks with defined roles. County stakeholders also highlighted the integral role of preventative health in relieving pressure on the healthcare delivery system, suggesting that:

“We must put a lot of emphasis on prevention of these diseases... A lot of diseases that we have in this region are communicable diseases.” (County stakeholder)

Healthcare service provision

When probed about Kenya’s essential healthcare benefit package, we observed a lack of consensus in the views expressed by the different policy networks. While a majority of development partners and technical experts lamented what they viewed as a broad and arbitrary healthcare benefit package, most NHIF and county stakeholders expressed satisfaction with the current voluntary NHIF healthcare benefit package. All stakeholders tasked the Ministry of Health with the responsibility of applying strong technical expertise in order to define and cost a realistic minimum healthcare benefit package that could be offered on a large scale in the country.

“The Ministry of Health must own the process of defining the [minimum] health benefit package, regardless of who is financing it. We must not allow [other parties] to dictate to them” (Technical expert)

We observed that the several stakeholders did not distinguish between the Kenya Essential Package for Health Services (KEPHS) – which highlights the universal minimum entitlements to be provided to all Kenyans in an equitable manner – and the NHIF healthcare benefit package during the course of the interviews. Only a single

technical expert explicitly articulated the need to definitively consider which KEPHS entitlements could realistically be offered through the NHIF, given the exclusion of several levels of healthcare providers from the NHIF-selected facilities.

Stakeholders who expressed concerns about the sustainability of Kenya's healthcare benefit package attributed their unease to political interference by the country's President, and technical incapacity at the Ministry of Health.

“The issue at the Ministry of Health has to do with knowledge and capacity... and is probably what has led to fragmentation of approaches on the implementation of UHC” (Development partner)

Technical expert and development partner respondents articulated the need to revise the country's minimum healthcare benefit package in line with the financial realities and epidemiological profile of the country, as well as a strong evidence base of cost-effectiveness, risk, and equity. They further suggested that the private sector's role lay in providing top-up insurance over and above the minimum healthcare benefit package.

4.4.4 Cost-sharing and user fees

Although most respondents expected UHC to reduce out-of-pocket payments for the Kenyan public, our findings uncovered a disconnect between stakeholders on the level of cost-sharing acceptable for receiving healthcare services in Kenya. While all county stakeholders interviewed envisaged co-payments by members of the public ceasing in their entirety under the UHC framework, some technical experts suggested that maintaining a moderate level of co-payment would help in controlling moral hazard in Kenyan hospitals. It was not clear which services respondents expected would be

subject to co-payment, although one respondent suggested limiting them to services beyond the minimum health benefit package.

According to stakeholders, cost-sharing in the Kenyan context is largely executed at facility level, with responsibility falling upon three major players: the national government; county governments, and the NHIF. A minority of technical experts advocated for a tax-based health financing system, citing the implausibility of achieving UHC through the NHIF. Several technical experts opined that the national government's role in cost-sharing had been negated by the 2012 Constitution, which devolved most healthcare functions to the sub-national level. Nevertheless, they noted that the national government still had a major role to play in revenue raising for the sub-national level and subsidising the NHIF.

“Counties don't have a leeway to source for financial support from outside countries without going through the national government. So, the national government remains a key instrument.” (Development partner)

Indeed, it was observed that the availability of healthcare funding at county level was limited: according to the Kenyan legislative framework, funding collected from local healthcare facilities is required to be placed in a general county revenue collection account with no obligation for its subsequent allocation to health services. Given the pervasive link between county budgets and medium-term political goals, respondents expressed concern about the sustainability of revenue raising for health at sub-national level.

When queried about their concerns on cost-sharing in Kenya's health system, stakeholders across policy networks observed that the stability of resource mobilisation

for health would determine the level and sustainability of cost-sharing measures undertaken. At the national level, there was consensus that the diminishing healthcare funding was a major risk to revenue stability, linking it both to reduced donor funding as well as reduced government funding to the NHIF. NHIF stakeholders noted that national budget allocations to health had not matched political rhetoric on expanding the organisation's population and service coverage. In order to navigate the reduced national financial allocations to health, several NHIF stakeholders and technical experts endorsed the pooling of parallel funding sources into the NHIF in order to increase its resource base. Some county and technical expert stakeholders also suggested aligning the minimum universal health entitlements to the financial constraints of the national government, with one technical expert stating:

“We need to figure out our ability to mobilise resources... Following that, we need to determine the range of services that ... we can offer for free”. (Technical expert)

County stakeholders expressed frustration about what they viewed as the offloading of healthcare functions to county level without the necessary financial support being provided by national government. As an example, respondents pointed towards the national government's purchase of unnecessary medical equipment, which they felt overstepped its governance role and diverted much-needed funds from the health system. Concurrently, NHIF stakeholders and technical experts felt that county governments had not used allocated health funds efficiently, pointing towards the return of allocated health funds to the National Treasury at the end of the financial year. Respondents blamed a *“lack of understanding of budgeting processes”* and *“lack of accountability and efficiency”* for these problems.

At facility level, stakeholders across policy networks considered the availability of NHIF funding as integral in aiding cost-sharing processes. A number of technical experts noted the lack of agreement on financing modalities to facilitate co-payment at facility level. Respondents further noted what they viewed as unfair NHIF reimbursement processes against public facilities, with a county stakeholder opining:

“... NHIF reimbursements do not come as quickly as those for private facilities... My assumption is those who can [pay a bribe] get their reimbursement faster” (County stakeholder)

These responses amplified concerns punctuated throughout our interviews about corruption within the NHIF. NHIF stakeholders did not however, share these concerns.

4.5 Discussion

In this study, we sought to ascertain the core values underpinning Kenya's move towards UHC. In doing so, we examined the political economy of UHC in Kenya and its impact on the country's health financing decisions.

It is clear from the outset that Kenyan stakeholders recognise UHC as a major goal in the country's health policy and priority-setting landscape. While the robust dialogue within Kenya's health policy circles signals intentionality to create a path towards UHC, our findings suggest that the national government has been unable to centre itself as the main steward of this policy objective. As a result, there is a perception that the country lacks a centralised, systematic and inclusive process through which this agenda can be driven, leading to a cacophony of interpretations of UHC's contextual objectives and special considerations. This necessitates an interrogation of the country-specific principles on which Kenya's potential UHC and health financing priorities are likely to be based.

Conflicting policy positions aside, progressive universalism has emerged as the preferred approach towards UHC in Kenya, with most interviewees prioritising an equity-based approach towards increasing access to healthcare services and financial risk protection. This strategy is particularly pertinent in the Kenya setting given the regressive nature of its household healthcare contributions and the impact of multi-dimensional factors on the health system's responsiveness and resilience (74,197,198). Our findings suggest that stakeholders across the policy divide are particularly supportive of systemic health financing and service delivery measures that counterbalance geographic and socioeconomic inequities in the Kenyan healthcare system. For example, there is broad support for the full subsidisation of indigents at county-level in order to optimise fairness in means-testing. Similarly, stakeholders are

sensitive towards disparities in health facility distribution in Kenya, suggesting a push towards geographic equity through the creation of strategic public-private healthcare networks. These findings align to a pro-poor approach towards UHC that prioritises equity and equality, and underline a commitment towards a more holistic healthcare approach under the UHC banner (199–202). While support for progressive universalism in Kenya’s UHC push seems unequivocal, the conflicting priorities of key stakeholders complicate the likelihood of jumpstarting progress towards this policy objective. Our findings reveal material differences between and within policy networks on the country’s priorities for population coverage, healthcare service provision, and cost-sharing under the UHC dispensation. We hypothesise that the lack of strategic leadership from Kenya’s national and county governments risks derailing progress towards the expansion of access to health services and financial risk protection.

In terms of population coverage, there seems to be unanimity on the central role of the NHIF in expanding population risk pooling within the Kenyan population. Our findings, however, suggest divergence on two priority issues that may compromise the success of population coverage efforts: systemic support for a robust population identification mechanism; and clarity on stakeholder roles in the financial coverage of priority population groups. While existing NHIF reforms are timely (203–205), concerns remain about the Fund’s ability to incorporate under-served communities in an equitable, efficient and participatory manner. Indeed, stakeholders across the policy divide were apprehensive about NHIF efforts to effectively identify informal sector members for enrolment, highlighting inefficiencies in its current population identification and means-testing mechanisms. One major concern raised was the feasibility of county-level population targeting efforts, with respondents decrying irregular CHW payment policies between counties. In addition to considerations on population sensitisation and

targeting, stakeholders revealed a lack of financial commitment by national and county governments as a key barrier towards achieving universal population health coverage. While stakeholders across policy circles agreed on the necessity of protecting indigents from the undue financial pressure of ill health, our findings suggest an unwillingness by county and national governments to provide the long-term financial support needed to facilitate the protection of indigents from the undue financial pressure of ill health. This discordance threatens the success of Kenya's efforts towards population risk pooling, and reiterate the need for clarity and willingness to support the subsidisation of health costs for vulnerable groups.

When queried about health service coverage, we observed discordance between policy networks on the range of healthcare services to be provided to the Kenyan population as part of the country's UHC efforts. Stakeholders stated priorities were highly dogmatic, with government stakeholders preferring a broad set of healthcare services that prioritised socially-acceptable outcomes, and technical experts and development partners endorsing a limited costed essential healthcare benefit package based on a strong evidence-based process. We note that since the completion of our study, the Kenyan Ministry of Health has embarked on efforts to cost an essential healthcare benefit package (206). While the implementation of this evidence-based process is laudable and necessary, it is important to leverage this process against an understanding of the key value considerations that drive resource allocation in health. Indeed, it is acknowledged that technical approaches towards priority-setting are often not adhered to in the real-world setting, making it important to understand the drivers of Kenya's health priorities outside of its budgetary, epidemiological and technical considerations (9,12,207). Our findings also reveal systemic ambiguity on the role of different players in providing access to the Kenyan essential benefit package.

According to stakeholders, three key healthcare service purchasers should exist within the realm of UHC in the Kenyan context: national and county governments, the NHIF, and private health insurance providers. It is clear from our findings that stakeholders believe that the role of purchasing healthcare services outside of the essential healthcare benefit package should fall to private health insurance providers. There is, however, a lack of articulation on how purchasing for the essential healthcare benefit package should be split between the county departments of health and the NHIF in an efficient and coherent manner. This is a key consideration that should be clarified and articulated in order to prevent inefficiencies within the system.

In terms of cost-sharing, the limited financial investment by national and county governments into Kenya's health goals remains a hindrance towards UHC efforts, with stakeholders expressing uncertainty about their commitment towards the country's health agenda. Indeed, annual budget documents suggest that national government contributions towards the UHC agenda have largely stagnated in direct opposition to its policy rhetoric (185,191,195). Given that the national government bears responsibility for the coverage of the costs associated with the essential health benefit package, this calls into question the feasibility of implementing the full subsidisation of these health costs. Further, county departments of health are often reliant upon haphazard disbursements from county governments to fund existing health programs. The vast majority of this funding goes towards covering the wage bill for healthcare workers, thereby limiting counties' ability to invest in infrastructure and service improvement, or further subsidisation of health costs for indigents. Technical experts further expressed frustration about the efficiency of the use of financial disbursements at county level, with several counties returning existing funding due to systemic inefficiencies. Given that the achievement of UHC is reliant upon cost-sharing for

healthcare services between governments and their citizens, this lack of substantive commitment by Kenya's financial bureaucracy risks maintaining a high level of financial risk amongst the Kenyan population (202).

In light of the emerging gaps in interpretation of UHC in the Kenyan setting, there remain significant challenges in the country's ability to offer accessible health services and financial risk protection to all its citizens. Unless appropriate action is taken to remedy these divergence, Kenya's health system will continue to be regressive due to its reliance on household contributions through out-of-pocket payments (77). It is therefore imperative for the national government to implement a strong governance system focused on defining a common and realistic set of health system values, as well as creating a strong policy, legal, institutional and regulatory framework to support the progressive achievement of UHC in Kenya.

While our study provides an important starting point for the discussion on UHC value setting in Kenya, there are several considerations that limit the generalisability of our findings. We faced difficulties in interviewing several national stakeholders, thereby missing some important perspectives on the topic under research. Nevertheless, we made the effort to interview these stakeholders' technical advisors in order to mitigate this omission. Due to resource limitations, we limited our study at county level to stakeholders from one of the fifty-two counties. This means that while our results may be relevant across the country due to the inclusion of national stakeholders, it would be difficult to generalise the responses of county stakeholders. In spite of these limitations, we note that this is the first study in Kenya seeking to understand health financing agenda setting under the UHC umbrella.

4.6 Conclusion

This study adds to existing knowledge of UHC in Kenya by rationalising and contextualising the values and priorities driving the process within the county. As such, it provides new insights about the broad range of considerations that should be taken into account as the country strategises over its UHC process. These insights are particularly pertinent, given the need to adjust current provisions of UHC in Kenya in line with the populations needs and realities.

Declarations

Ethics approval and consent to participate

Ethical approval for this study was obtained through the Institutional Review Board (IRB) of Strathmore University, Kenya (Ethics Reference No. SU-IRB 0057/16; Date of approval: 23rd February 2018). Verbal consent was obtained from interviewees prior to beginning each interview, and all information collected was anonymised to protect the identity of respondents.

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Authors' contributions

TO designed and collected the data for the study. TO completed data analysis and drafted the manuscript for publication. KW helped draft and review the manuscript for intellectual content. All authors read and approved the final version.

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5 The influence of gender and household headship on voluntary health insurance: the case of North-West Cameroon

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Key messages

Household heads are more likely to enrol into voluntary health insurance if involved in social networks, regardless of gender.

Women prioritise their direct knowledge of potential household health risks when evaluating the decision to enrol voluntary health insurance enrolment.

However, income ultimately determines women's ability to participate in health insurance schemes.

When purchasing health insurance, men prioritise on their understanding of household health risks, which is linked to their education and age.

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5.1 Abstract

Within existing health financing literature, males are typically categorised as the household's decision-makers. While this view accurately reflects many local sociocultural realities, approximately a quarter of sub-Saharan African households are now headed by females. With efforts to increase health insurance coverage ongoing in many countries, it is necessary to examine whether the factors influencing voluntary health insurance enrolment are analogous across male- and female-headed households. This study sought to examine the gendered determinants of voluntary enrolment into a church-run micro health insurance scheme. A cross-sectional survey of 550 households was carried out in Bui and Donga-Mantung Divisions of North-West Cameroon in May 2016. A structured questionnaire was administered on health insurance membership; household attributes; headship characteristics; and health-seeking behaviour. We assessed the influence of gender on the associations between health insurance enrolment and the explanatory variables using logistic regression. Our study found that voluntary health insurance demand was influenced by involvement in social networks regardless of gender. Ultimately, however, men's enrolment decision was associated with their understanding of health insurance, while economically-empowered women tended to act in consideration of household welfare. Men's demand for health insurance was correlated primarily with their education level (OR=2.238 [CI:1.228–2.552]), as well as with their socio-economic status (OR=2.207 [CI:1.173–4.153]), age (OR=2.238 [CI:1.151–4.352]), and trust of the insurance provider (OR=4.770 [CI: 2.407–9.453]). Conversely, women's enrolment decision was primarily associated with their income levels (OR=5.842 [CI:1.589-21.484]), as well as by the presence of children (OR=3.734 [CI:1.228–11.348]). The influence of wealth on health insurance enrolment highlights the need for policymakers to subsidise health

insurance schemes for vulnerable population groups. Further, it is imperative to develop sensitisation campaigns that are simple and digestible to facilitate understanding of health insurance across all target groups.

5.2 Introduction

Within existing health financing research, males are typically categorised as the gatekeepers in the decision to enrol into voluntary health insurance. While this view accurately reflects local sociocultural realities in the developing world, many sub-Saharan African countries have been experiencing an increase in female-led households: In Cameroon, for example, women now head 26% of households (97). This necessitates an examination of whether the factors influencing voluntary health insurance enrolment are analogous across male- and female-headed households. This study seeks to identify if and how the gender of the household head influences enrolment into a voluntary micro health insurance scheme in North-West Cameroon. It further aims to analyse the influence, if any, of entrenched gender household roles on the decision to enrol.

In many low- and middle-income countries, there is increasing recognition of the debilitating financial impact of illness on households (98–100). Against this backdrop, governments and health financing stakeholders have endorsed prepaid healthcare as the preferred approach for reducing out-of-pocket expenditure and facilitating access to health services (101). This has largely taken the form of risk-pooling mechanisms in developing countries, with many governments striving to develop functional and inclusive health insurance schemes (102–104). However, due to budgetary constraints

and complexities in identifying the informal sector, many African governments have been unable to achieve large-scale health insurance coverage (31,105,106). This has led to the proliferation of private micro health insurance schemes targeting those who would otherwise suffer from a disproportionate risk of impoverishment due to illness (107,108). Crucially, these schemes are voluntary, and depend upon an active decision by households to purchase the health benefit package.

In order to better understand the factors which influence one's likelihood to seek health insurance coverage, a range of studies have investigated the determinants of voluntary enrolment across various African settings. This work has largely focused on identifying the individual and household drivers of enrolment, with household size and composition; socioeconomic status (SES); and education level emerging as major determinants of voluntary health insurance enrolment (109–122). Most of these studies have approached the analysis of health financing decision-making from a patriarchal point of view, reflecting the established sociocultural conventions in the study areas. This approach, however, may no longer be fully representative of current household structures, given that 26% of sub-Saharan African households are now headed by females (123).

The increase in female-led households in various sub-Saharan African countries may be attributed to several documented patterns in migration and epidemiology: widespread male economic migration to urban areas has resulted in *de facto* female household headship in many rural areas (124,125). Further, females are likely to live longer than males despite higher reported incidences of chronic diseases and exposure to death through childbirth (126). These realities underscore the need to explore the driving factors of voluntary health insurance enrolment not just from the

perspective of normative social convention, but also with a pragmatic view of existing household headship structures.

In this regard, there remains a dearth of literature on the role of women as primary agents in the decision to enrol into voluntary health insurance. Most relevant studies have investigated the ability of health insurance schemes to reach women as a vulnerable demographic, but not as the decision-makers driving the demand for health insurance (115,127). To the authors' knowledge, only a single study has been carried out investigating the gendered determinants of voluntary health insurance enrolment in the African context. Dixon *et al.* carried out a comparative analysis of the factors associated with voluntary health insurance in Ghana, and found crucial educational, socioeconomic, and marital differences between male and female individuals (112). While this work presents an important first step in the analysis of the gender dynamics in health insurance demand, Dixon *et al.* did not consider the role of gendered household headship in the decision to enrol. This means that there is still a significant knowledge gap on the influence of gender on voluntary health insurance demand when decision-making autonomy is acquired.

Precursory insight into the relationship between gender and healthcare decision-making may be gained from health-seeking behaviour literature, where several reviews have investigated the intersection between household roles and the decision to seek external health care. A systematic review by Colvin *et al.* on health-seeking behaviour found that timely treatment of sick household members is inextricably linked to the level of influence held by the mother on the final decision to seek external care (128). This study also noted that male partners are typically only involved in the care-seeking pathway as the decision-makers of the economic and medical case for seeking outside care. Congruently, a global review of morbidity and mortality literature found that

autonomy amongst mothers was associated with better overall health status amongst children in the household (129). These studies allude to potential gendered differences in the consideration of health-related decisions: they suggest that the divisional roles intrinsic within the household lead men and women to evaluate health risks differently. Based on this, we hypothesise that women are likely to prioritise their direct knowledge of the household's potential healthcare needs when making healthcare decisions. Conversely, we hypothesise that men are likely to prioritise their understanding of potential health risks.

5.3 Materials and Methods

5.3.1 Research setting

The Bamenda Ecclesiastical Provincial Health Assistance (BEPHA) Scheme is a micro health insurance scheme set up by the Roman Catholic Church in North-West and South-West Cameroon. It consists of four independently-operated schemes in Bamenda, Buea, Kumbo and Mamfe Parishes covering a total of 35,224 individuals as of November 2016 (130). For the purposes of this study, we will be focusing on the BEPHA Kumbo Scheme.

The BEPHA Kumbo Scheme is active in the Bui and Donga-Mantung administrative divisions of North-West Cameroon. The North-West region is plagued by poor health outcomes, including the highest HIV prevalence rate in Cameroon (8.7%). It also suffers from a high malaria prevalence of 20% (131). Poor health outcomes in this region are exacerbated by steep out-of-pocket costs: according to the country's Demographic and Health Survey (DHS), North-West Cameroon has the second-

highest level of health spending in Cameroon in the event of illness, in spite of accounting for 13% of the country's poor (89,97).

Membership of the BEPHA Kumbo Scheme is voluntary with a minimum enrolment unit of four individuals. The annual premium per individual is set at FCFA 4000 (US\$ 6.80 in May 2016) and is paid in a maximum of three instalments. BEPHA annual coverage starts in either June or November. However, coverage within educational institutions begins in October in line with the annual academic calendar. The BEPHA benefit package covers three-quarters of the cost of inpatient services; delivery services; outpatient services; and surgery respectively. Enrolees are permitted to access BEPHA inpatient and outpatient care benefits twice annually, while surgery and maternity care can only be reimbursed once annually. BEPHA applies maximum cost ceilings for each of the offered services in order to ensure financial sustainability: FCFA 15000 (US\$ 25.50) for outpatient services and maternity services respectively; FCFA 25000 (US\$ 42.50) for inpatient services; and FCFA 70000 (US\$ 119.00) for surgery.

5.3.2 Study design

A cross-sectional household survey was carried out in the Bui and Donga-Mantung divisions of North-West Cameroon between April and May 2016. All administrative sub-divisions of Bui and Donga-Mantung were eligible for sampling. For operational reasons, the study was conducted in the sub-divisions where more than 30 households were enrolled into the BEPHA Kumbo Scheme.

The study had two distinct aims: (i) to estimate the proportion of the population with BEPHA health insurance, and (ii) to assess the effect of explanatory variables on this proportion. For the first aim, we based the sample size on the ability to estimate the

proportion insured with a certain precision - in this case, with an expected BEPHA population coverage of 4%. This coverage rate was obtained from the BEPHA membership Audit carried out in FY 2015-2016 (130). Using the Hayes and Bennett equation and taking into account clustering in nine sub-districts, the required sample size for the first study aim was calculated to be 416 households with the precision of a 95% confidence interval with width of 2% to 6% (132).

The number of households interviewed in each sub-division was proportional to its demographic size (133), and we assumed that the measure of variability between clusters k , the standard deviation divided by the mean, was equal to 0.1 (132). As a sampling frame was not readily available for the study area, we randomly selected starting points within outposts in each sub-division. We subsequently carried out systematic sampling, with every n th household interviewed. Approximately 98% of the targeted households could be interviewed.

In order to achieve the second study aim of estimating the factors associated with health insurance enrolment, we sampled additional insured households from the BEPHA membership list. BEPHA's internal client management system stratifies insured households according to their sub-division of residence and randomly assigns membership numbers. In order to optimise our sample of insured households to address the second study aim, we selected every n th number from the BEPHA membership list. In total, 174 insured households were randomly selected stratifying by sub-division, from the BEPHA Kumbo membership list. These households were chosen from the same sub-divisions within which the random population sampling was conducted. Approximately 80% of these households could be identified and interviewed.

5.3.3 Survey tools and data analysis

The survey was administered as a structured questionnaire using Open Data Kit (ODK) software on handheld tablets to answer questions on household composition; household assets; household expenditure and consumption; and health-seeking behaviour. Research assistants who were fluent in Pidgin English and the local dialect, Lam Nso', and who had knowledge of the local geographical and sociocultural context were hired. Training was provided to familiarise research assistants with the questionnaire and data collection using handheld tablets.

Insured households were defined as those where at least one member was enrolled into the BEPHA Kumbo Scheme in the year preceding the study. The household head was defined as the household member whose income contributed to at least half of the household's costs in the preceding years. The household head's gender was defined as the self-reported sex of the household head. *De facto* female household headship was assumed in households where no male adults lived for the preceding year.

The data were analysed using STATA version 14.1 for Windows (STATA Corporation, College Station, Texas). The main outcome variable was health insurance enrolment into the BEPHA Kumbo Scheme. The explanatory variables were divided into five components: household composition and attributes; household head factors; perceived household health status; and proxies for exposure to financial risk pooling.

In order to assess asset-based wealth, we constructed an asset index from the Cameroonian Demographic and Health Survey (DHS) index which measures the relative wealth ranking of households (134). Household *per capita* consumption was calculated as the annual food, non-food, and consumer durables consumption per

household member. Mean perceived health status was calculated as the average self-reported health status value for all household members. The final value of the mean perceived health status was assigned a value of between 1 and 4, with 1 being “very good” health status; 2 being “good” health status; 3 being “poor” health status; and 4 being “very poor” health status. Chronic disease status in the context of this study was attributed on the basis of the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) (135).

We used logistic regression to estimate the association between the explanatory variables and health insurance enrolment, with random effects for sub-division and outpost to account for the clustering in the sample. Our study utilised two regression models. The first model measured the association of each variable and health insurance enrolment within each gender group. The second model included interaction terms for gender and each explanatory variable to determine the influence of gender on the association of each variable and health insurance enrolment.

5.3.4 Ethical approval

Ethical approval for this study was obtained through the Institutional Review Board (IRB) of the Catholic University of Cameroon in Bamenda, North-West Cameroon (Ethics Reference No. 001/HEPM/CATUC-IRB/16; Date of approval: 17th May 2016).

5.4 Results

5.4.1 Study population characteristics

Table 1 reports the differences in each test variable according to insurance status and gender of the household head. A total of 550 households were enumerated in the survey, with male-headed households accounting for 70% of the study population. 80% of male-headed and 89% of female-headed households lived in rural areas, reflecting the largely rural nature of the population in the Bui and Donga-Mantung Divisions. Approximately 28% of male- and 36% of women-headed households were enrolled into BEPHA micro health insurance.

The descriptive statistics for the sample population were similar across gender lines in terms of location, and the household head's age, self-employment status, and religion. Overall, male and female household heads had an average age of 48.0 years, with a self-employment rate of 65%. The sample was predominantly Catholic (67%), highlighting BEPHA's affiliation with the Church. The gender groups also showed similarities in their reported health status, with 6% of all households reporting the presence of chronic disease.

We found important distinctions between male- and female-headed households in several household composition and socioeconomic characteristics. Male-headed households had more uniformity in the number of males and females within the household compared to their female counterparts. They were also more likely to be in the wealthiest socioeconomic quintile and have higher incomes than female-headed households. Female-headed households, on the other hand, were typically smaller in size, had more female than male household members, and were more likely to be located in a rural setting. Households also differed in their marital status, with 91% of

male household heads living within a marriage setting compared to 40% of female household heads who were widowed.

Table 2: Descriptive statistics by gender and insurance status

	Male			Female		
	Insured (n=105)	Uninsured (n=275)	Combined (n=380)	Insured (n=61)	Uninsured (n=109)	Combined (n=170)
Household characteristics						
Urban location	27%	18%	20%	11%	11%	11%
Mean household size ¹	5.81 (2.33)	5.66 (2.79)	5.70 (2.67)	4.95 (2.17)	4.43 (2.48)	4.61 (2.38)
Household sex ratio (males to females) ¹	1.194 (0.969)	1.273 (0.979)	1.250 (0.974)	0.762 (0.788)	0.631 (0.669)	0.674 (0.714)
Households with children <=5 years	57%	60%	59%	41%	51%	48%
Households with children <=15 years	85%	85%	85%	90%	75%	81%
Households with elderly >=60 years	32%	26%	28%	34%	28%	30%
Average socioeconomic status (SES) score ²	0.492 (0.965)	0.317 (0.834)	0.365 (0.875)	0.318 (0.674)	0.189 (0.677)	0.236 (0.677)
% of poor households (Q1-Q2)	36%	40%	39%	39%	45%	43%
% of rich households (Q5)	30%	20%	23%	20%	9%	13%
Household head characteristics						
Average age ²	49 (13.23)	47 (15.11)	48 (14.60)	49 (12.46)	47 (16.00)	48 (14.95)
Literate	94%	76%	81%	77%	63%	68%
Primary-level education	50%	41%	44%	54%	40%	45%
Secondary-level education	21%	24%	23%	18%	19%	19%
Higher-level education	23%	9%	13%	5%	3%	4%
Married household heads	94%	90%	91%	28%	27%	27%
Low income (≤ 47,000 FCFA)	50%	48%	49%	57%	60%	59%
Proportion of Catholic faith	87%	57%	66%	87%	61%	71%
Household health status						
Mean health status ¹	1.96 (0.672)	1.96 (0.67)	1.96 (0.67)	2.01 (0.76)	1.86 (0.74)	1.92 (0.76)
Presence of chronic disease	8%	6%	6%	5%	5%	5%
Use of curative services						
Outpatient service use in past 30 days	42%	35%	37%	33%	25%	28%
Inpatient service use in past year	42%	35%	37%	31%	28%	29%
Annual <i>per capita</i> health expenditure (FCFA) ²	5000 (10500)	4500 (11750)	5000 (11634)	5000 (9500)	5000 (12500)	5000 (12500)

¹ Results reported as Mean (Standard Deviation)

² Results reported as Median (Interquartile Range)

Mean exchange rate for May 2016: US\$1 = FCFA 588.24

5.4.2 Factors associated with voluntary health insurance enrolment amongst male- and female-headed households

Our study identified several commonalities amongst male- and female-headed households in the characteristics associated with health insurance demand. Regardless of gender, we found that Catholic Church membership was correlated to one's likelihood of enrolling into BEPHA health insurance (OR=4.770 [CI: 2.407 – 9.453] for males and OR=2.926 [CI: 1.076 – 7.953] for females). Practices in social solidarity were also found to be associated with BEPHA health insurance enrolment across genders: both male and female household heads showed higher odds of purchasing health insurance if they belonged to informal savings groups known as *njangis* (OR=2.301 [CI: 1.302 – 4.064] for males and OR=3.146 [CI: 1.429 – 6.921] for females).

In spite of these broad convergences, we found that the influencing factors of BEPHA insurance enrolment differed depending on the gender of the household head. Amongst male household heads, demand for health insurance was correlated to their socioeconomic status, age, education level, and their trust of the insurance provider. Our study found that men belonging to the highest asset-based wealth quintile had 2.207 higher odds of enrolling into health insurance compared to those with lower asset-based wealth (CI: 1.173 – 4.153). Older age was also identified as a significant contributor to health insurance enrolment, with male household heads aged above 50 years showing increased health insurance demand compared to their younger counterparts (OR=2.238 [CI: 1.151 – 4.352]). Further, men educated to secondary school-level and above showing 2.238 higher odds of enrolment compared to those with lower education levels (CI: 1.228 – 2.552). Finally, we found that male household

heads were more likely to enrol if they expressed confidence in the Church as a potential health insurance provider (OR=4.770 [CI: 2.407 – 9.453]).

Amongst female-headed households, the decision to enrol into BEPHA health insurance was associated with household composition and income. Our study found that demand for BEPHA health insurance amongst female-headed households was correlated to the presence of children below the age of fifteen (OR=3.734 [CI: 1.228 – 11.348]). Women who earned higher incomes were also more likely to purchase BEPHA health insurance: the study found that women who earned earning above 47000 FCFA had 5.842 higher odds of enrolling into health insurance than those earning less (CI: 1.589 – 21.484).

When the interactions between gender, health insurance membership, and the explanatory variables were taken into account, we found that Catholic Church and *njangi* membership was correlated to health insurance demand in both male- and female-headed households (p -value=0.332 for Catholic Church membership, and p -value=0.421 for *njangi* membership respectively). Income and education, however, were found to have varied associations with the decision to enrol into health insurance depending on the gender of the household head. Amongst female-headed households, we found that health insurance enrolment was associated with high income levels (p -value=0.037) – a finding that was non-significant amongst male-headed households. Conversely, male-headed households with higher levels of education were found to have higher demand for BEPHA health insurance (p -value=0.008). This finding was non-significant amongst female-headed households. We found no further evidence of a relationship between the gender of the household head, BEPHA membership and other explanatory variables.

Table 3: Logistic estimates for probability of purchasing BEPHA health insurance at household level

Variable description	Male		Female		Interaction
	Odds ratio	CI	Odds ratio	CI	p-value
Household characteristics					
Location (Reference group: Rural)					
Urban	1.378	0.646 – 2.939	1.063	0.211 – 5.354	0.78
Number of children <5 years (Reference group: None)					
One to two children	0.826	0.503 – 1.357	0.977	0.451 – 2.116	0.67
Three or more children	0.933	0.373 – 2.333	0.151	0.168 – 1.357	0.13
Presence of children < 15 years	1.143	0.567 – 2.306	3.734	1.228 – 11.348	0.051
Presence of elderly household members	1.301	0.756 – 2.269	1.072	0.484 – 2.376	0.83
Socioeconomic status (Reference group: Poor)					
Middle wealth	0.722	0.431-1.210	0.760	0.355 – 1.630	0.78
Wealthiest quintile	2.207	1.173 – 4.153	2.698	0.825 – 8.826	0.94
Household head characteristics					
Age (Reference group: Under-35)					
35 – 50 years	1.223	0.743 – 2.013	1.543	0.728 – 3.271	0.46
Older than 50 years	2.238	1.151 – 4.352	1.916	0.697 – 5.264	0.82
Education (Reference group: Primary education or less)					
Secondary education or more	1.770	1.228 – 2.552	1.554	0.903 – 2.675	0.008
Monthly income (Reference group: No income)					
<23500 FCFA	0.576	0.322 – 1.029	0.559	0.257 – 1.214	0.93
23500 – 47000 FCFA	1.658	0.902 – 3.047	1.883	0.707 – 5.020	0.86
>47000 FCFA	1.401	0.810 – 2.425	5.842	1.589 – 21.484	0.037
Married	1.898	0.709 – 5.081	1.259	0.542 – 2.927	0.56
Catholic religion	4.770	2.407 – 9.453	2.926	1.076 – 7.953	0.33
Household health status					
Mean perceived household health status					
Good	1.043	0.621 – 1.751	0.860	0.399 – 1.854	0.49
Poor	0.959	0.571 – 1.601	1.163	0.539 – 2.507	0.49
Presence of chronic illness in household	1.519	0.574 – 4.018	0.795	0.128 – 4.924	0.99
Exposure to concept of financial risk protection					
Member of informal savings group (njangi)	2.301	1.302 – 4.064	3.146	1.429 – 6.921	0.42
Trust BEPHA health insurance provider	5.170	2.365–11.301	2.830	0.884 – 9.061	0.23

5.5 Discussion

In this study, we set out to expand the narrative on decision-making in voluntary health insurance by looking at how the gender of a household head influences voluntary health insurance enrolment. It is important to acknowledge from the outset that commonalities exist between male- and female-headed households, with the overarching influence of social networks on health insurance demand. Based on our findings, it is clear that involvement in networks that encourage solidarity and reciprocity, such as *njangis* and the Catholic Church, increase one's likelihood of enrolling into voluntary health insurance regardless of gender. This reflects existing studies which have highlighted the importance of social solidarity as a key determinant of voluntary health insurance schemes demand (136,137).

It is apparent within existing literature that the decision to enrol into voluntary health insurance is multidimensional and complex, driven in part by aversion to the risk of illness (138). We propose that the evaluation of health risks manifests differently between male and female household heads due to their unique household roles in the study setting. We therefore postulate that women prioritise their direct knowledge of the household's healthcare needs in the decision to enrol into health insurance. Conversely, we suggest that men prioritise their understanding of potential health risks associated with their households. How does this reconcile with existing knowledge of health insurance and the everyday realities of household power structures?

Within existing literature, it is acknowledged that the burden of caregiving is borne primarily by women – a dynamic that is particularly pronounced in the occurrence of illness in the domestic framework (128,129). This underlying knowledge of the physical, psychological, and economic cost of illness elevates the female voice as imperative in understanding and assessing household health risks. In the traditional

hierarchy dominant within North-West Cameroon, however, female influence is often relegated in decision-making due to their subordinate status (139). This means that, in the absence of direct knowledge of household health needs, male household heads are compelled to act on the basis of their appreciation of potential household health risks. Our findings suggest that this is primarily shaped by their level of education, which aligns to other health financing studies across Africa (111–113,115,116). We posit that an advanced level of education enables male household heads to better evaluate the potential social and economic implications of illness, as well as to assess the financial protection afforded by health insurance. Our study also found that men's ability to evaluate potential health risks was correlated to a lesser degree to their old age. We suggest that older age provides male household heads with a better understanding of the potential health, economic and social costs of illness, thereby increasing their understanding of the utility of financial safety nets in adverse health events. In addition to the above characteristics, we found that male household heads place value on a specific return on investment, factoring in trust of a specific health insurance provider in their decision to enrol. This reflects other qualitative and quantitative health financing studies (113,114,136,140), and highlights the reliance of many voluntary health insurance schemes on the reputation of affiliated entities.

When women hold a high level of economic power, on the other hand, we posit that enrolment decisions are likely to prioritise their direct knowledge of potential household health risks. According to our findings, health insurance enrolment was correlated to the presence of children in female-headed households. This implies that women with dependent children are attuned to the healthcare needs of their households, ostensibly due to their traditional role as caregivers. This reflects the findings of various health-seeking behaviour studies, which have found that women's role in caregiving provides

them with awareness of the potential health risks associated with childhood illness (128,129). While their willingness to prioritise the health needs of children is notable, poverty ultimately reduces women's access to decision-making resources. Given that most asset-based wealth in North-West Cameroon has historically been held by males (139), income acts as a limiting factor for women's participation in health insurance over and above the need to minimise potential household health risks. This aligns to the findings of various social science studies (112,125,141), and suggests that access to financial resources serves as an important gateway for facilitating women's decision-making autonomy.

Given the wide variability in household structures between and within regions, care must be taken to avoid blunt generalisations on the nature of households. We concede that these findings are specific to the unique North-West Cameroonian context within which the research was carried out. We also appreciate that even within our designated gender groupings, there will inevitably be heterogeneity in the power relations that are associated with the decision to enrol into voluntary health insurance. That said, to the authors' knowledge, this is one of the first studies investigating the role of household headship and gender in the context of voluntary health insurance enrolment. Our study has several design limitations that may affect the external validity of our findings: the number of BEPHA-insured female-headed households was substantially less than those in male-headed households. However, we contest that this is symptomatic of the low number of female-headed households in the study area in general, as well as the limited uptake of insurance amongst our study population. It would therefore be necessary to carry out further research on a larger number of female-led households to further test our findings. Additionally, translation and interpretation of interview questions into Lam Nso' language may have biased the responses to the research

questions. These issues notwithstanding, our findings provide precursory insight into the evolving role of gender in health insurance decision-making.

5.6 Conclusion

Our study has embraced the realities of gender-specificity in household roles, and identified clear disparities in the way male- and female-headed households evaluate health risks in the decision to enrol into health insurance. Our findings suggest that voluntary health insurance demand amongst male household heads is associated with their ability to understand household health risks in the absence on a direct role in caregiving. Conversely, health insurance enrolment amongst women is correlated to the need to minimise potential household health risks based on their direct knowledge of potential household healthcare needs. The impact of education on male health insurance demand underscores the importance of simple and digestible sensitisation programs as a means of facilitating household decision-makers' understanding of the concept of health insurance. Further, the influence of wealth on health insurance enrolment particularly amongst female-headed households provides important insight from a policy perspective, given the limited availability of subsidies to cover vulnerable populations in many sub-Saharan African health insurance schemes. Our findings highlight the need for partnerships between health insurance schemes and governments in order to develop a financial safety net to limit the impact of illness on the poor. Indeed, the ultimate goal of voluntary health insurance schemes such as BEPHA is to support governments in their quest towards achieving universal health coverage. It is through collaboration and responsiveness to the social, cultural and

economic realities of the target population that health insurance coverage will reach sustainable levels.

6 Contribution of Bamenda Ecclesiastical Provincial Health Assistance (BEPHA) Scheme towards Universal Health Coverage: A Quantitative Household Survey in North-West Cameroon

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WORKING PAPER

Report written as part of Swiss TPH mandate to investigate BEPHA's contribution towards UHC in the Bui and Donga-Mantung districts of North-West Cameroon.

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6.1 Executive Summary

Bamenda Ecclesiastical Provincial Health Assistance (BEPHA) is a microinsurance scheme set up by the Roman Catholic Church in North-West and South-West Cameroon. Since its inception in 2006, BEPHA has set up four independent health assistance schemes in Kumbo, Bamenda, Buea and Mamfe Parishes, covering a total of 34,807 individuals as of May 2014. The populations in BEPHA's areas of focus are plagued by poor health outcomes, with the North West suffering from HIV prevalence rate of 8.7% - the highest in Cameroon. Further, both the North West and South West suffer from high malaria prevalence rates (20% and 15% respectively) (131).

In the backdrop of the Cameroonian Government revising its strategy for achieving universal health coverage, BEPHA sought to understand its contribution towards universal population coverage and financial risk protection in North-West Cameroon through a cross-sectional household survey in the Bui and Donga-Mantung administrative divisions. The study found that BEPHA Kumbo has been making tangible progress towards achieving universal health coverage, with 9% of the population insured in the study area. BEPHA membership was aligned to the study population in terms of age, sex, and marital status. The Scheme has succeeded in applying the principles of universal health coverage by:

- **Attracting and covering “easy-to-reach” populations** – BEPHA has focused its enrolment efforts on a largely Catholic audience, with mandatory coverage of Church-affiliated institutions and voluntary enrolment of the Catholic congregation.

- **Covering the poorest in the country** - BEPHA has enrolled a high proportion of poorer households, with 61% of its membership falling within the poorest 40% of the country's population in terms of assets.
- **Covering households irrespective of their health status** – BEPHA does not appear to be significantly impacted by adverse selection, with enrollees' self-reported health status mirroring that of uninsured households (p -value=0.598).
- **Enabling households to minimise their health burden** – BEPHA membership provides an important financial safety net for households, with 75% of insured households maintaining the proportion of healthcare expenditure below 10% of their non-food expenditure (p -value=0.049).

While BEPHA has achieved positive steps towards covering the population of Bui and Donga-Mantung Divisions, there is still a need to increase coverage in a number of key populations including rural communities, the rich, illiterate and non-Catholics.

This study's findings reinforce the importance of including BEPHA in Cameroon's universal health coverage plans at national level, given its success in implementing the principles of universal health coverage.

6.2 Introduction

In most developing countries, the poor face a disproportionate risk of ill health due to their exclusion from the health system. Extensive research on health outcomes in developing countries has associated poor health status with limited access to quality health services, as well as with the high cost of obtaining medical assistance. In Cameroon, more than half of all households are unable to afford their healthcare expenditure, with 66.2% of households in the North-West spending more than their total income on health services annually (142). This aggravates the overall health status of the country, impacting both individuals' wellbeing as well as economic growth (143). In an ideal case scenario, mitigating these risks and providing quality, affordable health services would be the sole responsibility of the government under the banner of universal health coverage. However, in reality, the health landscape in Cameroon is dependent upon a number of non-governmental actors working in tandem with the government to provide adequate healthcare services for all its citizens.

Cameroon is a lower-middle income country in Central Africa with a population of 23.3 million. In spite of its growing per capita gross national income (GNI) of USD 3,080 (144), Cameroon ranks low in terms of its health indicators and is ranked 153rd on the Human Development Index among 187 countries (145). The country has a life expectancy of 55.5 years, with an under-five mortality ratio of 87.9 deaths per 1,000 live births. Further, the maternal mortality ratio is high at 596 deaths per 100,000 live births (146).

The majority of healthcare services in Cameroon are provided by the Government, which is responsible for the operation of 72% of all health facilities in the country (147). In North-West Cameroon, private hospitals, private not-for-profit health centres and other private health facilities constitute 31% of all healthcare providers.

6.2.1 Health financing system in Cameroon

Cameroon's health financing system is comprised of a mix of public and private sources, with households contributing 52% and the Government contributing 33% of healthcare funding in the country (148). Mechanisms to facilitate the pooling of financial resources in Cameroon are limited, with the central government offering two health insurance schemes for the formally-employed: a civil servant scheme (Régime de la Fonction Publique) and the Caisse Nationale de Prévoyance Sociale (CNPS) for workers under the Labour Code. The Régime de la Fonction Publique provides cash payments for maternity cover for all government employees. CNPS covers medical costs associated with occupational ailments and provides reimbursement for all maternity costs, in addition to its primary role of providing pensions and other familial benefits to formal sector workers and their dependents.

Coverage of the informal sector through health insurance is the remit of both the private and public sectors, with many private microinsurance schemes operating at a localised level. Congruently, the Cameroonian Government has committed to covering 40% of its population through microinsurance schemes in line with its universal health coverage goals (148,149). However, the Government's efforts have been hampered due to:

- Varied knowledge and awareness among potential beneficiaries
- Significant regional disparities in health insurance coverage
- Poor relationships with partner health facilities
- Limited financial and technical support from government.

As a result, the country has made limited progress towards universal financial risk protection, with only 2% of its population covered by microinsurance schemes by 2013, compared to approximately 70% of the population who are not in formal employment (88,89).

Given the challenges faced in achieving UHC using its existing strategy and the Cameroonian Government's plan to achieve 10% coverage of the population with microinsurance schemes by 2020 (148), the Cameroonian Government in collaboration with the WHO, the German Development Cooperation (GIZ) and the French Development Cooperation began work in 2015 to map out an alternative strategy for achieving universal financial risk protection. While these efforts are laudable, there is an urgent need to investigate the influence of existing microinsurance schemes on financial risk protection in order to identify what strategies could be effective in expanding health insurance coverage across the Cameroonian population.

6.2.2 Study background

Bamenda Ecclesiastical Provincial Health Assistance (BEPHA) is a microinsurance scheme set up by the Roman Catholic Church in North-West and South-West Cameroon. Since its inception in 2006, BEPHA has set up four independent health assistance schemes in Kumbo, Bamenda, Buea and Mamfe Parishes, covering a total of 34,807 individuals as of May 2014. BEPHA's regions of focus are plagued by poor health outcomes, with the North West suffering from HIV prevalence rate of 8.7% - the highest in Cameroon. Further, both the North West and South West suffer from high malaria prevalence rates (20% and 15% respectively) (131).

As the Cameroonian Government looks towards developing a new strategy for achieving UHC, BEPHA is seeking to understand its contribution towards universal health coverage in North-West Cameroon. The study thus aims to answer the main research question “***What is the contribution of BEPHA towards Universal Health Coverage in Cameroon?***” using indicators across three aspects of UHC:

1. Population coverage:

- a. What proportion of the target population is covered by BEPHA membership?
- b. Is the profile of BEPHA insurees representative of the general population?

2. Service coverage:

- a. What is the utilisation rate of health services within BEPHA-insured households compared to the uninsured?

3. Financial coverage:

- a. Does BEPHA membership reduce the incidences of catastrophic health expenditure compared to similar households?
- b. Does BEPHA membership reduce the risk of impoverishment due to out-of-pocket costs?

Additionally, an assessment was made on the level of understanding of the concept of health insurance, BEPHA-specific insurance knowledge (with BEPHA clients only), as well as the willingness of the target population to pay for the current and hypothetical health insurance packages.

6.3 Methodology

A cross-sectional household survey was carried out in the Bui and Donga-Mantung administrative divisions of the North-West region of Cameroon between April and May 2016. The survey sample was drawn using a four-pronged approach.

In the first stage, the BEPHA Kumbo Scheme was chosen by the BEPHA Provincial team due to the high enrolment rates in the Bui and Donga-Mantung divisions. The second stage involved the selection of nine 'BEPHA-active' locations within the two divisions, which was defined as parishes which had at least 30 households enrolled in the BEPHA Kumbo Scheme.

In the third stage, it was calculated that 416 households would need to be interviewed in BEPHA-active parishes in order to estimate a BEPHA-insured population of 4% (132). These calculations were based on BEPHA's estimation that it had achieved at least 4% population coverage in its target area through the Kumbo Scheme. In order to randomly identify the representative sample of households in the target area, the number of households to be interviewed in each parish was first calculated as a proportion of the population size in each constituent sub-division. Villages within each parish were then randomly selected based on a list of mission outposts provided by the local parish priests. A random starting household was selected at a required distance from the church facilities, with every seventh household subsequently targeted for interviewing. If the selected household was unwilling or unable to participate in the survey, the next household was chosen as a replacement. In some hard-to-reach areas or farming communities, snowball sampling was utilised to account for the absence of households. However, this approach was only used in

situations where it was determined that a disproportionate amount of time and resources would be required to adequately follow the sampling strategy due to the unavailability of the target households.

Given the low expected number of BEPHA-insured households through random sampling, it was decided that 174 additional households would be randomly selected from the BEPHA Kumbo membership list. The number of BEPHA-insured households to be interviewed in each 'BEPHA-active' area was calculated based on the size of its constituent sub-divisions. BEPHA Local Agents were then used to locate the selected households.

Interviews were conducted in either Pidgin English or Lam Nso', depending on the preference of the interviewee.

The data collected were entered and analysed using STATA version 14.1 for Windows (STATA Corporation, College Station, Texas). In addition to descriptive statistics, the chi-square test or its equivalent was used to compare qualitative variables, and a p-value of less than 0.05 was considered statistically significant. Logistic regression was carried out to identify the factors associated with BEPHA health insurance enrolment and a household's willingness-to-pay for two health insurance benefit packages.

Urban centres were defined as localities with a population of at least 5000 inhabitants (133).

To investigate differences in socioeconomic status at national level, principal component analysis (PCA) was used based on Vyas and Kumaranayake's guidelines to construct an asset index based on relative wealth ranking of households (150). The asset index was defined as follows:

$$A_i = \sum_k \left[f_k \frac{(a_{ik} - \bar{a}_k)}{s_k} \right],$$

where a_{ik} is the value of asset k for household i , \bar{a}_k is the sample mean, s_k is the sample standard deviation, and f_k are the weights associated with the first principal component depending on the household's rural or urban status. Households were then classified into one of five socioeconomic groups based on defined national wealth quintiles (Q): Q1 or the wealthiest 20% in the country; Q2; Q3; Q4; and Q5 or the poorest 20% in the country. In order to measure socioeconomic status within the study population, the factor weights from the Cameroonian national wealth index were applied to the survey household asset data. STATA was then used to categorise households into wealth quintiles using the asset variables and weights within the Cameroonian National Demographic and Health Survey (DHS) wealth index (134).

In order to measure health insurance knowledge, a knowledge index was constructed from the percentage of health insurance knowledge questions answered correctly about health insurance and the BEPHA health insurance package. All questions had an equal weight in the constructed index, and "above average" knowledge was defined as a health insurance index score higher than 0.5. A "Don't know" response was treated as an incorrect response. Factors significantly associated with higher health insurance knowledge were analysed using linear regression.

Annual healthcare spending per capita was calculated by dividing household annual healthcare expenditure by the number of household members. Calculation of catastrophic health expenditure and impoverishment was based on the Xu approach for the estimation of catastrophic health expenditure, which defines catastrophic health expenditure as having health expenditure costs exceeding 40% of a household's non-food expenditure (151). Impoverishment is defined as a situation

where household expenditure is equal to or higher than subsistence spending, but is lower than subsistence spending net of out-of-pocket health payments (151).

6.3.1 Ethical considerations

Ethical approval for this study was obtained through the Institutional Review Board (IRB) of the Catholic University of Cameroon in Bamenda. Ethical procedures utilised during the duration of the study emphasised the need for all respondents to understand the project's aims and objectives, as well as necessitated individual informed consent prior to any data collection. Additionally, the study emphasised the importance of ensuring confidentiality and privacy in order to improve the quality of data collected.

Figure 6: Typical interview setting within household survey



Photograph taken by Tessa Oraro-Lawrence

6.4 Results and discussion

6.4.1 Demographics

The study response rate was 94%, with a total of 558 interviews completed. 417 interviews were conducted using the random population sampling strategy, while 174 households were randomly identified and interviewed using the BEPHA Kumbo membership list (Table 4).

Table 4: Number of respondents interviewed per parish

Division	Parish	Random sample		BEPHA membership list sample		Total completed interviews	% interviews completed
		Targeted	Completed	Targeted	Completed		
Bui	Kumbo Cathedral	56	53	26	13	66	80%
	Tobin	13	13	6	6	18	100%
	Meluf	15	15	7	4	19	86%
	Nkar	75	76	31	29	105	99%
	Mbve	34	34	16	8	42	84%
	Kikaikom	15	15	6	6	21	100%
	Mbiame	32	38	13	11	49	108%
	Djottin	65	71	23	21	92	105%
Donga-Mantung	Sabongari	112	115	46	31	146	92%
	Total	417	429	174	128	591	94%

The comparatively low number of completed “BEPHA membership list” interviewees in Kumbo Cathedral and Meluf parishes was attributed to the fact that many BEPHA enrollees were not known to their local agents, as they had enrolled directly through the BEPHA Kumbo Diocesan Office in Kumbo Town. In Mbve, the low completion rate of BEPHA list interviews was linked to the fact that there was no local BEPHA agent on record to help identify enrolled households.

6.4.2 Study population characteristics

75% of all households interviewed resided in Bui Division, while 25% lived in Donga-Mantung. 17% of all households interviewed lived in urban areas, while 83% were rural households. The study population largely mirrored the general population in North-West Cameroon in terms of age and sex (Table 5).

Table 5: Demographic characteristics of study population

	Insured	Uninsured	Total in study population	North-West Cameroon (2014)*
Location (n=2,959)				
Urban	22%	15%	17%	42%
Rural	78%	85%	83%	58%
Sex (n=2,959)				
Male	46%	44%	45%	48%
Female	54%	56%	55%	52%
Age group (n=2,959)				
<=5 years	15%	19%	18%	15%
6-15 years	26%	24%	24%	29%
16-19 years	14%	12%	12%	13%
20-29 years	13%	16%	15%	16%
30-44 years	15%	14%	14%	14%
45-59 years	11%	9%	10%	8%
60+ years	8%	6%	7%	6%
Literacy status of all adult household members (n=1,478)				
Literate	88%	79%	81%	N/A
Illiterate	12%	21%	18%	N/A
Maximum level of education for literate adults (n=1,200)				
Primary school	46%	47%	47%	N/A
First cycle secondary school	23%	28%	26%	N/A
Second cycle secondary school	14%	12%	13%	N/A
Diploma	10%	8%	9%	N/A
University/ tertiary	6%	4%	5%	N/A
Non-formal education	0%	0.38%	0.25%	N/A

* Reference: (133)

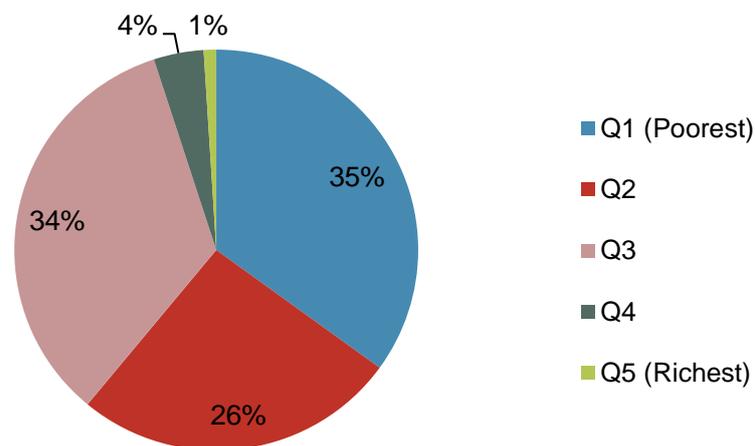
6.4.3 Population coverage

Based on analysis of the random population sampling completed within this study, BEPHA Kumbo has achieved a population coverage rate of 9%. While the Cameroon National Health Plan 2011-2015 estimated that health insurance coverage in North-

West Cameroon lies at 35% (147), the findings in this report are likely to offer a more realistic snapshot of coverage rates within the region. Indeed, by all accounts, BEPHA holds the largest share of the health insurance market in the North-West (152).

The study also found that BEPHA’s membership is primarily focused in urban areas, with the majority of targeted households falling within the middle- to lower-socioeconomic quintiles of the national wealth index (134) (Figure 7). BEPHA’s success in targeting and enrolling the lower socioeconomic demographic is particularly laudable given that the poorest households in Cameroon are 8.5% less likely to seek any form of medical intervention when ill compared to the wealthiest (147). Access to health insurance mechanisms through local schemes such as BEPHA is therefore imperative in ensuring financial affordability, and therefore accessibility, of health services for the poor in Cameroon (153).

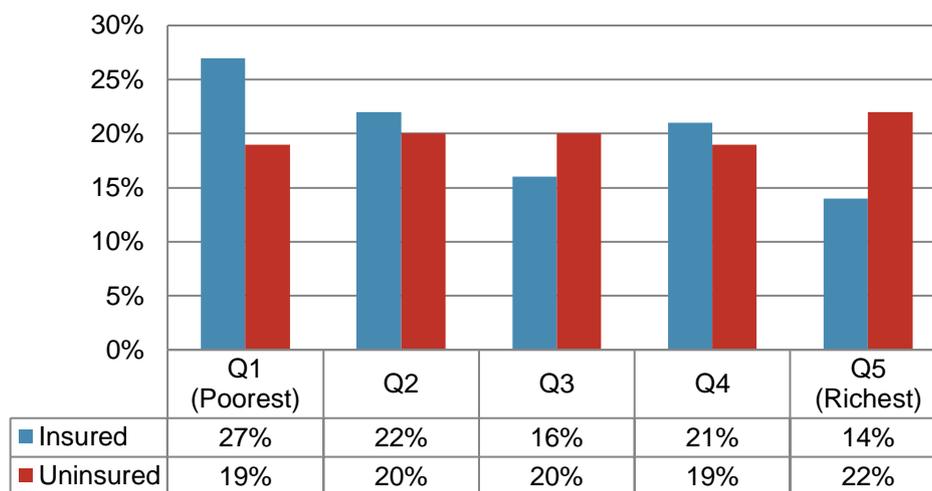
Figure 7: Socioeconomic groups of BEPHA-insured households based on national wealth index



When analysing the socioeconomic grouping of the study population based on an asset-based wealth index (134), the study found that belonging to a particular socioeconomic group did not influence a household’s likelihood to enrol into the

BEPHA Kumbo Scheme ($p=0.093$) (Figure 8). This suggests that the BEPHA Kumbo Scheme is largely representative of the study population in terms of its socioeconomic status.

Figure 8: Socioeconomic status of households based on asset-based wealth index for study population



BEPHA’s ability to reach households across the socioeconomic divide may be linked to its community outreach activities through its innovative Local Committee (LC) structure. This structure leverages upon the Scheme’s affiliation with the Catholic Church, which has a long history of engagement across geographical and socio-economic boundaries. BEPHA engages local opinion leaders as volunteers to educate and enrol local community members at parish level. BEPHA’s success with the LC structure can be attributed to the high social capital held by the volunteers, given that they:

- i. represent an entity which is well-respected and trusted within the community;
- ii. have a good understanding of the social values ascribed to by the Church and society at large, and have a strong belief in the values central to the concept of

insurance (i.e. pooling of funds together for the good of the community as a whole), and;

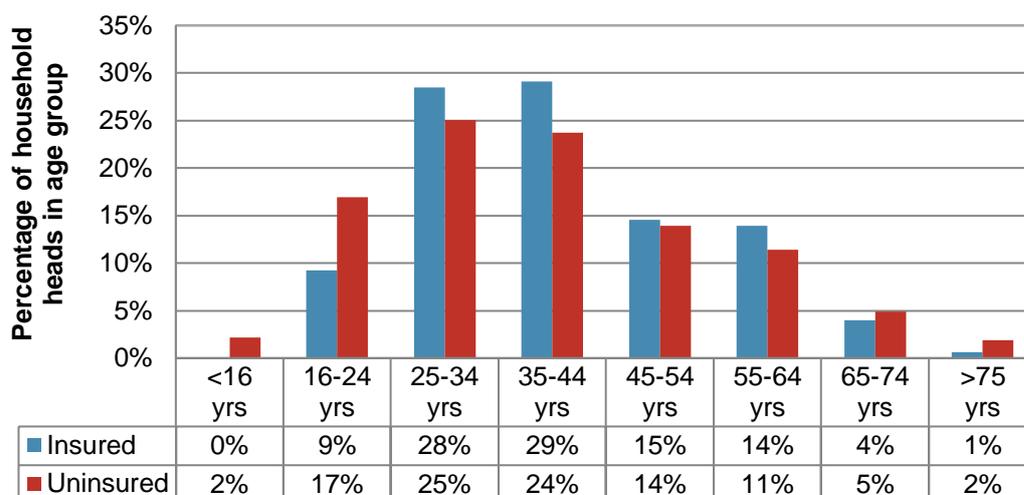
- iii. are able to communicate the concept of health insurance using language that is understandable to the target population.

While BEPHA has undoubtedly been effective in representing the population at large, there is still a need to further expand coverage to wealthier households in order to facilitate cross-subsidisation between the wealthy and poor. Indeed, analysis found that there were 8% fewer households in the wealthiest quintile enrolled in BEPHA, compared to those not enrolled (p -value=0.093).

6.4.4 Age, sex and marital status of household head

BEPHA's membership is largely comprised of households headed by middle-aged individuals, with 44% of all insured household heads falling within the 35-45-year range (p -value=0.100) (Figure 9). These findings correspond to the age patterns of the uninsured population sampled, making BEPHA's coverage representative of the age profile of household heads within the general population.

Figure 9: Percentage of household heads in each age group



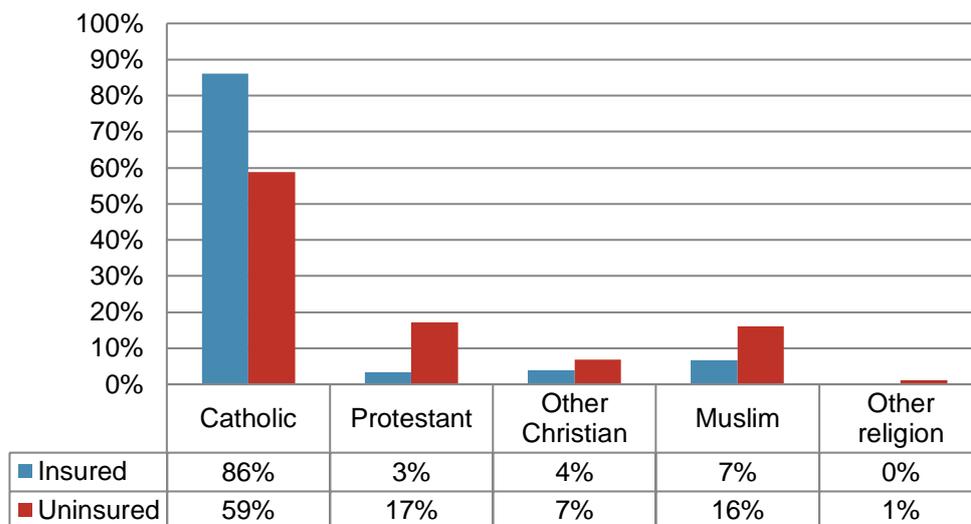
In addition to the similarities in age between BEPHA members and non-members, the study found that there was no statistically-significant difference in the sex (p -value=0.350) and marital status (p -value=0.247) of insured and uninsured household heads. These findings are viewed as positive, given that they suggest that BEPHA’s membership is largely representative of the general population in terms of age, sex and marital status.

6.4.5 Religion

BEPHA members are more likely to be members of the Catholic faith, with 86% of its members professing to this faith (p -value=0.000) (Figure 10). While this finding represents the reality that BEPHA is a church-established and –run scheme, it highlights a greater need to improve outreach and engagement programs targeting non-Catholic populations. Indeed, the Catholic Church only represents 37% of the population in Cameroon (97). This membership gap has already been recognised in some localities within the BEPHA Kumbo Scheme, where key opinion leaders of

different faiths have been incorporated into BEPHA’s Local Committees. Given that areas with inclusive Local Committees are seeing more representative coverage of the population, it is imperative to institutionalise the inclusion of other religious and social groups into BEPHA in order to increase the diversity of its membership.

Figure 10: Religion ascribed to by household heads



6.4.6 Social structure

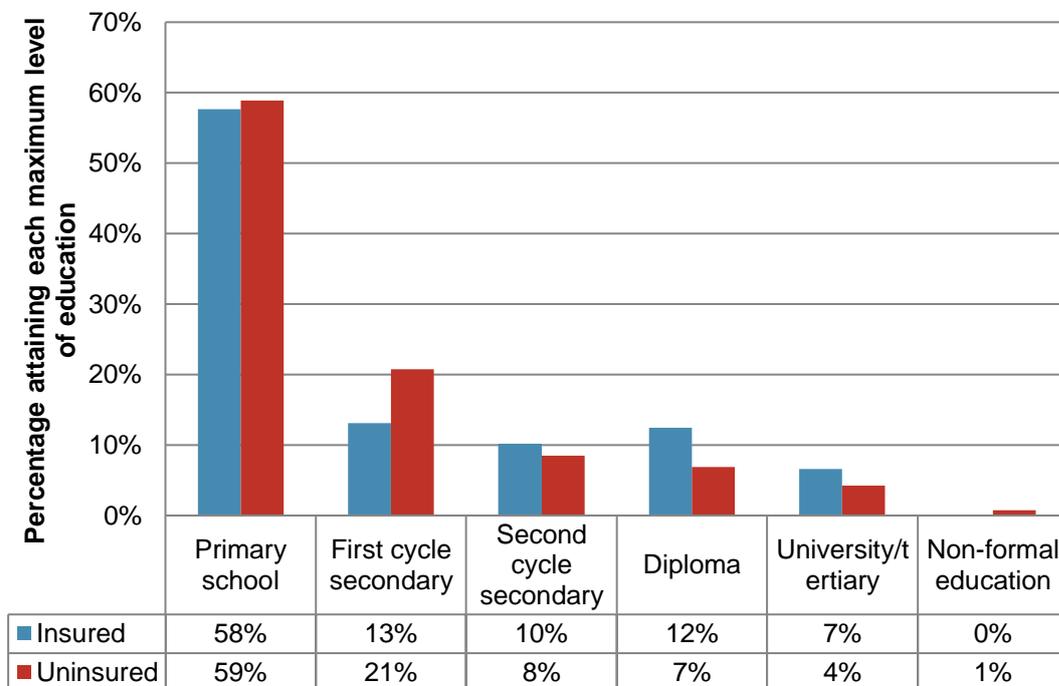
Education of household head

Literacy was found to be a determining factor of health insurance enrolment in BEPHA-active areas, with literate household heads having 3.61 times higher odds of enrolling their families into the BEPHA Scheme than illiterate households (p -value=0.000).

Paradoxically, the study also found that the decision to enrol was not impacted by the maximum level of education attained by the household head, in spite of the important role played by literacy in determining the decision to enrol into health insurance. This suggests that BEPHA has been able to extend its coverage across all levels of education, effectively representing households of all education levels in the study

population (Figure 11). This is likely to be a result of BEPHA’s community outreach strategy, which collaborates with key opinion leaders to educate and enrol local residents onto the BEPHA package. The Scheme’s reliance on individuals with strong social capital has enabled BEPHA to engage with individuals at a local level in a manner that is digestible, socially-aware and -sensitive, thereby improving the public’s ability to understand and relate to the Scheme.

Figure 11: Maximum level of education of literate household heads



Employment activity

The self-employment sector had the highest proportion of BEPHA enrollees compared to other employment sectors, with 60% of enrolled household heads creating their own economic opportunities. This was, however, representative of the study area’s population where 65% of household heads are self-employed. While most sectors’ BEPHA enrolment figures mirrored the overall study population, the study found that

private sector employees had 4.63 higher odds of enrolling into BEPHA health insurance than remaining uninsured (p -value=0.002). This can be attributed to BEPHA's mandatory coverage of Church-affiliated institutions, which ensures health insurance coverage for all employees by BEPHA. This strategy adapts the recommended universal financial risk protection process which targets the mandatory coverage of easy-to-reach populations as the initial step towards universal health coverage. Given the large employment footprint of the Church in Cameroon, mandatory coverage of Church-affiliated institutions through the Bishop's decree has provided a stepping stone for coverage of the formal sector in Bui and Donga-Mantung within BEPHA.

6.4.7 Health status, beliefs and knowledge

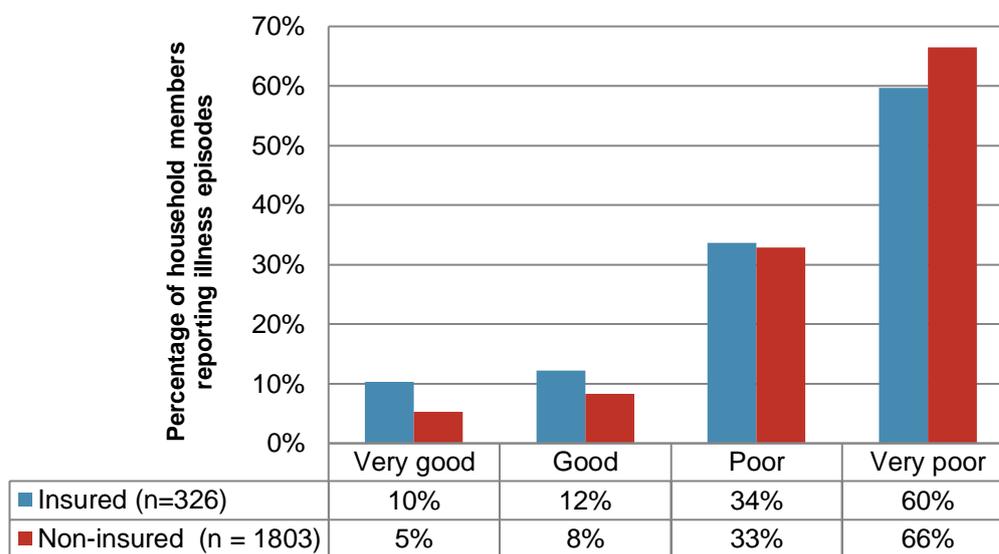
Perceived and actual health status

Self-reported health status of BEPHA-insured households mirrored that of uninsured households (p -value=0.598), suggesting that the health status of BEPHA members was representative of the general population within the study area. This suggests that it is likely that individuals do not actively seek for BEPHA membership on the basis of their perceived health status, thereby limiting the effect of adverse selection within the Scheme. Adverse selection is a situation whereby high risk or sick individuals are more likely to enrol into health insurance schemes than healthy individuals, thereby increasing its risk exposure.

The self-reported health status findings largely correlated with individuals' actual health status, with individuals who viewed their health as "very good" reporting substantially fewer health episodes than those who viewed their health as "poor" or "very poor". However, there was a statistically-significant difference in actual illness

episodes between insured and uninsured individuals who viewed themselves as healthy, with the insured showing higher rates of reported illness episodes than the uninsured. Insured individuals who reported their health as “very good” were 5% more likely to suffer from an illness episode than uninsured households (p -value=0.004), while those with a “good” self-reported health status were 4% more likely to suffer from ill health than the uninsured (p -value=0.035) (Figure 12).

Figure 12: Percentage of actual illness episodes versus self-reported health status



Socioeconomic status was found to have a significant impact on self-reported health status (p -value=0.000), with the wealthiest quintile reporting the highest proportion of individuals with both “very good” and “very poor” health status. The finding that the wealthiest group in the study population were more likely to report their health as “very poor” may suggest a higher level of awareness and concern about one’s individual health status.

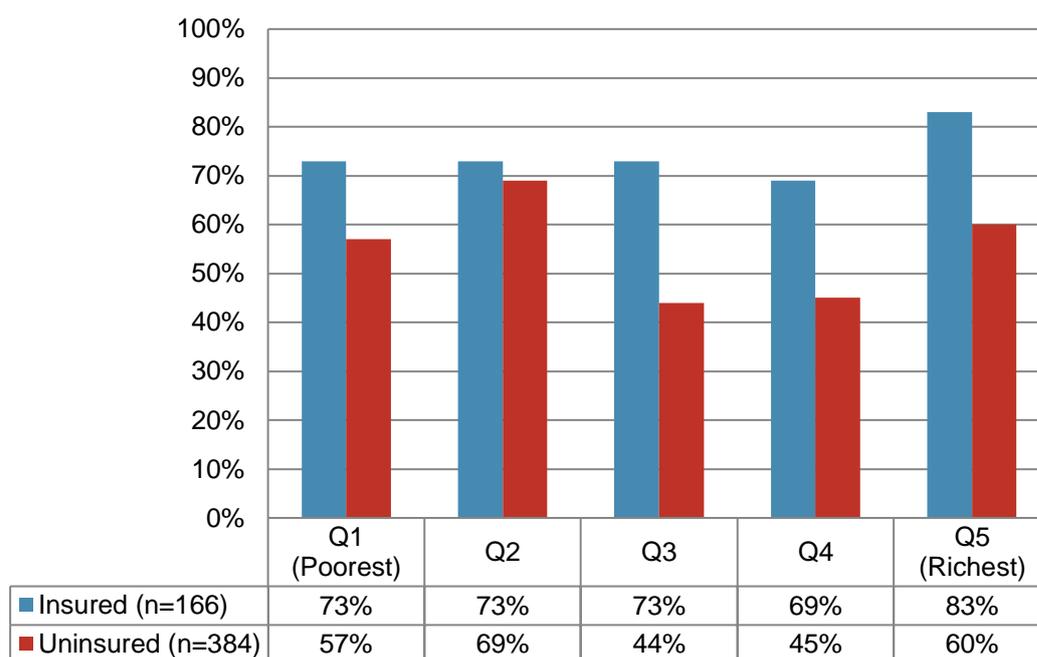
Belief in social solidarity

Having a strong belief in the social solidarity aspect of health insurance was found to be a key determinant of enrolment into BEPHA health insurance (p -value=0.000). As a proxy of social solidarity, *njangi* membership was found to be closely related to BEPHA membership, with BEPHA members 2.38 times more likely to belong to a *njangi* (p -value=0.000).

According to the study findings, socioeconomic status also had a significant impact on *njangi* membership (p -value=0.017) (Figure 13). While *njangi* membership amongst BEPHA-insured households did not differ significantly (p -value=0.800), the study found that *njangi* membership was influenced significantly by socioeconomic status amongst uninsured households (p -value=0.009). More than half of uninsured respondents in the wealthiest quintile (60%), Q2 (69%) and the poorest quintile (57%) quintiles reported making regular payments to a *njangi*.

These findings offer hope for the possibility of increasing the proportion of wealthier and poorer households in the Scheme with targeting mechanisms focused on aligning the public's perceptions of BEPHA membership with the principles of social solidarity. It is also necessary to carry out further research to identify the factors that attract the rich towards *njangis*, in order to leverage these factors to better target this group within BEPHA.

Figure 13: Percentage of households belonging to a njangi based on socioeconomic grouping

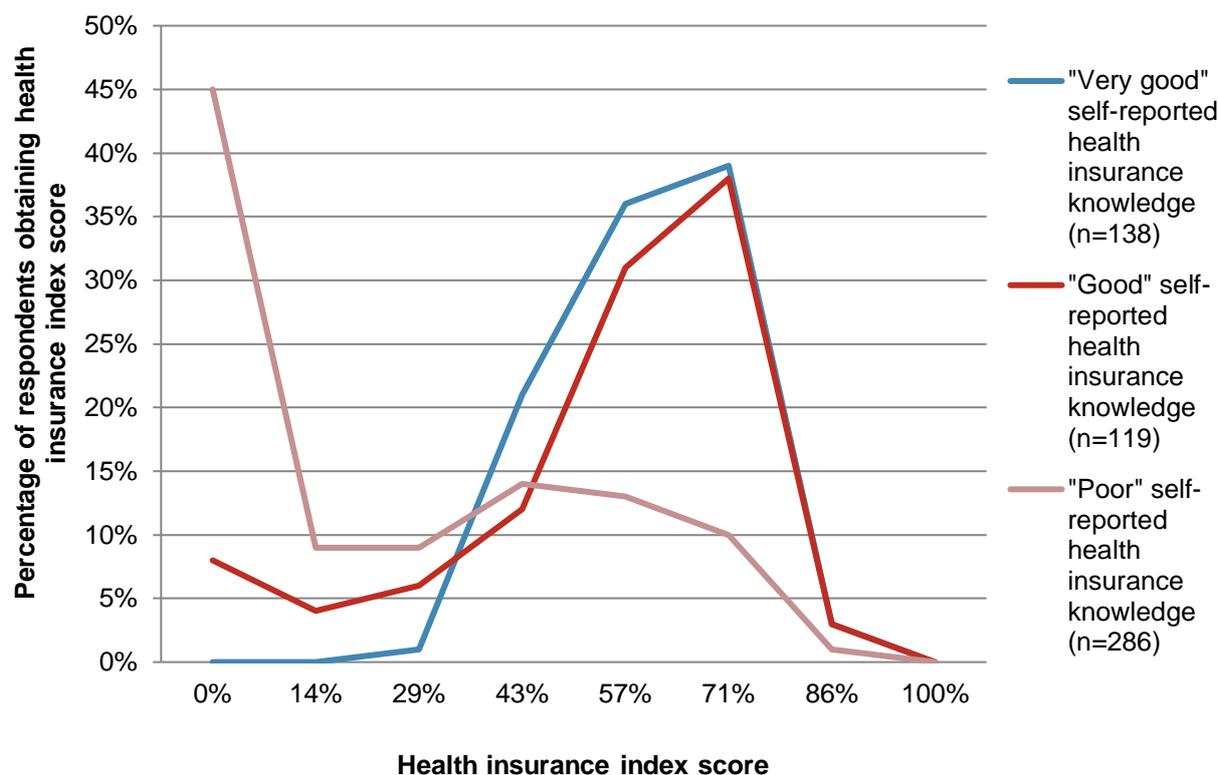


Health insurance knowledge

BEPHA membership was found to be a strong determinant of health insurance knowledge (p -value=0.000). 85% of insured individuals were shown to have above-average knowledge of the concept of health insurance, compared to 33% of uninsured individuals.

BEPHA insurees were also found to have a higher level of confidence in their health insurance knowledge, with 89% rating their knowledge as either “very good” or “good”. Conversely, 70% of uninsured individuals considered their knowledge to be “poor”. This largely correlated with actual understanding of the concept of health insurance, with 78% of individuals who rated their knowledge as “very good” and 71% of those who rated their knowledge as “good” having above-average knowledge of the concept of health insurance (p -value=0.000) (Figure 14).

Figure 14: Actual health insurance knowledge score compared to individuals' self-reported health insurance knowledge



6.4.8 Service coverage

Utilisation of health facilities

BEPHA Kumbo has contracted 24 faith-based healthcare facilities and three government hospitals in Bui and Donga Mantung Divisions to provide health services to its enrolees. This study found that BEPHA-insured individuals were more likely to visit faith-based facilities when ill compared to the uninsured. While this is likely due to BEPHA enrolees visiting its partner health facilities, it is also important to note that the uninsured also visited faith-based facilities to a greater extent than other types of facilities (Table 6). This supports BEPHA's strategy of targeting faith-based facilities as partners – indeed, the private sector accounts for 32% of healthcare provision in North-West Cameroon (147).

Table 6: Percentage of sick respondents attending healthcare facilities

	Inpatient services		Outpatient services	
	Insured	Uninsured	Insured	Uninsured
Public hospital	0 %	6 %	2 %	4 %
Public health centre	4 %	26 %	16 %	33 %
Private for-profit health centre	26 %	29 %	30 %	23 %
Private clinic	0 %	4 %	0 %	4 %
Mission facility	69 %	34 %	52 %	31 %
Dispensary	0 %	0 %	0 %	3 %
Pharmacy/Chemist	0 %	0 %	1 %	2 %
Other	0 %	1 %	0 %	0 %

In addition to health insurance status, socioeconomic status was found to have a significant impact on the choice of health facility for outpatient and inpatient services. These findings are highlighted further in the sections below.

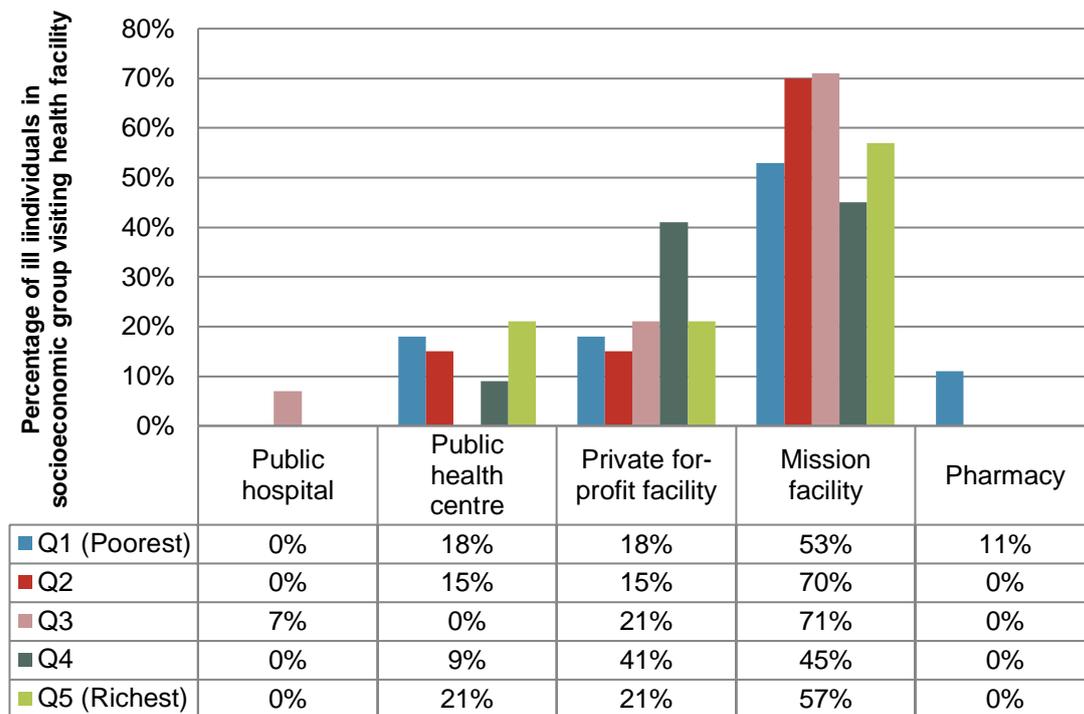
Use of health facilities for outpatient services

The choice of health facility for outpatient services varied significantly based on insurance status (p -value=0.000) and socioeconomic grouping (p -value=0.014) in the study population.

Among the BEPHA-insured, all socioeconomic groups showed a preference for attending mission hospitals for ambulatory care, with more than half of Q1, Q2, Q3 and Q5 obtaining treatment in these facilities, and 45% of Q4 visiting them for outpatient care (Figure 15). Given that BEPHA membership covers three-quarters of the costs associated with a single outpatient visit up to 15 000 FCFA for each enrollee per year, these findings support the assertion that 58% of all insured sick individuals

were able to fully benefit from BEPHA’s outpatient benefits in the month prior to the study.

Figure 15: Types of health facilities visited for outpatient services by BEPHA-insured individuals



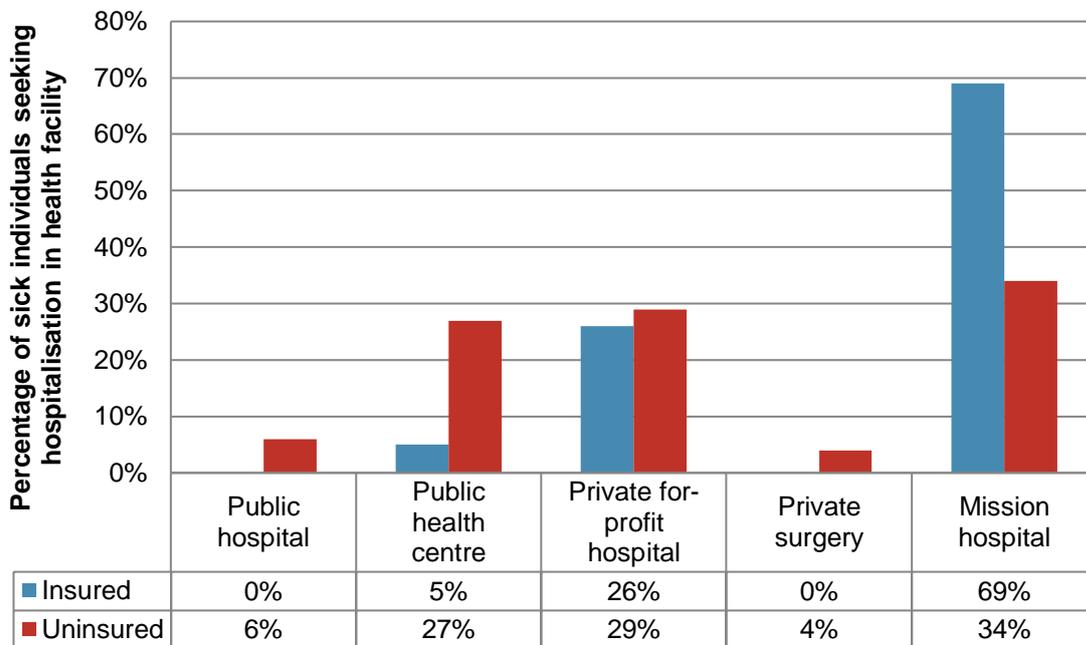
Amongst the uninsured, on the other hand, patients in Q1, Q2, and Q5 showed a preference for public health centres for their ambulatory care (34%, 46% and 32% respectively) (p -value=0.009). These findings point towards the need for BEPHA to contract more public health facilities in order to better attract the uninsured.

Use of health facilities for inpatient services

The study found that the choice of health facilities when seeking hospitalisation was strongly influenced by BEPHA membership, with 69% of insured individuals seeking

care in mission hospitals (p -value=0.000). Conversely, only 34% of uninsured individuals sought hospitalisation in mission hospitals (Figure 16).

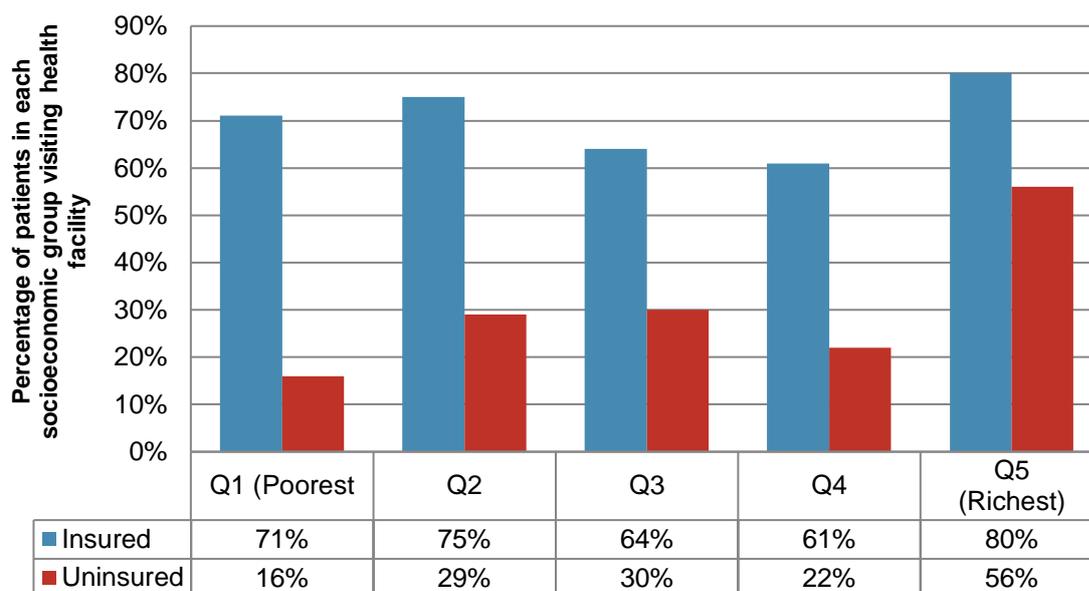
Figure 16: Proportion of sick insured and uninsured individuals visiting each type of health facility for inpatient care



The study also found that socioeconomic status had a statistically significant influence on type of health facility visited for inpatient care (p -value=0.043). While more than half of BEPHA-insured individuals across the socioeconomic divide visited mission hospitals (Figure 17), the uninsured showed a preference for different types of facilities depending on their socioeconomic grouping. The study found that individuals from the first and second quintile had a preference for hospitalisation in public health centres (50% and 32% respectively), while the third and fourth quintiles had a preference for private for-profit health facilities. Conversely, 56% of sick uninsured individuals in the wealthiest quintile sought hospitalisation in mission facilities when ill (p -value=0.010). Given that inpatient costs can have a devastating effect of a household's finances, it is imperative to carry out further research to ascertain the reasons why the poor are

less inclined to attend mission facilities when seeking inpatient care. This will enable BEPHA to better target partner facilities that will provide the poor with their preferred services.

Figure 17: Percentage of sick individuals visiting mission facilities by insurance status



6.4.9 Financial protection

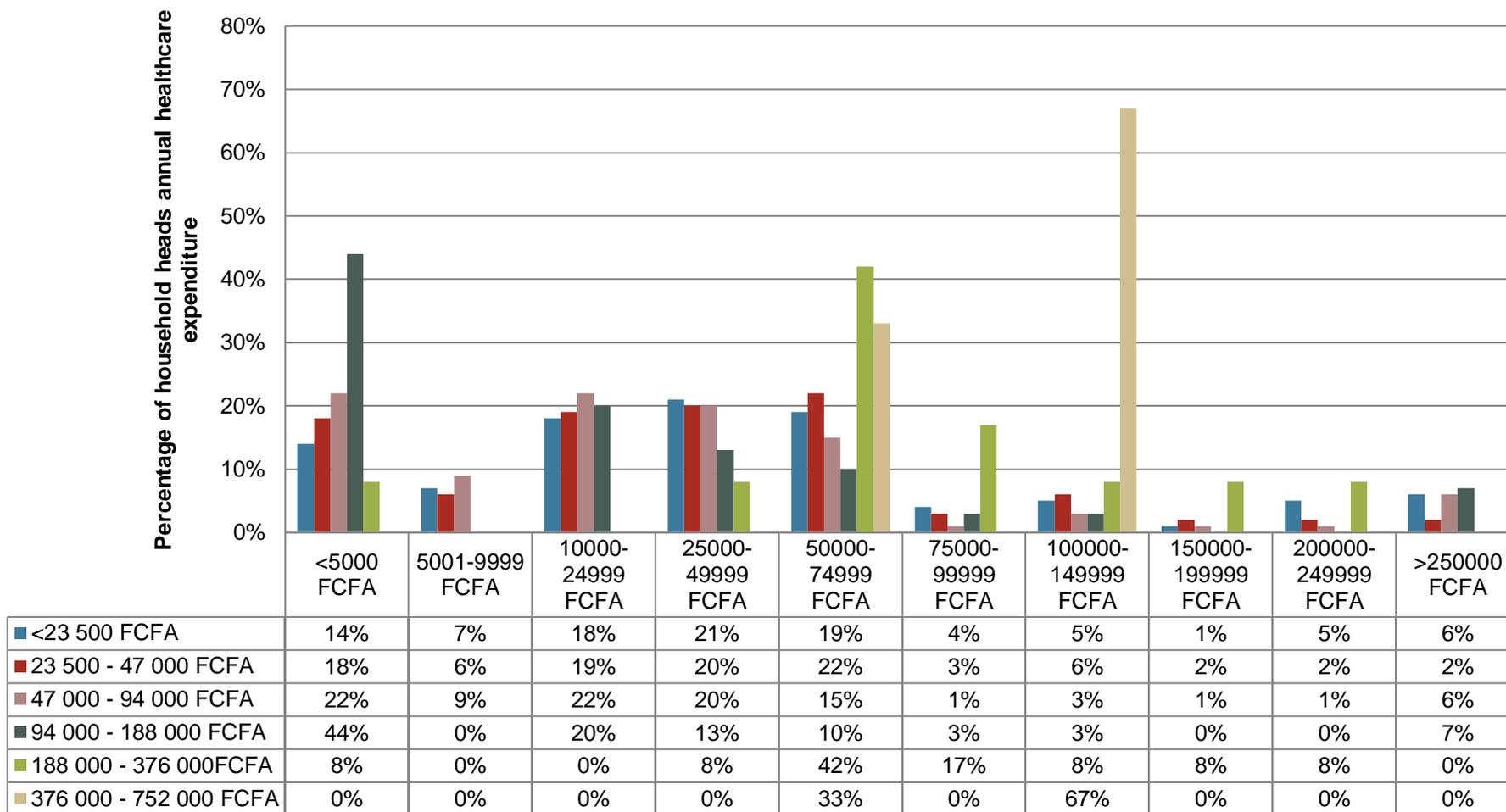
Out-of-pocket health expenditure

The study found that BEPHA membership did not have a statistically significant impact on out-of-pocket expenditure for households (p -value=0.252) or individuals (p -value=0.155) within the study population. Uninsured individuals spent more on average on healthcare than the BEPHA-insured, with 9,262 FCFA spent annually on health costs (standard deviation of 15,639 FCFA) compared to insured individuals, who had a mean annual health expenditure of 8,843 FCFA (standard deviation of 11,704 FCFA). When median health spending was analysed, BEPHA-insured individuals were found to have higher levels of annual healthcare expenditure, with a

median amount of 5,000 FCFA spent annually compared to the 4,286 FCFA spend by the uninsured.

Per capita annual healthcare expenditure was influenced by income (p -value=0.006) and *njangi* membership (p -value=0.000). The study found that annual healthcare expenditure was positively correlated to household income, except amongst households where the household head earned less than 47,000 FCFA per month. In situations where the household head earned between 23,000 FCFA and 47,000 FCFA, a third of individuals spent at least 50,000 FCFA on healthcare costs annually. Similarly in households where the head earned less than 23,000 FCFA per month, 29% of individuals had an annual *per capita* healthcare spend of at least 50,000 FCFA – the same proportion as individuals earning between 94,000 FCFA and 188,000 FCFA (Figure 18).

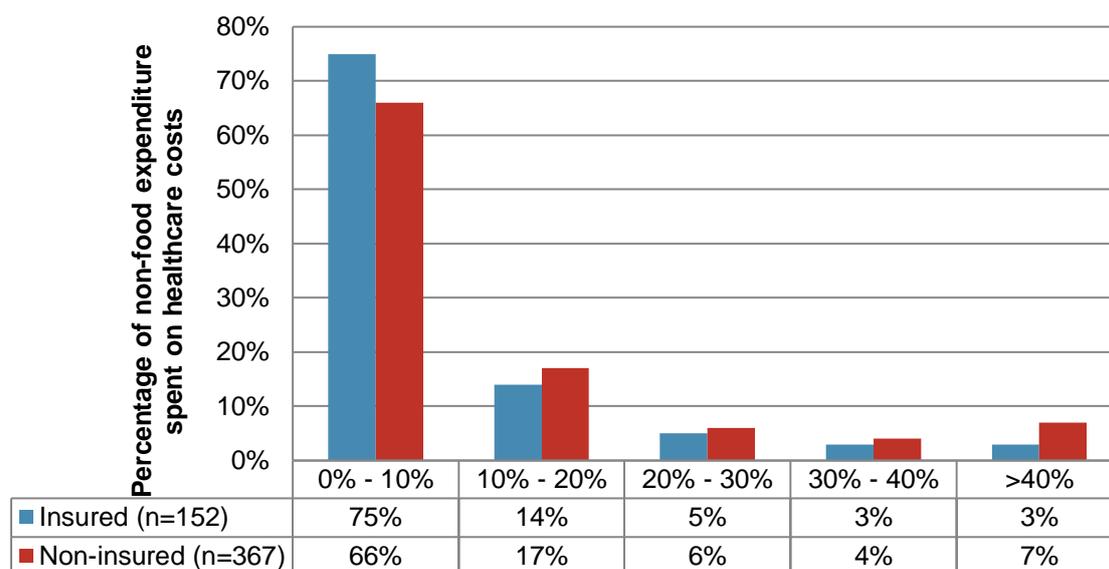
Figure 18: Proportion of household annual out-of-pocket health expenditure per capita based on income



Incidences of catastrophic health expenditure

Catastrophic health expenditure is defined as having health expenditure costs exceeding 40% of a household's non-food expenditure (151). BEPHA membership did not have a statistically-significant impact on catastrophic health expenditure, with 3% of insured households suffering from catastrophic health expenditure in the year prior to the research, compared to 7% of uninsured households (p -value=0.097). However, insurance status was found to have a statistically-significant impact on the burden of health payments, with 75% of BEPHA-insured households spending 10% or less of their non-food expenditure on healthcare costs annually compared to 66% of uninsured households (p -value=0.049) (Figure 19). This suggests that, while BEPHA coverage has a limited influence on reducing financial risk for households who spend more than 40% of their non-food expenditure on healthcare, it enables enrollees to minimise the burden of health payments below 10%.

Figure 19: Percentage of out-of-pocket payments as a percentage of a household's capacity to pay (health burden)



The study also found that catastrophic health expenditure among the study population was more likely amongst households where the household heads had lower incomes (p -value=0.010) and older age (p -value=0.004). Indeed, household heads above the age of 65 years accounted for 35% of households suffering from catastrophic health expenditure.

Incidences of household impoverishment due to healthcare costs

Impoverishment is defined as a situation where household health expenditure is higher than the minimum amount required to maintain basic life, otherwise known as subsistence spending (151). The study found that 0.7% of BEPHA Kumbo Scheme members were pushed into poverty due to healthcare expenditure, while 2% of uninsured households suffered from impoverishment due to health costs in the year preceding the study (p -value=0.227). These findings were, however, within the margin of error.

Oddly, no statistically-significant relationship was found between the number of illness episodes and impoverishment. Based on reported data, only one of the nine households facing catastrophic health expenditure utilised outpatient services in the month preceding the study, while four of the nine households had members hospitalised in the year preceding the study. However, these findings may reflect respondents' unwillingness to share sensitive medical information. Analysis of the survey data revealed that expenses associated with inpatient care pushed families into poverty, with all 'impoverished' households who sought hospitalisation in the year preceding the study facing healthcare costs of at least 125,000 FCFA within a single sickness episode (p -value=0.007).

The study also found that *njangi* membership significantly impacted impoverishment among households, with 78% of those facing impoverishment not belonging to a *njangi* (p -value=0.020). This reflects success of the microfinancing policies of *njangis*, which enable members to obtain financing when needed.

Willingness-to-pay for BEPHA health insurance package

BEPHA Kumbo's current benefit package provides 75% coverage of the costs associated with outpatient consultations, laboratory tests, hospitalisation, medicines, and maternity services at an annual fee of 4,000 FCFA per person. The annual contribution was increased from 3,500 FCFA in the year preceding the study in order to improve the financial sustainability of the Scheme.

The study revealed that the insured population was willing to pay an average of 4,602.41 FCFA for the current BEPHA package, while the uninsured were only willing to pay an average of 3,933.59 FCFA (Table 7). Twenty-two more insured households (65%) expressed a willingness to pay the annual contribution amount associated with

the current BEPHA package (4,000 FCFA) compared to uninsured households (43%) (p -value=0.000). This represents a 13% reduction in the number of insured households willing to pay for the new annual contribution rate compared to the previous rate of 3,500 FCFA.

Table 7: Willingness-to-pay for current and hypothetical BEPHA Kumbo packages

Package		Mean (S.D.)*	Median (Min – Max)
Current BEPHA package (75% benefits covered)	BEPHA-insured	4,602.41 (2,958.05)	4,000 (0 - 12,000)
	Uninsured	3,933.59 (3,319.01)	3,000 (0 – 12,000)
Hypothetical BEPHA package (100% benefits covered)	BEPHA-insured	6,698.80 (3,418.26)	5,000 (0 – 12,000)
	Uninsured	5,787.89 (3,863.17)	5,000 (0 – 12,000)

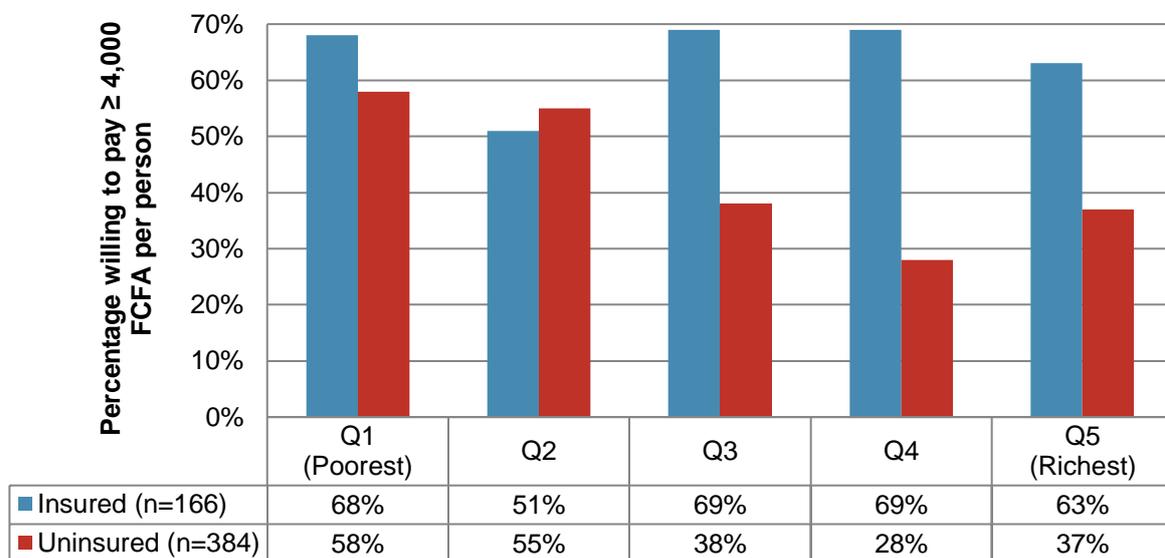
*S.D. = Standard deviation

Analysis also revealed that insured households would be willing to pay a mean annual contribution of 6,698.80 FCFA if BEPHA enhanced its benefit package to provide 100% coverage of the costs associated with outpatient consultations, laboratory tests, hospitalisation, medicines, and maternity services, while the uninsured would be willing to pay a mean of 5,787.89 FCFA (Table 7). These findings suggest that the acceptability of the annual contribution change would increase amongst the insured population if they were able to perceive a tangible increase in the benefit package. It is therefore necessary to carry out further research to identify strategies to enhance the benefit package while maintaining the sustainability of the Scheme, in order to minimise the attrition rate due to the increased annual contributions.

Socioeconomic status was found to influence a household's willingness to pay for the current benefit package (p -value=0.005) and for the hypothetical 100% benefit package (p -value=0.000). Amongst insured households, a higher proportion of those

belonging to the poorest 20% and the richest 60% of the study population were willing to pay at least 4,000 FCFA for the current package, compared to the uninsured (p -value=0.042). Conversely in the uninsured group, the study found that households in the lower socioeconomic quintiles were more willing to pay for the package amongst the uninsured respondents (Figure 20).

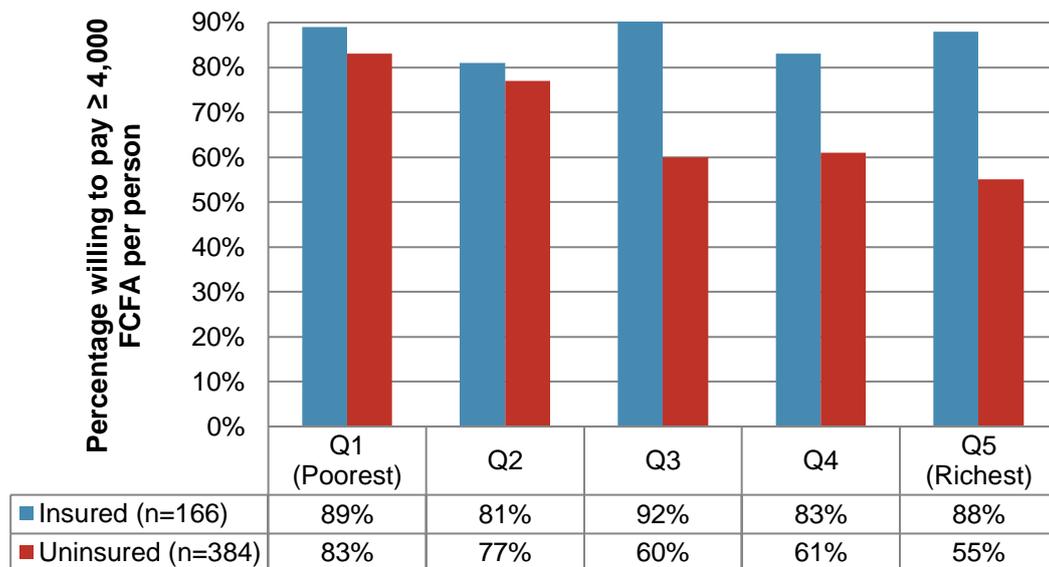
Figure 20: Percentage of households willing to pay at least 4,000 FCFA per person for current BEPHA benefit package



For the hypothetical enhanced benefit package where 100% of the costs associated with outpatient consultations, laboratory tests, hospitalisation, medicines, and maternity services were covered, the study found no significant influence of socioeconomic status on willingness-to-pay among insured households (p -value=0.078). However, analysis identified a negative correlation amongst the between socioeconomic status and the proportion of uninsured households willing to pay the current annual contribution for an enhanced benefit package (p -value=0.000). As an illustration, 83% of the poorest wealth quintile expressed a willingness to pay at

least 4,000 FCFA for an enhanced benefit package compared to 55% of the wealthiest quintile (Figure 21).

Figure 21: Percentage of households willing to pay at least 4,000 FCFA per person for enhanced BEPHA benefit package



Further research is required to explore the reasons why the lower socioeconomic quintiles seem to have a higher willingness to pay when uninsured.

Location of residence was also found to have a significant impact on willingness-to-pay, with urban households 31% more likely to be willing to pay at least 4,000 FCFA for the existing package (p -value=0.000). Further, the marital status of the household head had a significant influence on the maximum willingness-to-pay, with monogamous and widowed household heads more likely to pay more than 4,000 FCFA compared to other household heads (p -value=0.004).

The factors determining willingness-to-pay differed between the insured and uninsured. Among insured households, regression analysis found that location (p -value=0.000) and marital status (p -value=0.022) were the determining factors for

willingness-to-pay. Urban households who were either married in a monogamous setting or widowed were more likely to be willing to pay the current BEPHA annual contribution of 4,000 FCFA for the existing benefit package. The willingness of the uninsured to pay at least 4,000 FCFA was significantly influenced by location (p -value=0.000), type of employment (p -value=0.003) and njangi membership (p -value=0.008). Urban uninsured households whose head was formally-employed were more likely to be willing to pay the current BEPHA annual contribution of 4,000 FCFA for the enhanced benefit package. This suggests that BEPHA should target formal employers as part of an expansion strategy, in order to attract more higher-income members.

Additionally, willingness-to-pay amongst uninsured households was determined by the household head's understanding of the principles of health insurance, with 55% of individuals with "above average" health insurance knowledge willing to pay at least 4,000 FCFA for the BEPHA package (p -value=0.044).

6.5 Conclusions and recommendations

The BEPHA Kumbo Scheme has been making tangible progress towards achieving universal health coverage, with 9% of the population insured in the study area. The household survey found that BEPHA membership is aligned to the study population in terms of age, sex, and marital status. Interestingly, while literate household heads were more likely to enrol their households into BEPHA than the illiterate (p -value=0.000), the study found that actual education levels had no substantive impact on the decision to enrol into BEPHA. This provides assurances that BEPHA's use of

local opinion leaders within the context of the BEPHA Local Committee (LC) structure has enabled it to engage effectively with the target population irrespective of their level of educational achievement.

Based on the findings of this research, it can be suggested that BEPHA has successfully applied the principles of UHC by:

1. **Attracting and covering “easy-to-reach” populations** – BEPHA has focused its enrolment efforts on a largely Catholic audience, with mandatory coverage of Church-affiliated institutions and voluntary enrolment of the Catholic congregation. Catholic enrolees consequently make up 86% of the Scheme’s membership (p -value=0.000). Further, private sector employees, who are largely represented by Church- and NGO-affiliated institutions in the study area, have 4.63 higher odds of enrolling into BEPHA health insurance than remaining uninsured (p -value=0.002);
2. **Covering the poorest in the country** - BEPHA has enrolled a high proportion of poorer households, with 61% of its membership falling within the poorest 40% of the country’s population in terms of assets. This suggests that BEPHA has been able to provide an important gateway for access to health services to the poor in Bui and Donga-Mantung;
3. **Covering households irrespective of their health status** – Contrary to the findings of many micro health insurance schemes, BEPHA does not appear to be significantly impacted by adverse selection, with enrolees’ self-reported health status mirroring that of uninsured households (p -value=0.598). This suggests that BEPHA has managed to minimise its risk profile with regard to its members’ health status;

4. **Enabling households to minimise their health burden** – BEPHA membership provides an important financial safety net for households in avoiding out-of-pocket payments, with 75% of insured households maintaining the proportion of healthcare expenditure below 10% of their non-food expenditure (p -value=0.049).

While BEPHA has achieved positive steps towards covering the population of Bui and Donga-Mantung Divisions, there is still a need to increase coverage in a number of key populations including rural communities, the rich, illiterate and non-Catholics. Part of its limited coverage amongst these population groups may be linked to their inability to relate BEPHA coverage to the principles of social solidarity. The study found that *njangi* membership as a proxy of belief in social solidarity was high amongst the uninsured across the socioeconomic (p -value=0.009) and geographical (p -value=0.000) divide, with more than half of individuals in the wealthiest 20% and poorest 40% within the uninsured population making regular payments into a *njangi*. In order to increase its coverage of the population, it is suggested that BEPHA improves its targeting strategy by:

- i. Carrying out further research on the reasons behind the high membership rates in *njangis*, in order to incorporate their key success factors into BEPHA's community engagement strategy;
 - ii. Institutionalising the inclusion of different religious and informal networks (e.g. *njangis*) into BEPHA Local Committees, in order to improve the representation of rural communities and non-Catholics within the Scheme;
- and,

- iii. Developing an outreach strategy through secular formal employment institutions in order to target the wealthy and young.

The study also identified the need for BEPHA to develop contractual agreements with a more diverse pool of health facilities, given the varied preferences of the uninsured and non-poor. Analysis showed that the richest 20% amongst the uninsured had a preference for public health centres when seeking ambulatory care, while the middle class had a preference for private for-profit health centres when seeking hospitalisation (p -value=0.010). Given that the BEPHA Kumbo Scheme has largely contracted faith-based facilities to provide inpatient and outpatient services for its enrollees, it is imperative for it to actively engage with government and private facilities in order to attract further membership.

In terms of financial risk protection, BEPHA membership was found not to have a significant impact on out-of-pocket payments (p -value=0.252), catastrophic health expenditure (p -value=0.097), or impoverishment due to health costs (p -value=0.227). However, BEPHA was seen to play a significant role in keeping healthcare costs below 10% of a household's non-food expenditure (p -value=0.049). This finding is interesting given that similar rates of maintenance of health burden below 10% were seen in the successful government-run Community-Based Health Insurance (CBHI) Scheme in Rwanda (154).

Severity of illness was found to be a major risk factor for impoverishment, with all impoverished households who sought hospitalisation facing healthcare costs of at least 125,000 FCFA for a single sickness episode (p -value=0.007). The study also found that annual healthcare expenditure was positively correlated to household income (p -value=0.006), except amongst households where the head earned less than

47,000 FCFA per month. This suggests that the health systems in Bui and Donga-Mantung are discriminatory against households with lower incomes seeking health services. This trend was also witnessed in catastrophic health expenditure, where household heads with lower incomes (p -value=0.010) and older age (p -value=0.004) were more likely to have their households suffer from health expenditures greater than 40% of their non-food expenditure. It is necessary to note, however, that health expenditure and utilisation data collected may have been impacted by recall bias, as well as some households' unwillingness to share sensitive medical information. In order to gain further insight into the above findings, it is recommended for BEPHA to initiate further research to explore the reasons why certain socioeconomic groups are more prone to catastrophic health expenditure and impoverishment.

The study revealed that 65% of BEPHA members were willing to pay 4,000 FCFA for the current benefit package - a 13% reduction in the number of insured households willing to pay for the new annual contribution rate compared to the previous contribution of 3,500 FCFA (p -value=0.000). While this may lead to concerns about BEPHA's sustainability, it is important to note that the study also found that a hypothetical enhanced BEPHA benefit package where 100% of costs associated with outpatient consultations, laboratory tests, hospitalisation, medicines, and maternity services were covered would be more acceptable to both the insured and uninsured, with insured households willing to pay an average of 6,698.80 FCFA and the uninsured 5,787.89 FCFA. In order to further improve financial risk protection and coverage of the target population, it is suggested that BEPHA:

- i. Carry out a qualitative study to further investigate the reasons why insured households are unwilling to pay the increase BEPHA annual contribution rates;

- ii. Carry out an exploratory study to investigate the feasibility of enhancing the BEPHA benefit package; and
- iii. Undertake an actuarial calculation for the health insurance annual contribution, and test annual contribution with the population in order to effectively gauge willingness- and ability-to-pay.

7 How does membership in local savings groups influence the determinants of national health insurance demand? A cross-sectional study in Kisumu, Kenya

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7.1 Abstract

Background: Rotating savings and credit associations (ROSCAs) are highly active in many sub-Saharan African countries, serving as an important gateway for coping with financial risk. In light of the Kenya's National Hospital Insurance Fund's (NHIF's) strategy of targeting ROSCAs for membership enrolment, this study sought to estimate how ROSCA membership influences the determinants of voluntary health insurance enrolment.

Methods: A cross-sectional survey of 444 households was carried out in Kisumu City between July and August 2016. A structured questionnaire was administered on health insurance membership, household attributes, headship characteristics and health-seeking behaviour. We assessed the influence of ROSCA membership on the associations between NHIF enrolment and the explanatory variables using univariate logistic regression.

Results: The study found that education was associated with NHIF demand regardless of ROSCA membership. Both ROSCA and non-ROSCA households with high socioeconomic status showed stronger health insurance demand compared with poorer households; there was, however, no evidence that the strength of this association was influenced by ROSCA status (p -value=0.47). Participants who were self-employed were significantly less likely to enrol into the NHIF if they did not belong to a ROSCA (interaction test p -value=0.03). NHIF enrolment was found to be lower among female-headed households. There was a borderline effect of ROSCA membership on this association, with a lower odds ratio amongst non-ROSCA members (p -value=0.09): the low treatment numbers amongst the insured infers that

ROSCA membership may play a role on the association between gender and NHIF demand.

Conclusions: Our findings suggest that ROSCA membership may play a role in increasing health insurance demand amongst some traditionally under-represented groups such as women and the self-employed. However, the strategy of targeting ROSCAs to increase national health insurance enrolment may yield exiguous results, given that ROSCA membership is itself influenced by several non-observable factors – such as time-availability and self-selection. It is therefore important to anchor outreach to ROSCAs within a broader, multi-pronged approach that targets households within their social, economic and political realities.

Key words

ROSCAs; health insurance; social capital; Kenya

7.2 Introduction

Informal economic networks based on geographical, sociocultural or occupational proximity are highly active in many sub-Saharan African countries, with an estimated 24% of the population participating in local savings clubs in 2014 (155). In Kenya, where 24.6% of the population is excluded from formal savings and loans institutions, local rotating savings and credit associations (ROSCAs) have emerged as important gateways for coping with financial instability (156). ROSCAs are typically created to meet an unmet social and economic need amongst vulnerable groups such as the working poor and women (155,157), with participants pooling their financial resources to create communal savings funds as a form of financial risk protection (158). In this sense, ROSCAs serve as social networks through which individuals obtain financial security through collective resource mobilisation. Due to their informal nature, ROSCAs' success is contingent upon the trust, reciprocity and collective strength shared amongst group members – fundamental components of a phenomenon known as social capital (158,159). It is this reliance on social capital that has driven the use of similar welfare associations as launchpads for the national health insurance schemes in Germany and Japan (160,161).

Against the backdrop of increasing ROSCA membership across sub-Saharan Africa, financial risk protection in health care has remained low. Several governments in the region such as those in Ghana and Kenya have sought to promote national health insurance schemes as a means of minimising the high out-of-pocket costs associated with ill health (98,99). In Kenya – where up to 28% of slum-dwelling households face catastrophic health expenditure (162) – the national government has established the National Hospital Insurance Fund (NHIF) as a means of providing financial risk protection to its citizens. The NHIF operates like most national health insurance

schemes in the region, with the government and the formal sector providing the bulk of financial contributions to the scheme (4). However, given the high levels of informal employment in the Kenyan economy, the depth of insurance coverage has remained low, with only 13.5% of the population receiving NHIF coverage (163). A large proportion of Kenya's informally employed households – who constitute 85% of the working population – are thus left susceptible to financial shocks in the event of ill health (163,164). This problem echoes findings across health insurance schemes in several sub-Saharan African countries, where low health insurance demand has been attributed to high levels of labour informality.

As part of efforts to better understand the reasons behind the low uptake of voluntary health insurance, several research studies have identified a link between social solidarity and health insurance demand across various sub-Saharan African settings (165,166). This growing body of evidence has led Kenyan policymakers to target ROSCAs as a means of increasing NHIF demand amongst the informal sector, in line with their role as vehicles for social solidarity (167). Consequently, we seek to understand how ROSCA membership influences the drivers of voluntary health insurance in Kisumu, Kenya. This paper will be structured as follows: we will first provide a review of the research on the intersection between local group membership, social capital, and voluntary health insurance membership. We will subsequently report our methodology and results, and conclude with an analysis of our findings.

In order to better understand the mechanisms through which ROSCAs may influence health insurance enrolment, it is first necessary to define the social capital underpinning the success of ROSCAs. Social capital as a concept focuses on the utility of relationships and resources in facilitating collaboration towards a common goal (168–170). While different interpretations of its nature and effect exist, it is generally agreed

that social capital influences the depth of individuals' engagement with local and national structures by facilitating trust and reciprocity within communities. ROSCAs – as local informal groupings – seek to empower economic cooperation in the face of complex resource and capacity constraints. In doing so, they tap into two key dimensions of social capital: intra- and inter-community collaborations. When constituting ROSCAs in low-resource settings, members often recruit those in whom they have inherent trust – ostensibly those with similar socioeconomic, professional or ethno-cultural characteristics. This structure mimics traditional African obligations to familial and tribal alliances (171), and derives its power from harnessing existing links within homogenous groups: a concept known as bonding social capital (172). Concurrently, in order to make ROSCAs sustainable, members seek to increase the associations' capital base and minimise the risk of default (157). They thus expand their radius of trust beyond their typical personal, sociocultural and organisational bases - a phenomenon known as bridging social capital (172). In this vein, ROSCAs foment economic, social, and cultural links within local communities (173).

In spite of the pervasiveness of ROSCAs and their linkages to national health insurance enrolment in several sub-Saharan African settings (57,59), there remains a paucity of research on the influence of ROSCAs on national health insurance demand. We can, however, draw lessons from studies carried out on the influence of social capital as a general concept on voluntary health insurance enrolment. According to existing research, active members of local mutual assistance groups such as ROSCAs are more likely to be part of voluntary health insurance schemes due to a shared ethos of social cooperation (174–176). These findings highlight the importance of common norms, values and objectives – characteristic features of social capital – in influencing households' decision to enrol into voluntary health insurance. Given this, our paper will

seek to answer the following research question: How does ROSCA membership influence the determinants of voluntary health insurance enrolment? We will further seek to understand how existing knowledge on social capital can help explain the influence of ROSCAs on the determinants of health insurance demand.

In order to answer these questions, we can apply several hypotheses to our study based on the findings of existing research. Given the link identified between local informal group membership and social capital, we anticipate that non-ROSCA members may have weaker bonding and bridging social capital compared with their ROSCA member counterparts. As a result of this, we expect wealth to manifest as an overarching determinant of NHIF demand amongst non-ROSCA members in line with existing national health financing studies (48,56–59,112). Additionally, we hypothesise that sociocultural sensitivities such as household composition; gender of household head; and marital status will influence households' likelihood of enrolling into national health insurance (48,56–59,112,115). We however postulate that these inequities may be reduced by ROSCA membership due to their high social capital stock.

7.3 Methodology

7.3.1 Sampling methodology

A cross-sectional household survey was carried out in Kisumu City between July and August 2016 to identify the extent to which NHIF enrolment is influenced by ROSCA membership; household composition and attributes; as well as household head characteristics such as occupation, age, gender and perceived health status of household members.

Our study aimed to estimate the proportion of the informally employed population with voluntary NHIF health insurance, and to assess the association between explanatory variables and this proportion. In order to achieve these aims, we calculated the sample size based on the ability to estimate the proportion insured with a certain precision - in this case, with an expected NHIF population coverage of 13.8% (177). Using the Hayes and Bennett equation and taking into account clustering in six sub-locations across Kisumu, required sample size was calculated to be 440 households with the precision of a 95% confidence interval with a width of 10% to 18% (132). The number of households interviewed in each sub-location was proportional to its demographic size, which was obtained from the 2009 Kenya Population and Housing Census (178).

Multistage cluster sampling was used to obtain the study sample, with enumeration maps of the six sub-locations used to randomly identify existing informal settlements in Kisumu (179). In the second stage, we selected existing water points within informal settlements, and randomly selected starting points located near the water points. This strategy was driven by the use of watering points as navigation tools by the local communities. We subsequently carried out systematic sampling, with every n th household interviewed. Approximately 98% of the targeted households could be interviewed.

7.3.2 Data collection

The survey was administered as a structured questionnaire using Open Data Kit (ODK) software on handheld tablets to answer questions on household composition; household assets; household expenditure and consumption; and health-seeking behaviour. Research assistants who were fluent in English, Kiswahili and the local

dialect, Luo, and who had knowledge of the local geographical and sociocultural context were hired. Training was provided to familiarise research assistants with the questionnaire and data collection using handheld tablets.

Household heads were targeted as the primary respondents for this study. In cases where the household head was not available, their spouse was interviewed.

In order to identify the informally employed in our study area, we used a deductive approach of identifying households where the household head did not make mandatory monthly payments into the National Social Security Fund (NSSF). This approach was taken, as there is no clearly defined approach for identifying the informal sector in Kenya. However, the formal sector is defined distinctly within Kenya's legal framework, with sector members legally obligated to make monthly pension payments to the NSSF (180).

Insured households were defined as those where members were voluntarily enrolled into the NHIF in the year preceding the study.

7.3.3 Statistical analysis

The data were analysed using STATA version 14.1 for Windows (STATA Corporation, College Station, Texas). The main outcome variable was voluntary enrolment into the NHIF in the previous year. The explanatory variables were divided into five components: household composition and attributes; household head factors; perceived household health status; and proxies for exposure to financial risk pooling.

In order to measure wealth, we used the asset index as described within the Kenya Demographic and Health Survey (DHS) to calculate households' asset-based wealth (181). We collected data on consumer items, dwelling characteristics such as housing

materials, water source, sleeping arrangements, and other characteristics linked to wealth status. We subsequently computed the asset index. Households were then classified into one of five socioeconomic groups based on quintiles (Q): Q1 or the poorest 20%; Q2; Q3; Q4; and Q5 or the wealthiest 20% in the sample. These groups were subsequently clustered into three groups: Q1 and Q2; Q3 and Q4; and Q5 respectively, to account for the minimal differences amongst the proximal quintiles. Literacy within the study context was defined as those above the age of 15 years who could read and write (182). The mean perceived health status of each household was calculated as the average self-reported health status value for all household members. The final value of the mean perceived health status was assigned a value of between 1 and 4, with 1 being “very good” health status; 2 being “good” health status; 3 being “poor” health status; and 4 being “very poor” health status.

We used multilevel mixed-effects logistic regression models to estimate the association between health insurance enrolment and the explanatory variables. We took the clustering of households at the village level into account using random effects for village. In light of the low numbers of insured households within our study population, it was not possible to include multiple covariates simultaneously in the model. Therefore, univariate models were run to estimate the association of each variable and health insurance enrolment for the ROSCA and non-ROSCA households respectively. We ran the regression models for (i) ROSCA and non-ROSCA separately to easily gain estimates of the univariate odds ratios and 95% confidence intervals; and (ii) on the full dataset with ROSCA and non-ROSCA households in order to use interaction terms to directly test whether the associations between each covariate and NHIF enrolment were affected by ROSCA membership. Each model included the covariate, ROSCA membership, and the interaction term as explanatory variables.

7.4 Results

7.4.1 Study population characteristics

A total of 444 households were enumerated in the survey, with ROSCA member households accounting for 63% of the study population. Approximately 29% of ROSCA households and 23% of non-ROSCA households were voluntarily enrolled into the NHIF. While ROSCA members are actively targeted by the NHIF for enrolment, our study did not find a statistically significant association between ROSCA membership and health insurance enrolment (OR: 1.33 [0.85-2.09]). Table 8 reports the differences in each test variable according to insurance status and household ROSCA membership status.

Table 8: Descriptive statistics by gender and insurance status

	ROSCA member			Non-ROSCA member		
	Insured (n=81)	Uninsured (n=200)	Combined (n=281)	Insured (n=38)	Uninsured (n=125)	Combined (n=163)
Household characteristics						
Mean household size	4.160	4.035	4.071	4.553	3.920	4.067
Households with children <=5 years	48%	59%	56%	61%	58%	58%
Households with children <=15 years	75%	76%	76%	84%	78%	79%
Households with elderly >=60 years	11%	6%	7%	8%	10%	10%
Average socioeconomic status (SES) score ²	3.469	2.945	3.096	3.158	2.688	2.798
% of poor households (Q1-Q2)	26%	42%	37%	29%	50%	45%
% of rich households (Q5)	32%	18%	22%	18%	15%	16%
Annual average household expenditure (KShs)	365,060	361,195	362,309	373,513	230,524	263,859
Household head characteristics						
Average age (median)	38.85	34.74	35.93	33.95	35.11	34.84
Female household heads	21%	29%	26%	13%	34%	29%

Secondary-level education and above	63%	49%	53%	71%	43%	50%
Married household heads	83%	72%	75%	87%	66%	71%
Small-scale business owner	56%	57%	57%	32%	62%	55%
More than one earner	52%	32%	37%	39%	19%	24%
Fixed salary	19%	13%	14%	42%	13%	20%
Profits as remuneration	27%	24%	25%	18%	18%	18%
Average monthly income (KShs)	20,522	14,923	16,537	14,929	10,552	11,572
Household health status						
Mean health status	2.036	1.961	1.983	2.026	2.039	2.036
Presence of chronic disease	4%	6%	5%	3%	7%	6%
Use of curative services						
Outpatient service use in past 30 days	48%	49%	48%	45%	37%	39%
Use of NHIF-accredited outpatient facilities	32%	33%	32%	42%	19%	25%
Inpatient service use in past year	36%	25%	28%	16%	22%	21%
Use of NHIF-accredited hospitalisation facilities	32%	20%	23%	13%	18%	17%
Annual <i>per capita</i> health expenditure (KShs) ²	1,729	739	1,025	569	818	760

1 USD = 102.45 KShs as of January 2018

Most household heads in our study population reported themselves as economically active, with 94% of respondents carrying out casual income-generating activities in lieu of formal employment. The most common economic activities amongst our study population were small-scale business ventures, with 56% of the population engaging in activities such as carpentry, masonry, and hairdressing. This notwithstanding, our findings revealed that 26% of our study population lived below the poverty line, which is defined as a household income of less than \$1.90 a day (164).

The household characteristics and health status for the sample population were broadly similar regardless of ROSCA membership status. Overall, the median household size was 4, with 77% of all households having children below the age of 15

years. The number of households with elderly members was low across the study population, with only 8% of households having members above the age of 65 years. The study population also showed similarities in the gender and marital status of household heads, irrespective of ROSCA membership status. Further, the study found similarities in the mean household health status, with 5% of households reporting the presence of chronic disease.

The study found important distinctions in the economic characteristics of ROSCA and non-ROSCA households. ROSCA members were more likely to have more than one earner in the household and higher monthly incomes compared to non-members.

7.4.2 Factors associated with voluntary health insurance enrolment amongst ROSCA and non-ROSCA member households

Household-level regression results are presented in Table 2 for ROSCA and non-ROSCA member households.

Table 2: Univariate logistic estimates for probability of purchasing NHIF health insurance at household level

Variable description	ROSCA members (n=163)		Non-ROSCA members (n=281)		Interaction* (n=444)
	Odds ratio	CI	Odds ratio	CI	p-value
Household characteristics					
Presence of children <15 years	0.92	0.49–1.72	1.54	0.59–4.05	0.50
Presence of elderly >60 years	1.93	0.76–4.90	0.74	0.20–2.74	0.15
Socioeconomic status (Reference group: First and second quintiles)					
Middle wealth	1.71	0.91–3.23	2.56	1.12–5.88	0.47
Wealthiest quintile	2.81	1.38–5.73	2.08	0.71–6.10	
Household head characteristics					
Sex of household head (Reference group: Male)					

Female	0.65	0.35–1.23	0.29	0.11–0.79	0.09
Age (Reference group: ≤24 years)					
25 – 29 years	0.71	0.27-1.90	1.29	0.35-4.72	0.16
30 – 45 years	0.92	0.38-2.22	2.16	0.65-7.17	
46 – 59 years	1.92	0.68-5.42	1.79	0.41-7.86	
60+ years	1.92	0.59-6.24	0.42	0.04-4.18	
Education (Reference group: Primary level or less)					
Secondary education or higher	1.80	1.05–3.11	3.23	1.47–7.08	0.84
Employment type (Reference group: Paid employees)					
Self-employed	0.95	0.55–1.66	0.25	0.11–0.57	0.03
No fixed employment	1.15	0.35–3.75	0.55	0.14–2.25	
Remuneration (Reference group: Fixed salary)					
Daily/hourly pay	0.70	0.29–1.71	0.20	0.07–0.53	0.19
Task-based payment	0.52	0.23–1.14	0.15	0.05–0.44	
Business profits	0.76	0.33–1.76	0.32	0.11–0.95	
Marital status (Reference group: Unmarried)					
Married	1.87	0.96–3.64	3.46	1.26–9.51	0.57
Presence of chronic illness in household	0.65	0.17–2.44	0.35	0.43–2.84	0.46

*The *p*-values assess whether the association between each variable and NHIF membership is significantly different for the ROSCA and non-ROSCA households. The odds in the reference group are multiplied by the odds ratio for each category.

Our study found that education and asset-based SES were associated with NHIF demand, regardless of ROSCA membership status. Household heads in the study population were more likely to enrol into the national health insurance scheme if they were educated to at least secondary school level (OR=1.80 (CI:1.05–3.11) for ROSCA members, and OR=3.23 (CI:1.47–7.08) for non-ROSCA members (interaction test=0.84). Our findings also suggest that SES was associated with health insurance demand, although there was no evidence that the strength of the association was influenced by ROSCA membership status (*p*-value=0.47).

Our analysis showed that the relationship between NHIF enrolment and some socio-demographic and economic variables could be influenced by a household's ROSCA status. The study found that household heads that were self-employed or had no fixed employment were significantly less likely to enrol into the NHIF if they did not belong to a ROSCA (p -value=0.03).

Our findings also raise the possibility of a stronger relationship between gender and national health insurance demand if one does not belong to a ROSCA than if one does (p -value=0.09). According to our analysis, non-ROSCA female household heads were less likely to enrol into the NHIF compared with their male counterparts (OR=0.29 (CI:0.11–0.79). The odds ratio among the ROSCA member group was 0.65 (CI:0.35–1.23). Given the low treatment numbers amongst the insured, the borderline effect of ROSCA membership on the relationship between gender and health insurance demand infers that it may play an influencing role on the association between the explanatory variable and NHIF enrolment.

In addition to the above associations, our findings suggest that NHIF demand may increase if the household head was married or received a fixed salary. There was, however, no evidence that these associations were influenced by ROSCA membership.

7.5 Discussion

This study investigated the influence of informal financial coping mechanisms on the demand for formal, more secure forms of financial risk protection in health. Before probing the associations between ROSCA membership and health insurance

enrolment, it is first necessary to examine the overarching determinants of NHIF demand within the general population sample. According to our findings, the NHIF has been successful in providing inclusive health insurance coverage regardless of household composition or health status. This may be attributed to the NHIF's benefit structure, which enables a household to enrol all its identified dependents under a fixed premium irrespective of their individual circumstances. While successful in expanding coverage amongst the above-mentioned groups in our study area, we found that the NHIF still faces challenges in increasing health insurance demand amongst key vulnerable population groups, including those with low levels of education and limited asset-based wealth. These findings reflect similar national health financing studies across sub-Saharan Africa that have identified a positive correlation between health insurance demand and a household head's educational or asset-based socioeconomic status (56,58,59,112,115).

Viewed through the prism of ROSCA membership, our results inferred that sociocultural disenfranchisement due to female household headship reduced NHIF demand amongst those not involved in local ROSCAs. However, further analysis revealed that these sociocultural constraints on NHIF enrolment were limited amongst ROSCA members. With this in mind, it is necessary to examine how ROSCA membership changes the terms under which households engage with national power structures.

According to Mladovsky and Mossialos' social capital framework, bridging capital is vital in building norms and rules to facilitate productive behaviour in individuals (172). Amongst these norms is the sharing of information and resources amongst socially heterogeneous groups, in order to create a fair market. In the context of ROSCAs, regular social and economic interaction minimises the information and power

asymmetry witnessed in the general population. ROSCAs thus challenge the power structures that are inherent within our study area by developing a common identity under which heterogeneous groups interact. This implies that ROSCAs may foster social cohesion amongst its members, ostensibly by arming different sociocultural groups with the information and financial resources to better understand and afford NHIF membership.

Based on our findings, however, it is, notable from our findings that ROSCA membership does not exclusively negate the influence of sociocultural biases on national health insurance demand. Cognisant of this, we postulate that the social alliances within ROSCAs are ultimately subservient to the economic power held by individuals. It is generally accepted that many ROSCAs exclude those unable to pay their dues during each payment cycle (183). This means that the wealthy either self-select into the ROSCAs, or ultimately exclude their poorer counterparts due to non-payment of fees (157). This leads to the pervasive exclusion of the economically marginalised, thus disempowering actors with weak economic agency. The role of potential ostracism in limiting the bridging social capital in ROSCAs is observed by the fact that the wealthier business owners in our study setting, either due to high household head income or multiple earners, were over-represented in ROSCA households. It is for this reason that we found that small-scale business owners were more likely to be enrolled into the NHIF if they had ROSCA membership.

It is important to view the findings of this manuscript within the context of the NHIF's broader Universal Health Coverage (UHC) strategy in Kenya. Since 2015, the Kenyan Government has provided fully subsidised NHIF coverage to indigents across the country through the Health Insurance Subsidy Programme for the Poor (HISP). This scheme has set the ambitious goal of expanding health insurance coverage to 9 million

indigents across the country by 2020 (184). Additionally, in 2016, the Kenyan Government began offering free maternity services (FMS) to all Kenyan women through the NHIF (185). With these programs in mind, the NHIF's ROSCA targeting strategy would ostensibly be targeted towards a narrow group of informal sector workers who have some degree of economic agency. With this nuanced lens, the NHIF's strategy of targeting the informal sector through ROSCAs may be feasible, given their alternative means of targeting those at the bottom of the pyramid through premium subsidisation. However, the success of these strategies will be highly dependent upon the successful planning and execution of these collaborative strategies as collective, as well as effectively identifying households at the bottom of the pyramid.

Given the indefinite nature of social capital, care must be taken in viewing the associations reported in this study as causal. We must also acknowledge that the structures of ROSCAs and their relationships with stocks of social capital will vary considerably. We note that ROSCA membership may be influenced by several non-observable factors, such as time-availability and self-selection, which directly impact one's ability to participate in ROSCAs. We further acknowledge that the use of univariate logistic regression in our study limits our ability to control for some key confounders within our analysis. We therefore reiterate that the relationship between ROSCA membership and its associated social capital, NHIF enrolment and the explanatory variables is associative rather than causative within the context of our study. Further, the urban setting of this study limits its external validity in rural areas. Nevertheless, this article provides an insight into the transmutability of social capital from the local level to national level. It also provides an insight into how an in-depth understanding of the social and economic characteristics of target populations can feed

into in the design of national-level schemes. Our study has several design limitations that may affect the external validity of our study: the study took place in the transitory period during which changes to NHIF rates and benefits for the informal sector were being negotiated. Due to this context, the study's applicability may be affected by the new NHIF voluntary health insurance regime.

7.6 Conclusion

This study examined the influence of ROSCA membership and social capital on voluntary health insurance enrolment. We posit that socially disadvantaged groups may accrue strong bridging social capital by participating in ROSCAs in resource-poor areas. However, we suggest that the full benefits of social capital in increasing health insurance demand can only be accrued by taking into account the underlying economic situation of the target population. We note that the educational and financial situation of a household serves as a strong indicator of its capacity to make investment decisions, including signing up to a voluntary health insurance scheme. It is therefore important to anchor outreach to ROSCAs within a broader, multi-pronged approach that targets households within their social, economic and political realities. These findings are particularly relevant to countries that may seek to increase voluntary health insurance coverage through local associations: it is important to understand the demographic challenges of these groups and utilise several strategies and targeting mechanisms to ensure equitable access to health insurance for all citizens.

Declarations

Ethics approval and consent to participate

Ethical approval for this study was obtained through the Institutional Review Board (IRB) of Strathmore University, Kenya (Ethics Reference No. SU-IRB 0057/16; Date of approval: 15th June 2016). Written consent was acquired from all respondents.

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Authors' contributions

TO designed and collected the data for the study. TO completed data analysis and drafted the manuscript for publication. KW helped draft and review the manuscript for intellectual content. All authors read and approved the final version.

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8 Factors influencing the uptake of National Hospital Insurance Fund (NHIF) membership in informal settlements in Kisumu, Kenya: Stakeholder report

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WORKING PAPER

Report developed to provide feedback to county stakeholders on the factors influencing Voluntary NHIF enrolment in Kisumu City

Publication date: September 2017

8.1 Executive summary

Background: The informal sector constitutes a sizeable proportion of Kenya's working population, with an estimated 13.3 million workers employed across the country. However, this sector remains under-represented in their health insurance coverage, with only 18.9% insured through the Kenyan Government's national health insurance scheme, the National Hospital Insurance Fund (NHIF). In line with national and county government efforts to increase financial health risk protection amongst this population group, this study sought to understand the factors that influence voluntary National Hospital Insurance Fund (NHIF) enrolment amongst the informally-employed in Kisumu City.

Methods: A cross-sectional survey of 440 households was carried out in six informal settlements in Kisumu City in July 2016. A structured questionnaire was administered on health insurance membership; household attributes; headship characteristics; and health-seeking behaviour. Bivariate analyses using χ^2 tests were carried out to determine the relationship between the explanatory variables and NHIF enrolment.

Results: The study found that the NHIF has made tangible progress towards covering the informal sector, with 27% of the population insured in Kisumu's informal settlements. We found that NHIF membership is inclusive regardless of household composition, age, religion or perceived household health status. However, the study also revealed inadequacies in the NHIF's abilities to effectively reach the socially- and economically-disadvantaged. In particular, we found that the NHIF still falls short in its coverage of key vulnerable population groups such as the "poor", female-headed households, widowed or unmarried individuals, and those with low levels of education.

Conclusions: While these shortfalls present challenges for the NHIF's goal of

achieving universal health coverage, they are not insurmountable. Indeed, both national and the Kisumu County Government have expressed a willingness to increase subsidisation of disadvantaged communities within Kisumu City. There has also been increased innovation in marketing and payment strategies to increase the uptake of the NHIF amongst some underserved populations. Ultimately, the targeting of the informal sector will require collaboration between national and county governments to optimise the NHIF's voluntary enrolment and achieve universal health coverage.

8.2 Introduction

The informal sector constitutes a sizeable proportion of the working population in Kenya, with an estimated 13.3 million workers employed across the country (70). While these workers make up approximately 83% of the working population, they remain under-represented in their health insurance coverage. Limited health insurance coverage is acknowledged to reduce a household's ability to access health services without the threat of financial hardship (98,99,100). It is for this reason that it is important for informal sector members to obtain health insurance coverage. In line with national and county government efforts to increase financial health risk protection amongst this population group, this study sought to understand the factors that influence voluntary National Hospital Insurance Fund (NHIF) enrolment amongst the informally-employed in Kisumu City.

8.2.1 The National Hospital Insurance Fund (NHIF)

Background

The National Hospital Insurance Fund (NHIF) is a national health insurance scheme which provides coverage for approximately 10% of the Kenyan population (70). Established in 1966 by the Kenyan Government, it is the largest health insurance provider in the country, covering 88.4% of the insured population (187). The NHIF operates as a contributory scheme, with mandatory coverage of the formal sector through direct taxation of salaries and voluntary enrolment of the informal sector. As a result of this structure, the Scheme has achieved a near-universal coverage of the country's formal sector, while informal sector coverage has remained low at 18.9% (70).

Informal sector and voluntary NHIF enrolment

NHIF Informal Sector benefit package

As previously highlighted, informal sector enrolment into the NHIF is elective. In order to enrol informal sector workers and their families into the NHIF, potential enrolees are charged an annual flat-rate premium. This fee can be paid annually, semi-annually, quarterly or monthly depending on the enrolee's financial realities. The minimum monthly income for NHIF eligibility amongst the informal sector is KShs 1000 (US\$ 10.06). In June 2015, the NHIF's flat-rate Informal Sector enrolment fee was increased from KShs 350 (US\$ 3.52) to KShs 500 (US\$ 5.03) to incorporate the provision of outpatient services into the voluntary benefit package. However, the outpatient service offerings to be incorporated into the NHIF Voluntary Scheme remained unclear at the time of publication of this report. Comparatively, NHIF's inpatient coverage is more clearly defined: the Scheme offers a daily rebate of between KShs 400 (US\$ 4.03) and KShs 2200 (US\$ 22.14) for the first 180 days of hospitalisation. This service package is valid for all inpatient treatment with a few exceptions, such as circumcision.

NHIF and universal health coverage in Kenya

In 2012, the Kenyan Government identified the NHIF as its chosen vehicle for achieving universal health coverage (UHC) (78,79). This strategy was viewed as the most effective method for increasing financial health risk protection across the country, given the NHIF's established national and regional networks. Due to the size of the informal sector workforce in Kenya, this demographic presents a key growth market for the NHIF in this regard. In recognition of this, several county governments, including the Kisumu County Government, have focused on targeting voluntary NHIF expansion as part of their development and financial health risk protection strategies (213).

While progress has been made in attracting members of the informal sector countrywide, the NHIF continues to face challenges in achieving the enrolment numbers necessary to fulfil its UHC mandate. Several studies have been carried out to investigate the reasons for the low uptake of the Scheme amongst the informal sector, with the majority of work focusing on qualitative studies (80,205). This approach limits applicability to the broader Kenyan context, given that the findings in this context are only representative of the specific study population. Further, to the author's knowledge, there are few robust quantitative studies investigating the determinants of voluntary health insurance enrolment outside of the capital city, Nairobi. Kisumu is one such area, where there has been limited quantitative investigation of the uptake of the NHIF amongst the informally-employed population.

8.3 Methodology

8.3.1 Study objectives

Our study sought to understand the factors influencing voluntary NHIF enrolment in Kisumu by:

- i. Identifying the population characteristics of the informally-employed residents of the four main informal settlements in Kisumu City;
- ii. Estimating the proportion enrolled into the NHIF Informal Sector Scheme among the informally-employed; and,
- iii. Investigating the household factors influencing voluntary NHIF enrolment.

Based on the data analysed from the quantitative study, we sought to estimate the association between the explanatory variables and health insurance enrolment.

8.3.2 Study design

A cross-sectional household survey was carried out in Kisumu City between July and August 2016 to identify the extent to which health insurance enrolment is influenced by:

- Household composition and attributes
- Household head characteristics such as occupation, age, gender and membership in solidarity-based groups
- Perceived health status and healthcare utilisation of household members.

Kisumu is the third largest city in Kenya with a population of 491,893 individuals

(214). As the largest urban centre in Western Kenya, it has experienced sustained population increase, with an annual growth rate of 8% (214). While details on NHIF coverage within Kisumu City are not publicly available, the Kenya Health Household Expenditure and Utilisation Survey (HHEUS) 2013 reported that 13.80% of residents in Kisumu County had NHIF coverage (177).

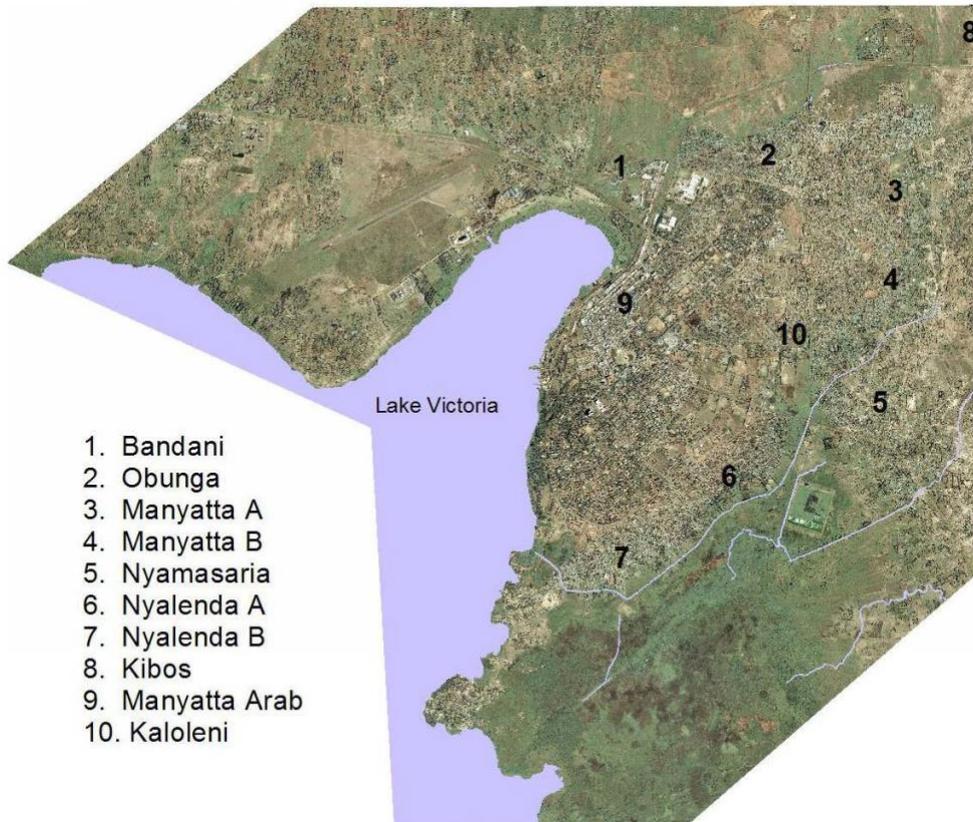
8.3.3 Sampling methodology

Our study aimed to estimate the proportion of the informally-employed population with voluntary NHIF health insurance, and to assess the effect of explanatory variables on this proportion. In order to achieve these aims, we based the sample size on the ability to estimate the proportion insured with a certain precision - in this case, with an expected NHIF population coverage of 13.8% (177). Using the Hayes and Bennett equation, the required sample size was calculated to be 440 households with the precision of a 95% confidence interval with width of 10% to 18% (132).

In spite of the complexities in identifying the informal sector, there is a supposition in global literature that the informally-employed are over-represented in informal settlements within cities (216). Our study therefore focused data collection in the informal settlements of Kisumu City. These settlements are broadly distributed in and around Kisumu City, with recent maps identifying ten informal settlements (Figure 22). However, given the proliferation of these settlements, they often merge or new ones are created. Our study population thus encompassed Manyatta A, Manyatta B, Nyalenda A, Nyalenda B, Nyamasaria, and Obunga. These areas are understood to contain a sizeable proportion of informal settlement residents in Kisumu City (179). Our study further clustered sampling across twelve villages located within the six

informal settlements, based on the availability of sampling frames (179).

Figure 22: Map of informal settlements in and around Kisumu City



Map provided by Kisumu City Manager

The number of households interviewed in each sub-division was proportional to its demographic size, and we assumed that the measure of variability between clusters k , the standard deviation divided by the mean, was equal to 0.2 (132). The demographic size of each sub-division was obtained from calculations carried out in the previous national census, whose estimates may be viewed in Table 9.

Table 9: Population within informal settlements and sample size calculation

Sub-location	Population size*	Number of households*	Households interviewed	Percentage of sample
Manyatta A	48004	12525	136	31%
Manyatta B	27952	7808	85	19%
Nyalenda A	28269	8070	88	20%
Nyalenda B	32430	8561	93	21%
Obunga	12554	3553	39	9%

* Obtained from (178)

For the analysis of risk factors influencing NHIF enrolment, we did not know the likely distribution of the explanatory variables. Assuming that an influencing factor is found in 50% of the population, then the sample size would allow a comparison of 9% with health insurance with the factor compared to 19% without the factor with 80% power and 5% significance, based on simulation.

In order to carry out sampling, we obtained slum enumeration maps developed by the Pamoja Trust in conjunction with informal settlement residents (179). We subsequently collaborated with the Assistant Chiefs and local community health workers in each settlement to confirm the accuracy of the available maps. We randomly selected our data collection starting points around watering points in each settlement. This was driven by the use of watering points as navigation tools by the local communities. We subsequently carried out systematic sampling, with every nth household interviewed. 99% of the targeted households could be interviewed.

8.3.4 Survey tools and data analysis

The survey was administered as a structured questionnaire using Open Data Kit (ODK) software on handheld tablets to answer questions on household composition; household assets; household expenditure and consumption; and health-seeking behaviour. Research assistants who were fluent in English, Kiswahili and the local dialect, Luo, and who had knowledge of the local geographical and sociocultural context were hired. Training was provided to familiarise research assistants with the questionnaire and data collection using handheld tablets.

Ethical approval for this study was obtained through the Institutional Review Board (IRB) of Strathmore University, Kenya (Ethics Reference No. SU-IRB 0057/16; Date of approval: 15th June 2016). Ethical procedures utilised during the duration of the study emphasised the need for all respondents to understand the project's aims and objectives, as well as necessitated individual informed consent prior to any data collection. Additionally, the study emphasised the importance of ensuring confidentiality and privacy in order to improve the quality of data collected. All interviewees provided signed approval to participate in the study.

Household heads were targeted as the primary respondents for this study. In cases where the household head was not available, a competent adult respondent within the household (usually a spouse) was interviewed.

Figure 23: Typical research setting



Photograph taken by Tessa Oraro-Lawrence

There is no clear-cut definition of the informally-employed to assist with their identification in research. Comparatively, the formal sector is defined distinctly within Kenya's legal framework, with sector members legally obligated to make monthly payments to the National Social Security Fund (NSSF) (180). The NSSF is the Government agency tasked with providing pension payments to all members of society. While monthly payments to the NSSF are mandatory for the formal sector, the informal sector can choose whether or not to make monthly contributions. We therefore viewed NSSF membership as the most effective way of excluding the formal sector given the study's time and resource constraints. Consequently, informally-employed households were defined within the study as those where the household head did not

make mandatory monthly payments into the National Social Security Fund (NSSF).

Insured households were defined as those where members were voluntarily enrolled into the NHIF Informal Sector Scheme in the year preceding the study.

The data were analysed using STATA version 14.1 for Windows (STATA Corporation, College Station, Texas). The main outcome variable was enrolment into the NHIF Informal Sector Scheme in the previous year. The explanatory variables were divided into five components: household composition and attributes; household head factors; perceived household health status; health service utilisation; and proxies for exposure to financial risk pooling.

In order to measure wealth, we constructed an asset index from the Kenya Demographic and Health Survey (DHS) index which measures the relative wealth ranking of households (181). We collected data on consumer items, dwelling characteristics such as housing materials, water source, sleeping arrangements, and other characteristics linked to wealth status. Weights were assigned for each household asset as provided for by the DHS wealth index. Households were then classified into one of five socioeconomic groups based on quintiles (Q): Q1 or the poorest 20%; Q2; Q3; Q4; and Q5 or the wealthiest 20% in the sample. The DHS wealth index used is included in Appendix D. Literacy within the study context was defined as those above the age of 15 years who could read and write (182). Mean perceived health status was calculated as the average self-reported health status value for all household members. The final value of the mean perceived health status was assigned a value of between 1 and 4, with 1 being “very good” health status; 2 being “good” health status; 3 being “poor” health status; and 4 being “very poor” health status. Bivariate analyses using χ^2 tests were carried out to determine the relationship between the explanatory variables and NHIF enrolment.

In addition to the quantitative analysis, we carried out a literature review of various financial, health strategy and political documents to identify the external factors that may influence the ability of the NHIF to effectively target certain population groups.

8.4 Results and discussion

8.4.1 Study population characteristics

A snapshot of the study population characteristics is provided in Table 10.

Table 10: Demographic characteristics of study population

	Insured (n=118)	Uninsured (n=316)	Total (n=444)
Location			
Manyatta A	39%	28%	31%
Manyatta B	21%	21%	21%
Nyalenda	36%	41%	39%
Obunga	4%	11%	9%
Socioeconomic quintile			
Q1 (poorest)	13%	22%	20%
Q2	13%	22%	20%
Q3	24%	20%	21%
Q4	22%	18%	19%
Q5 (richest)	28%	17%	20%
% of households below poverty line *	22%	27%	26%
Sex of household head			
Male	82%	69%	73%
Female	18%	31%	27%
Sex of all household members (n=1,814)			
Male	50%	46%	47%
Female	50%	54%	53%
Age groups of household members (n=1,814)			
0-1 years	5%	5%	5%

1-5 years	11%	15%	14%
6-15 years	25%	24%	25%
16-19 years	8%	8%	8%
20-29 years	25%	27%	26%
30-44 years	17%	15%	16%
45-59 years	6%	4%	4%
60+ years	3%	2%	2%
Maximum level of education for literate adults (n=931)			
Primary-level	24%	50%	46%
Secondary-level	51%	42%	44%
Tertiary-level	15%	8%	10%

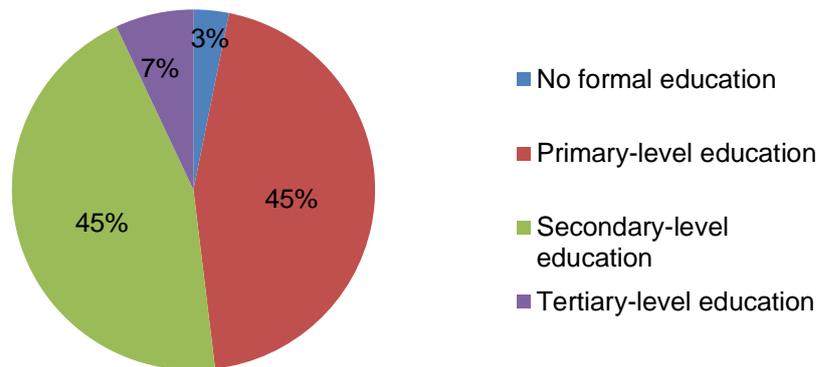
* Poverty line is defined as a household income of \$1.90 daily (World Bank 2017)

** Literacy is defined as the ability of an individual above the age of 15 years to read and write (UNESCO 2006)

The average household size in our sample was 4.07, which correlates to the Kisumu County household size reported in the Kenya Housing Survey Report (217). More than half of the interviewed households (56.6%) had children below the age of five years, while 77% of households had children aged fifteen years and below.

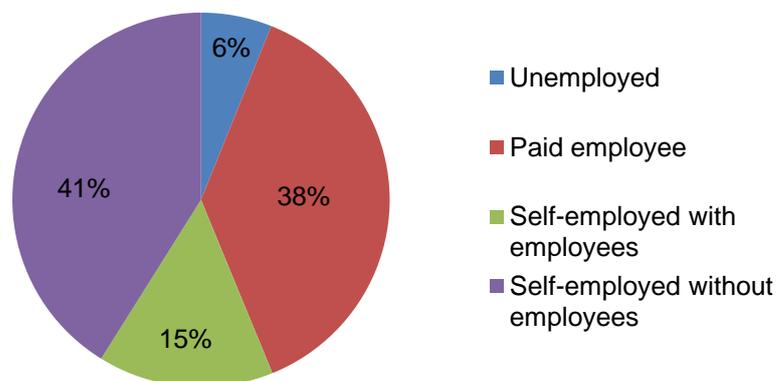
Literacy levels were very high in our study population, with 97% of household heads reporting themselves as literate (Figure 24). While most household heads had some level of exposure to formal schooling, we found that very few were educated to tertiary level: only 6.97% attended universities or colleges. This may be reflective of the nature of slum populations, where few inhabitants have access to the financial resources necessary to attend higher education facilities.

Figure 24: Percentage of household heads attending education level (n=444)



Most household heads reported themselves as economically active, with 6% of respondents reporting unemployment. The most common economic activity in our study area was self-employment, with 56% of the population engaging in small-scale business ventures such as carpentry, masonry, and hairdressing (Figure 25). This finding reveals the realities of the informal economy, which relies on the creation of casual income-generating activities in the absence of formal employment. The haphazard nature of the informal sector means that members are forced to create or take advantage of various economic opportunities in order to finance their households' needs.

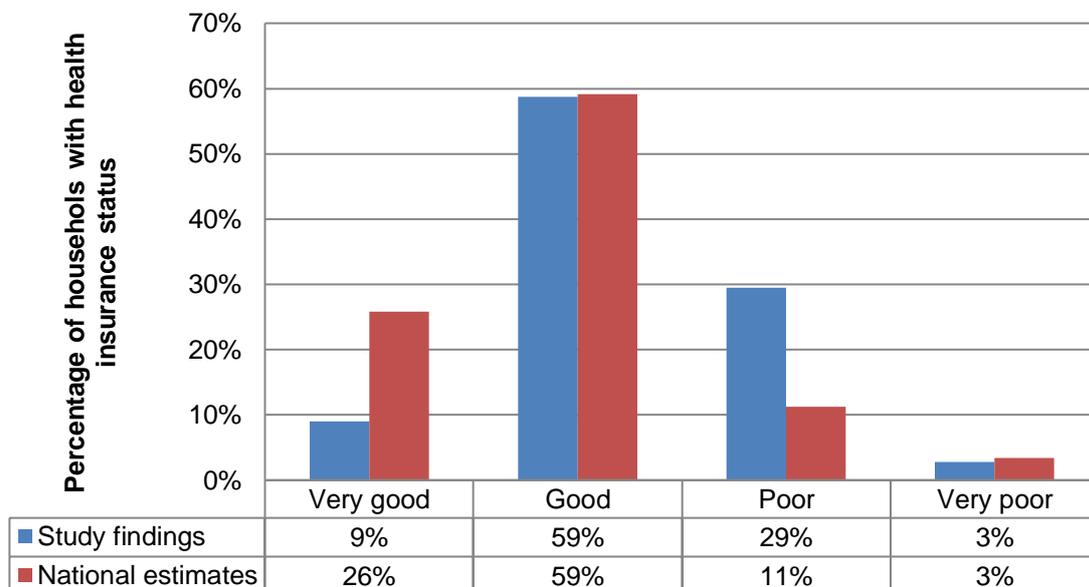
Figure 25: Main source of employment for household heads (n=444)



According to our findings, households within our study area had an average monthly income of KShs 10792 (\$108.57). However, twenty-six percent of this population lived below the poverty line, which is defined as a household income of less than \$1.90 a day (144). Manyatta B was found to have the highest level of poverty (as defined by the poverty line), with 39% of households living below the poverty line. Manyatta A, Nyalenda, and Obunga registered poverty rates of 20%, 24% and 28% respectively.

When average perceived health status for all household members was queried, our study found that 59% of households rated their health as “good”, mirroring the findings of the Kenya Healthcare Expenditure and Utilisation Survey 2011 (Figure 26). This notwithstanding, we also found that the study population was 18% more likely to report “poor” household health status compared to the overall Kenyan population (187). This may be linked to the high HIV prevalence of 14.6% within the County (214).

Figure 26: Average household self-reported health status compared to national estimates (n=444)

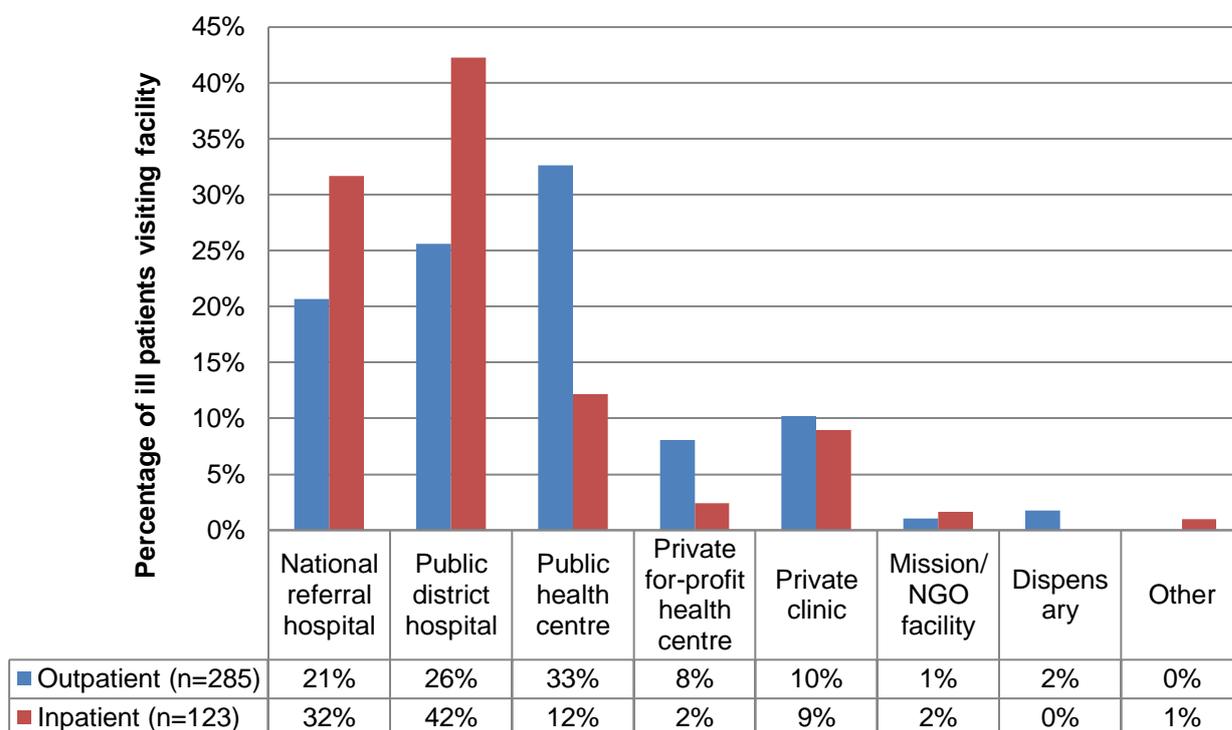


(187)

In order to provide optimal healthcare services to the populace, the NHIF has contracted 73 government, private for-profit, and faith-based healthcare facilities for

outpatient care in Kisumu County. Further, it has accredited 18 hospitals to provide inpatient care within Kisumu City. Our study found that ill household members had a preference for public health facilities, with Jaramogi Oginga Odinga Teaching and Referral Hospital, private district hospitals and public health centres preferred over private facilities for both inpatient and outpatient care (Figure 27).

Figure 27: Percentage of patients visiting health facility type*



* Inpatient results refer to household visits in the past year, and outpatient results refer to household visits in the past 30 days.

8.4.1 NHIF population coverage

Our study found that the National Hospital Insurance Fund (NHIF) has achieved a population coverage rate of 27% in the informal settlements of Kisumu City: almost twice as high as the 14% Kisumu County health insurance coverage estimated within the Kenya Health Household Expenditure and Utilisation Survey (HHEUS) in 2013

(177). This suggests that the NHIF has been successful thus far in targeting and enrolling the informally-employed in Kisumu's informal settlements.

8.4.2 Household composition and attributes

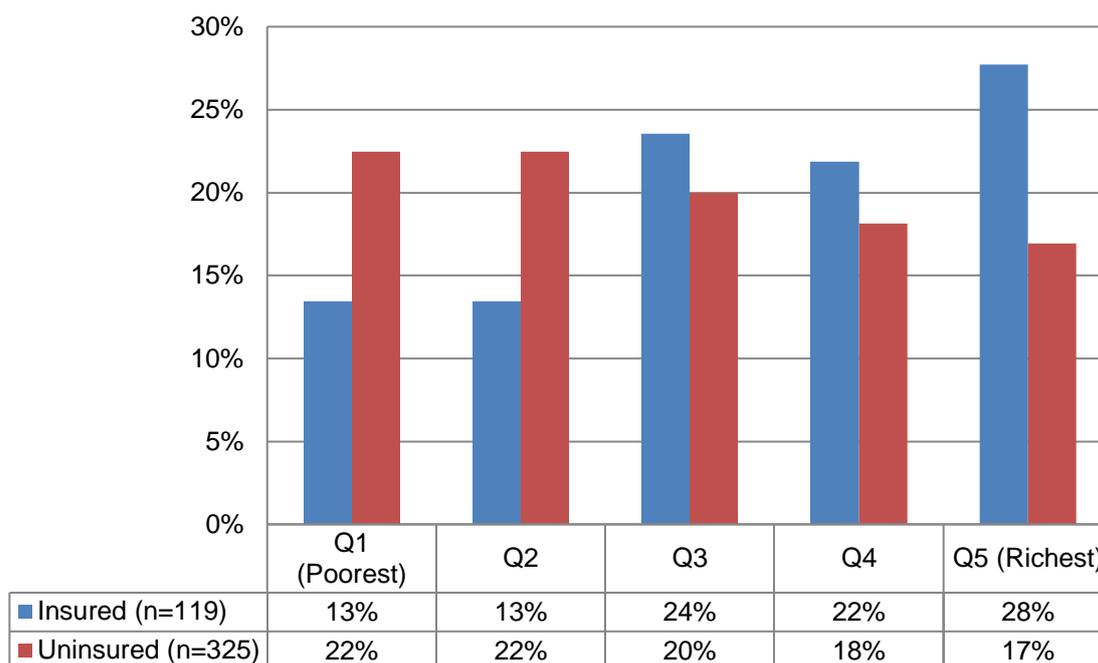
Household size and composition

Based on our findings, the average household size for NHIF-insured households was 4.29, compared to the average non-insured household size of 3.99. Seventy-eight percent of NHIF-insured households had children below the age of 15 years, compared to 77% of non-insured households. Further, 10% of NHIF-insured households were found to have elderly members, compared to 8% of non-insured households. In spite of these differences, our study found that neither the household size (p -value=0.170) nor the presence of vulnerable members such as children (p -value=0.220) or the elderly (p -value=0.103) influenced the likelihood of enrolling into the NHIF. This highlights the advantage of NHIF's enrolment strategy: The all-encompassing coverage of all spouses and underage dependents limits the likelihood of abstention from health insurance on the basis of household composition.

Wealth status

According to our findings, 50% of NHIF-insured households fell within the two wealthiest asset-based quintiles in the study population, compared to 35% of the non-insured population (Figure 28). With households belonging to the poorest 80% less likely to enrol into the NHIF compared to the highest wealth quintile, our study found that wealth was an important determinant of voluntary NHIF enrolment (p -value=0.010)

Figure 28: Socioeconomic status of households based on asset-based wealth index (n=444)

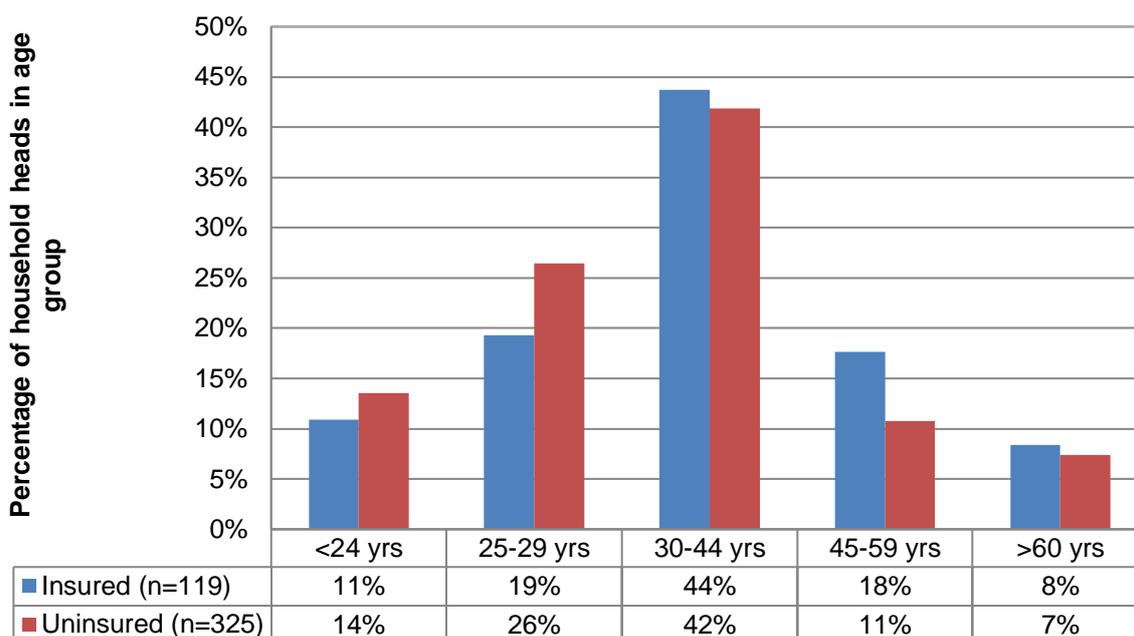


8.4.3 Household head characteristics

Age

NHIF's membership in Kisumu's informal settlements was largely comprised of households headed by young to middle-aged individuals, with 79% of all insured household heads falling below the age of 45 years (Figure 29). Nevertheless, our study found that households were not deterred from joining NHIF in Kisumu's informal settlements due to the age of the household head (p -value=0.221). Indeed, the age patterns of NHIF members largely corresponded to those of non-insured household heads, making NHIF's coverage representative of the age profile of household heads within the study population.

Figure 29: Percentage of household heads in each age group (n=444)

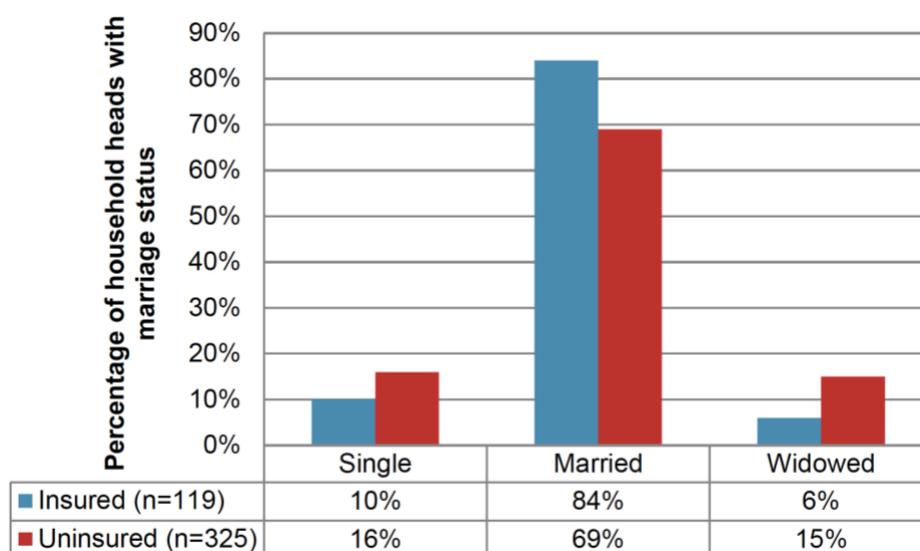


Gender and marital status

Our study found that 18% of insured households in the study area were headed by women, compared to 31% of non-insured households. Further analysis revealed that that female-headed households were less likely to enrol into the NHIF compared to males (p -value=0.010).

We also found that 84% of insured household heads were married, compared to 69% of the non-insured (Figure 30). Analysis revealed that households were more likely to enrol into NHIF if they had married household heads (p -value=0.006), echoing similar findings in other Kenyan studies investigating the determinants on NHIF enrolment (57,64).

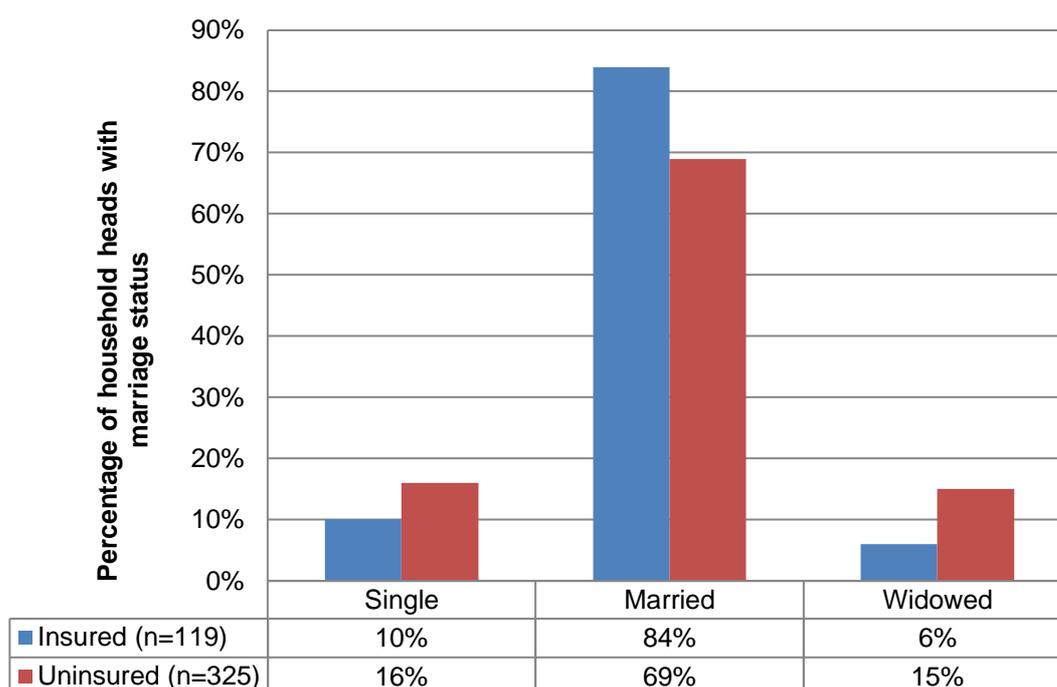
Figure 30: Marital status of household heads (n=444)



Education

Due to the high level of literacy in Kisumu City, literacy as an independent factor did not influence NHIF enrolment. However, the level of education of a household head was identified as a determining factor of health insurance enrolment, with the proportion of insured individuals increasing proportionally to their level of education (p -value=0.000) (Figure 31). Those educated to secondary-level and above were thus over-represented amongst the insured population, with 66% of the insured educated to at least secondary school level.

Figure 31: Maximum level of education of literate household heads (n=444)



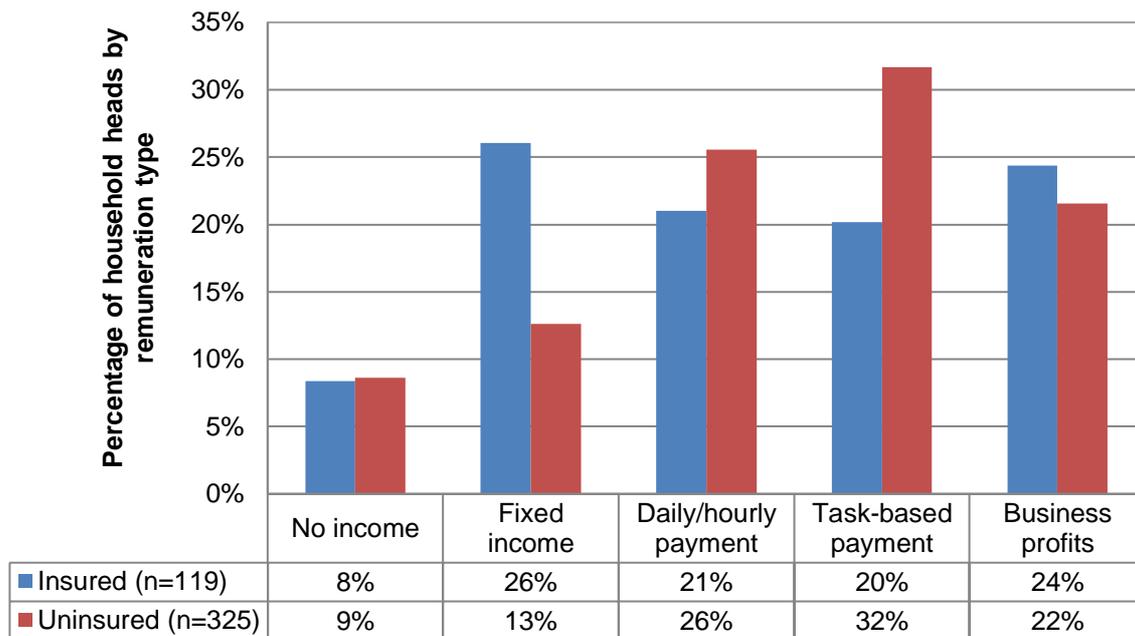
Income and remuneration type

According to our findings, 25% of the study population reported earnings of less than KShs 1000 (US\$ 10.06) per month – the minimum monthly income for NHIF eligibility. This inevitably calls into question the ability of the NHIF to comprehensively cover the informal sector given this prerequisite for enrolment. This concern is further bolstered by the fact that our study found that monthly income influenced health insurance enrolment (p -value=0.028). It is, however, important to note that the reported incomes may not be accurate, due to the informal sector’s unwillingness to share detailed financial information.

We also found that those who earned regular incomes were more likely to be enrolled into the NHIF compared to this with less certain forms of income (p -value=0.005). As shown in Figure 32, those who earned regular incomes were almost twice as likely enrol into the NHIF than those whose remuneration was provided using other means.

This raises concerns about whether the informal sector, who typically have irregular sources of income, may be able to overcome barriers in the affordability, and therefore accessibility of the NHIF Informal Sector Scheme.

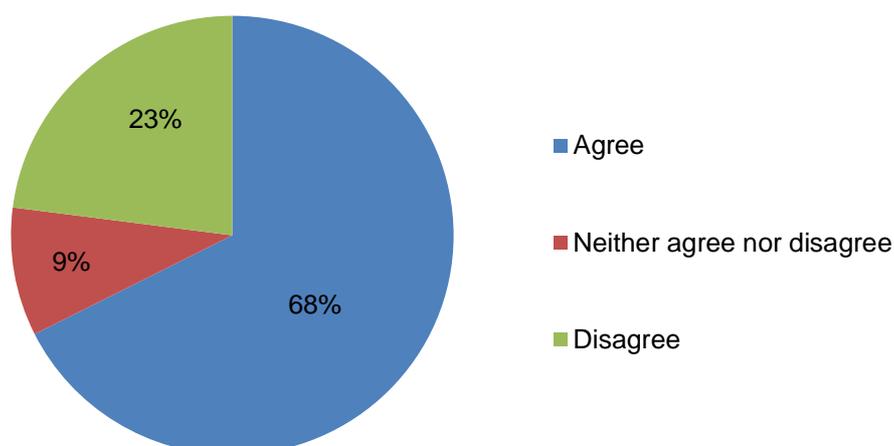
Figure 32: Percentage of household heads by remuneration type (n=444)



Belief in social solidarity

According to our findings, more than two-thirds of household heads (68%) agreed in principle that other community members should benefit from their financial input into the NHIF if they do not contract illness (Figure 33). This suggests that there is a belief in social solidarity within our study area.

Figure 33: Percentage holding view on social solidarity within NHIF Informal Sector Scheme (n=444)



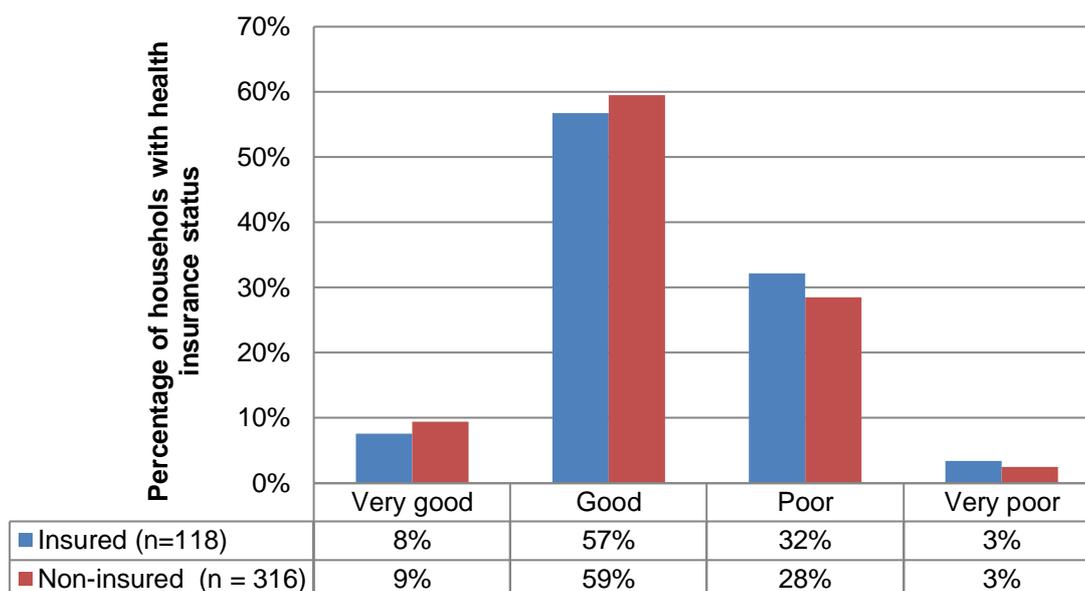
While it is evident that many believe in helping their neighbours, it is important to note that we did not find any evidence suggesting that a strong belief in social solidarity results in NHIF enrolment (p -value=0.491). Similarly, we did not find a link between chamaas or Savings and Credit Cooperative Organisation (SACCO) membership and NHIF demand (p -value=0.206). This divergence implies that members of the public may be unable to link the NHIF and its activities to the concept of social solidarity.

8.4.4 Perceived household health status and healthcare utilisation

Average perceived household health status

According to our findings, 65% of NHIF-insured households in the study population reported having 'good' or 'very good' average health status, compared to 68% of non-insured households (Figure 34). However, self-reported health status did not differ significantly between NHIF-insured and uninsured households (p -value=0.784), suggesting that the households do not actively seek for NHIF membership on the basis of their perceived health status.

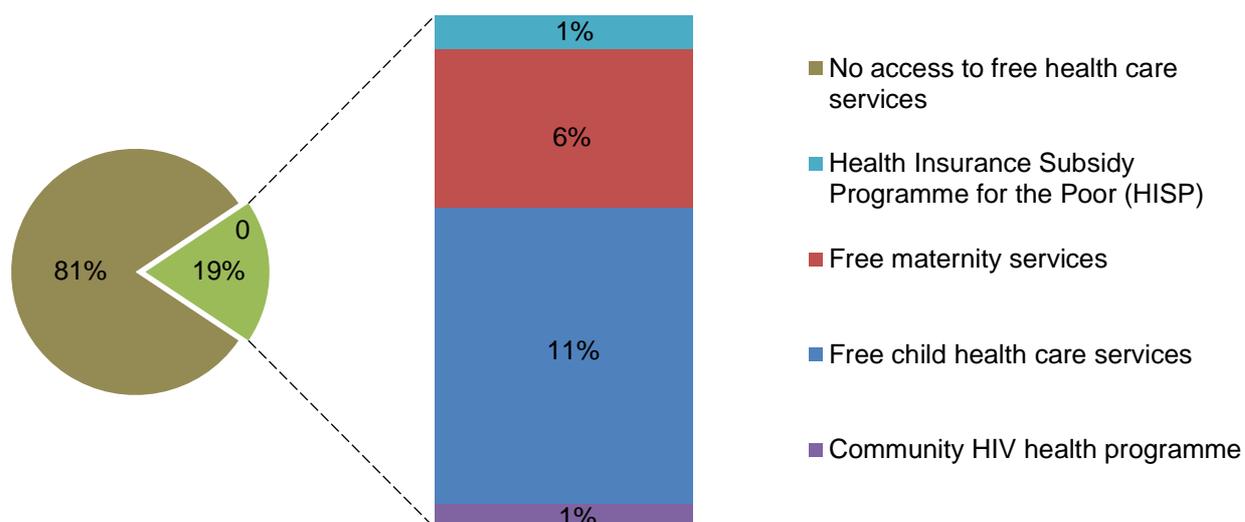
Figure 34: Average household self-reported health status by health insurance status (n=444)



Use of free government-funded health programs by household members

In the backdrop of the NHIF's core activities, our study identified a number of parallel government-funded health programs providing free healthcare services to members of the population in Kisumu City. Based on our findings, 19% of household members in our study area were targeted by programs such as the Community HIV Health Programme and the Child Health Services (Figure 35). Of the free healthcare services provided by the Kenyan Government, only the Health Insurance Subsidy Programme for the Poor (HISP) is fully integrated into the NHIF. However, the Kenyan Government has recently taken steps towards channelling free maternity services through the NHIF. Accordingly, KShs 3.4 billion was allocated for the provision of free maternal healthcare in the 2017/2018 budget (185).

Figure 35: Percentage of individuals in study population receiving free public health care services (n=1,712)



Due to the vertical nature of the other free healthcare services identified within our study, families are typically not holistically integrated into the healthcare system with these vertical programs. This necessitates a discussion amongst stakeholders on the feasibility of integrating these programs into the NHIF, in order to provide comprehensive healthcare families for affected households.

Use of NHIF-accredited facilities

Our study found that the study population was inclined to use public health facilities when ill. Amongst patients seeking outpatient services, 62% of NHIF-insured members sought care in at the Jaramogi Oginga Odinga Teaching and Referral Hospital, or the various public district hospitals or health centres situated across Kisumu City. Conversely, 86% of non-insured patients sought healthcare services in the above-mentioned facilities. However, it is important to note that insurance status did not influence patients' likelihood to attend NHIF-accredited facilities (p -value=0.257) (Table 11).

Amongst the ill who sought hospitalisation, we found that 80% of both NHIF-insured and non-insured ill household members sought services in public facilities. In spite of the quality and cost benefits of attending NHIF-accredited facilities, our study found that NHIF members do not actively seek these facilities when facing hospitalisation (p -value=0.179) (Table 11).

Table 11: Percentage of sick household members attending healthcare facility type according to health insurance status*

	Inpatient services		Outpatient services	
	Insured	Uninsured	Insured	Uninsured
National referral hospital	46%	26%	25%	22%
Public district hospital	27%	49%	28%	26%
Public health centre	5%	15%	9%	38%
Private for-profit health centre	5%	1%	15%	4%
Private clinic/surgery	11%	8%	15%	8%
Mission/NGO facility	3%	1%	4%	0%
Dispensary	0%	0%	4%	1%
Other	3%	0%	0%	0%

* Inpatient results refer to household visits in the past year, and outpatient results refer to household visits in the past 30 days

This result is surprising, given that one would expect insured households to attend NHIF-accredited facilities in order to receive the benefits associated with their membership. It suggests that enrolees either may not understand the benefits of visiting NHIF-accredited facilities, or do not attribute quality healthcare services to accredited facilities. Further research is required to assess the reasons behind this finding.

8.5 Conclusions

The NHIF Informal Sector Scheme has been making tangible progress towards achieving universal health coverage in Kisumu's informal settlements. It has achieved a population coverage rate of 27% amongst the informally-employed in our study area: almost twice as high as the 14% Kisumu County health insurance coverage estimated within the Kenya Health Household Expenditure and Utilisation Survey (HHEUS) in 2013 (177). We found that NHIF membership is inclusive of the informal sector population regardless of household composition, age, religion and perceived household health status. However, we also found that the Scheme is unable to effectively reach the socially- and economically-disadvantaged, including the poor; female-headed households; widowed or unmarried households; and households whose heads achieved low levels of education.

According to our findings, wealth was an important determinant of voluntary NHIF enrolment (p -value=0.010), with only 13% NHIF-insured households falling within the poorest asset- based quintiles. Comparatively, 22% of uninsured households fell within the same wealth quintile. Female-headed households were also less likely to enrol into the NHIF compared to males (p -value=0.010). Further, households were less likely to enrol into the NHIF if the household head was unmarried (p -value=0.006). The amount (p -value=0.028) and regularity (p -value=0.005) of income played an important role in determining one's enrolment into the NHIF. We further noted that 25% of our study population earned less than 1000 KShs per month – the minimum earning amount required to enrol into the NHIF Informal Sector Scheme. This inevitably calls into question the ability of the NHIF to comprehensively cover the informal sector given this prerequisite for enrolment. Finally, our study found a disconnect in the populace's ability to attribute social solidarity to the NHIF. Indeed, while more than two-thirds of

the population agreed that other community members should benefit from the NHIF if they do not contract illness, we did not find any evidence suggesting that a strong belief in social solidarity results in NHIF enrolment (p -value=0.491).

While these shortfalls present challenges for the NHIF's goal of achieving universal health coverage, they are not insurmountable. Indeed, both national and county governments have expressed a willingness to increase subsidisation of disadvantaged communities within Kisumu City. In recognition of the need to provide health insurance coverage for the poor, the Kenyan Government set up the Health Insurance Subsidy Programme for the Poor (HISP) in 2015 – a fully-subsidised scheme providing coverage to indigents across the country. The scheme was originally set up in 2015 to provide health insurance to 21,546 households, with a view of expanding to 9 million indigents by 2020. Additionally, the Government has announced plans to offer free maternity services (FMS) to all Kenyan women through the NHIF. At county level, the Kisumu County Government allocated KShs 5 million in 2016 towards a revolving cash transfer fund in order to provide the elderly, needy and vulnerable with NHIF coverage (215).

There has also been increased innovation in the marketing and payment strategies targeting voluntary enrollees into the NHIF. For example, in recognition of the low levels of formal banking amongst the informal sector, the NHIF has tapped into the burgeoning mobile application industry for the payment of NHIF remittances amongst the informal sector. Further, the Scheme has partnered with a mobile e-wallet application known as JamboPay to enable enrollees to pay their NHIF remittances through all mobile networks in the country. It is hoped that this will simplify payment processes for some underserved populations.

In light of our findings and the above-mentioned developments, we recommend the

following actions at County level to increase the uptake of voluntary NHIF coverage:

- Collaborate with chamaas and SACCOs to develop community outreach activities that:
 - Explains the concept of health insurance using simple language that is understandable to the target population;
 - Simply and effectively communicates the ethos central to the concept of social health insurance, i.e. the pooling of funds for the good of the community as a whole; and,
 - Shows NHIF alignment to the social values ascribed to by the public.
- Extend Kisumu County funding towards the subsidisation of NHIF coverage for the elderly, needy and vulnerable.
- Lobby Central Government to integrate vertical health programs into the NHIF to reduce administrative costs, and ensure that all household members receive adequate financial health risk protection.

It is important to note that this study took place in the transitory period during which changes to NHIF rates and benefits for the informal sector were being negotiated. Due to this, the study's results may not be applicable in the new NHIF voluntary health insurance regime. Nevertheless, it provides important insight into the progress of the NHIF coverage within Kisumu's informal settlements.

9 General discussion and conclusion

In this section, the research and analysis laid out in previous chapters is appraised from the point of view of their theoretical and methodological contributions towards scholarship on UHC priority-setting and adherence to voluntary health insurance. Building on the gaps identified in Chapter 2, this doctoral thesis sought to understand the institutional and household factors which influence inclusive and sustainable financial risk protection among the informal sector in Kenya and Cameroon. It thus focused on two key objectives:

- 1. Investigating the influence of priority-setting by key health systems actors on universal health coverage and health financing strategy*
- 2. Estimating and critically analysing the factors that influence the value proposition of voluntary health insurance among different constituent groups of the informal sector.*

The first research objective was addressed in Chapter 4 of this thesis, while the second objective was touched upon in Chapters 6, 7, 8, and 8. Chapter 6 sought to investigate if and how the gender of the household head influences demand for voluntary micro health insurance scheme in North-West Cameroon. Chapter 8 investigated the influence of localised savings group membership on the decision to enrol into voluntary national health insurance in Kenya. Comparatively, Chapters 7 and 8 presented working papers on UHC and voluntary health insurance that applied the standard empirical research approach on the determinants of voluntary health insurance demand. For the purposes of analysing our contribution towards Objective 1, we will focus our analysis on Chapter 4. For Objective 2, we will focus on the findings of Chapters 6 and 8 respectively.

By critically reviewing the above-mentioned research findings, this chapter argues that the socio-political context within which decision-making is conducted is as important to health financing research as the empirical investigation of health-related outcomes. We further demonstrate the importance of reflecting the complexity of decision-making groups in health financing research design in order to provide more representative analyses that can be applied to the real-world setting.

9.1 Summary of findings

An overview of the research findings as pertains to this thesis' research objectives is provided below. We highlight the key takeaways of the research undertaken and relate them to the existing knowledge on health policy, the social determinants of health, and behavioural economics.

Objective 1: To investigate the influence of priority-setting by policymakers and key opinion leaders on universal health coverage and health financing strategy in Kenya

In the absence of a substantive priority-setting process through which the UHC health strategy could be defined in Kenya, the research in Chapter 4 sought to investigate the values and priorities underpinning the country's potential paths towards UHC.

Our findings reveal a highly dynamic environment in Kenya's health policy environment, where actors differ substantively in the way they perceive potential UHC values and priorities. This reflects other priority-setting studies that have found variances in the way different stakeholders interact with the Kenyan healthcare system and perceive health systems decisions at local level (14,15). We postulate that

stakeholders' articulated values are aligned to their dogmatic principles and their depth of interaction with the country's health and political systems. Accordingly, our findings suggest that county and national government stakeholders prioritise health maximisation as their main UHC policy goal in Kenya, ostensibly due to proximity to elected government officials. Conversely, technical experts seem to value the legitimacy of their policy decisions, pushing for objectives that, in their view, optimise technical feasibility and sustainability. Development partners, on the other hand, leverage their fiduciary obligation to funders when participating in priority-setting activities.

In light of this heterogeneity on Kenya's preferred health systems values, we observe continued uncertainty on what UHC will look like and how it will develop within the country. Indeed, while stakeholders agree in principle to the suitability of a progressive move towards UHC, there is an undeniable variance in their preferences for the priority actions and investments necessary to achieve UHC. This reiterates existing findings on the inherently political nature of health policy in various sub-Saharan African settings (18,20,21,23), and provides a ripe environment for a politically-driven priority-setting that may favour haphazard decision-making.

Our findings ultimately suggest that a perceived lack of leadership from the national Ministry of Health may be detrimental to Kenya's ability to define its priorities in its move towards UHC. This reflects global consensus that places the responsibility of delivering a rational path towards UHC on each country's government (8,11,207–209). We further note that the decentralisation of healthcare delivery to the sub-national level in Kenya presents an additional consideration in the country's move towards UHC. Our findings suggest that the inability of Kenya's county governments to identify their health systems gaps and to align between policies, technical planning and budgetary

allocation may exacerbate the country's ambivalent progress towards UHC. This supports existing scholarship that has questioned the technical capacity of county governments in Kenya to adapt to their newly-implemented roles in healthcare planning and implementation (14).

Without a common understanding of Kenya's UHC priorities, this thesis suggests that it will continue to face difficulties in objectively and holistically defining the UHC priorities driving its health financing investments. It is therefore likely that Kenya's health system will continue to be plagued by the misattribution of resources as it seeks to drive the country towards UHC. The imbalance created by poor public investment leaves the Kenyan population susceptible to ill health due to limited access to quality healthcare services, and increases the risk of impoverishment due to ill health due to a poorly-implemented financial risk protection system.

Objective 2: To estimate and critically analyse the factors that influence the value proposition of voluntary health insurance among different constituent groups of the informal sector

In order to conduct tackle Objective 2 of this thesis, we sought to examine if and how membership of two informal sector subgroups influenced health insurance demand: female household heads and members of localised informal savings groups. The rationale behind the targeting of these particular subgroups was two-fold: firstly, these groups are likely to hold authority to exercise control over their household's investment decisions due to their household headship position or involvement in other financial decision-making. Secondly, they represented populations that are typically excluded from formal social and financial institutions.

Taken cumulatively, our results suggest that *social position* plays an important role in determining one's exposure to health-aiding or health-hindering characteristics. As such, we hypothesise that informal sector subgroups have differential vulnerability to certain social stratifiers that influence their buy-in into social support networks such as health insurance. In the Cameroon study in Chapter 6, female household heads were less likely in seeking health insurance if they had a lower income: a finding that was non-significant in males. In Chapter 8, small-scale business owners were less likely to enrol into health insurance in Kenya if they did not belong to local savings groups. These results support the previous assertions that certain groups may be disadvantaged in the sociocultural environment due to their underlying characteristics, resulting in limited access to information, financial resources and support networks (69).

In spite of this, our analysis suggests that exposure to *resources that create social interdependence or provide access to economic resources* may reduce the power asymmetry inherent within the societal framework. Indeed, it is clear from our findings that proximity to economic, social and cultural power reduces the potential barriers towards health insurance enrolment. According to our findings in Cameroon, belonging to a social network increased the likelihood of enrolling into voluntary health insurance regardless of the gender of the household head. This finding echoes several existing studies that have documented a link between social solidarity schemes and voluntary health insurance demand (60,69). Similarly, we found in Chapter 8 that individuals with higher levels of education and socioeconomic status were more likely to make the decision to enrol into the voluntary health insurance scheme whether or not they belonged to local savings groups, reflecting a general consensus within existing health financing research (56,58,59,112,115). Given the association between certain social

characteristics such as education and work experience on one's position within the labour market we posit that the power inferred by one's economic position may override their inherent disadvantages when interacting with the health insurance sector. This further add credence to the assumption that it is important to correctly contextualise the population under study in order to better understand how health decisions are made at household level.

9.2 Contributions of the study

i. Articulation of the social context within which health-related household decisions are made

In existing health financing discourse, there has been limited investigation into *how* social conditions may affect the interaction between voluntary health insurance demand and its empirical determinants. This disregards the very basis of this branch of research which seeks to identify the social conditions – such as age, income, and education – that influence voluntary health insurance enrolment. The strictly empirical approach towards voluntary health insurance demand research leaves a significant gap in our understanding of health-related decision-making in this context. Indeed, it is clear that the decision to enrol into health insurance is not made in a vacuum: it is subject to context-specific considerations that shape the way in which a household decision-maker views and interacts with its environment (39).

This thesis has deviated from this established approach by integrating pragmatic social analysis into its interpretation of empirical findings, with a view to gain a greater understanding of the context within which health insurance decision-making is undertaken (2). This methodological triangulation has been applied in two major ways:

by centring the sociocultural contexts relevant to the population under study in our analysis; and by utilising inductive theories and frameworks through which the patterns in empirical evidence could be systematically analysed (210,211).

In Chapter 6, an adaptation of expected utility theory and analysis of respondents' access motives are used to explain why risk aversion was expressed differently between male and female household heads (96). The examination of traditional gender roles in rural Cameroon and its influence of the way individuals view the utility of health insurance helps us to understand why women in that context prioritise their direct knowledge of household health risks, while men rely on their understanding of potential household health risks when making the decision to enrol. Chapter 8, on the other hand, applies social capital theory to hypothesise the reasons why sociocultural disenfranchisement is observed in members of the general population, but not in local solidarity groups in urban informal settlements in Kenya (172). These findings mirror the social realities of similar groups in various sub-Saharan African contexts, suggesting that our findings may be transferrable to areas with relative similarities in their sociocultural environment.

While it is important to acknowledge the relative subjectivity of this theoretical approach, we suggest that the analyses within this thesis may be generalisable to a wider setting. Indeed, given the relative similarities in the social conditions in some sub-Saharan African settings, there are particular groups (such as women and those with limited economic power) that are inevitably disadvantaged within the sociopolitical environment. As a result, the decision-making process is likely to be impacted by similar factors as those identified in our research.

We submit that integrating pragmatic analysis into empirical research facilitates a greater depth of understanding of the ways in which social structures play into

voluntary health insurance decision-making. While it is important to acknowledge the relative subjectivity of this theoretical approach, we suggest two key advantages in the context of this form of research: (i) it allows us to maintain the scientific rigor of objectively identifying the determinants of health insurance demand amongst a target group; and (ii) it contextualises analysis of why these empirical factors are significant. Through this process, the pragmatic approach taken in Chapters 6 and 8 enhances our understanding of the decision-making space, thus strengthening the applicability of the research analysis.

ii. A more holistic investigation of UHC priority-setting in the sub-Saharan African context

While UHC has been consistently identified as a critical health reform objective in global literature, it lacks a comprehensive framework through which the broader considerations of the political economy of UHC may be measured. This complicates research on the value considerations and priorities of UHC, with many studies in the sub-Saharan African setting opting to focus on specific programs and investments rather than on UHC as a holistic process. It has thus created a situation where scholarship on UHC are often reduced to solely health financing reforms (22–24).

In spite of the lack of procedural guidelines, most health actors agree that the UHC process is ultimately a trade-off between investments in three critical areas of a health system: population coverage; service coverage; and financial protection (93). Chapter 4 applies this theoretical norm into political economy research by centring stakeholder opinions on the three key dimensions of UHC in their discussion of population value choices, demand, and need under the UHC banner. This provides a cumulative contribution towards research on the political economy of health in the sub-Saharan

African setting by using a theoretically-justified approach to rationalise qualitative discussions on health policy.

The methodology used in Chapter 4 allows respondents to provide a holistic representation of the programs and investments competing for financial and other resources in the pursuit of the country's UHC objective. We perceive several advantages to this research approach: (i) it extends our depth of knowledge of the contextual considerations of what UHC entails within a country setting; and (ii) it enables systematic research on the values and priorities considered when defining a country's preferred path towards UHC; and (iii) it facilitates the ease of comparative analysis when carrying out similar research at different time points.

iii. Methodological insights into incorporating the complex nature of the informal sector into health financing research

Empirical findings on sub-Saharan African labour markets have demonstrated the complex and multi-faceted nature of the informal sector (52–55). The existence of heterogeneity within this group is often not represented within existing health financing research, leading to a philosophical divide between the two intersecting fields of knowledge. This means it is often difficult to effectively apply research findings to the policy environment due to their unrealistic assumptions.

This thesis chose to deviate from the customary health financing methodology by adapting existing knowledge on the variability of the informal sector into our analytical approach. As such, rather than analysing the informal sector as a homologous group, we conducted subgroup analyses to assess the interaction between group membership and the determinants of voluntary health insurance demand. This approach aims to achieve a number of objectives: (i) to better represent the realities of

informal sector grouping and differential vulnerability to certain explanatory variables; and (ii) to present research in a way that is easily digestible and relatable to policymakers.

Our findings certainly support the assertion that different informal sector subgroups have differential vulnerability to social stratifiers that influence voluntary health insurance enrolment. In Chapter 6, for example, our findings suggest that men's enrolment decision is determined by their understanding of health insurance through age and education, while financial empowerment is paramount to women's ability to purchase health insurance. This supports illustrations from labour economics that find variances in the power held by certain groups: there is consensus that female workers are likely to have lower incomes irrespective of their position within the formal or informal economy (53,54). We therefore hold that the nuanced methodological approach in this thesis is more likely to reflect real-world variations in the way different groups make the decision to enrol into voluntary health insurance.

9.3 Limitations and challenges

While this thesis presents an innovative analysis of UHC priority-setting and adherence to voluntary health insurance, it inevitably has some limitations. In this section, the general limitations of the thesis regarding the depth of methods used are reflected upon.

i. Robustness of subgroup analyses

An inevitable criticism of subgroup analysis centres upon the extent to which subgroup effects can be considered accurate. This concern is certainly justifiable: in both studies

investigating Objective 2 of this thesis, there were subgroup differences whose confidence intervals that were outside our desired effect size, but near the confidence limit.

These results point towards the limitations of a small subgroup sample size, abetted by the low treatment numbers of voluntary health insurance enrolment within the general population. While our sampling approach is sufficient to yield credible results for the determinants of voluntary health insurance within the informal sector as a group, we were unable to adapt the sampling strategy to increase the statistical power in our population subgroups due to resource limitations. In light of this, we suggest that the credibility of our subgroup analysis may be further increased in two ways: (i) by incorporating subgroup population into sample size calculations; and (ii) by adapting the sampling approach through stratified randomisation.

ii. Limitations of univariate analysis

Our analysis in Chapter 8 was unable to fit a model with multiple covariates and multiple interactions with our dataset due to a number of reasons:

- The low voluntary health insurance enrolment numbers in the Kenyan general population were reflected within our study (212), which led to small numbers of enrolled households in both sub-groups, particularly amongst households who did not belong to local savings groups
- Carrying out multiple regression with these low numbers was not feasible, as the model would frequently not converge or gave unstable estimates.

It was therefore necessary to carry out simple logistic regression, which limited the ability of the study to control for some key confounders within the analysis. While this

challenge was unavoidable in this particular instance, it would be prudent to increase the sample size in future studies in order to be able to fit multiple logistic regression with the interactions and main effects.

iii. Small sample size for qualitative research

A potential concern with the qualitative study reported in Chapter 4 is the small sample size of key health systems actors (n=13). In particular, we faced challenges in recruiting national government and development partner stakeholders to participate in this research study. The resistance faced reflects perceptions of opacity within the Kenyan healthcare system highlighted by various respondents in the study, who felt that various health-related activities were often shrouded in secrecy.

In spite of this, we believe that we reached the point of saturation for the targeted policy circles due to stakeholders' involvement in multiple roles within the informal sector. Indeed, two of the technical experts interviewed had played a role providing technical expertise to the NHIF directly, two had advised the Ministry of Health on its universal health care strategy directly, and three had played a role advising development partners at the time of the study. One of the development partners had also previously been a national government policymaker in the five years preceding this study. This suggests that the interviewed stakeholders were able to articulate multiple viewpoints on Kenya's UHC journey, as can be seen by the primacy and variety of technical expert opinions in our findings.

iv. Perceived generalisation within population sub-groups

One of the concerns regarding existing research has been its tendency to assume homogeneity within the informal sector. In analysing this thesis, we acknowledge that

there may similarly be apprehension about the disaggregation of informal sector sub-groups in our research. We recognise the validity of this argument: indeed, it is well-established that each informal sector sub-group inevitably possesses broad levels of heterogeneity (52–55). It is, however, important to note that we approached this thesis with the objective of understanding the factors that influence voluntary health insurance enrolment amongst different constituent members of the informal sector. With this in mind, we considered it important to ensure that the level of disaggregation used within our analysis maintained an acceptable balance between reflecting the heterogeneity within the informal sector, and ensuring the utility of our findings in the real-world setting. We therefore maintain that further disaggregation of our data would not be useful in answering our research questions and objectives.

9.4 Opportunities for future research

This exploratory and interpretive thesis highlights the complex and cross-cutting nature of research on health-related decision making at institutional and household level. There are, however, opportunities for future research based on a number of challenges in our research approach. These ideas, as well as possible future research directions, are discussed in the section below.

i. Stakeholders in UHC decision-making

Our findings partially explore the process of priority-setting in UHC decision-making in terms of concept validation. In retrospect, we concede that this thesis took a rather narrow view of what constituted a health systems stakeholder in our study: our research focused almost exclusively on stakeholders who hold a high level of power in

influencing the core direction of government policy. This approach ignores the complexity of stakeholder salience, and adds inevitable bias into research outputs by ignoring a wider group of health sector users and actors. Given this, we would use a broader definition of stakeholders in future analyses to include all groups that affect and are affected by the government's UHC policies. This would enable the inclusion of a wider range of health actors with a stake in the government's health policy decisions, allowing a more comprehensive depiction of the predominant health priorities as the country moves towards UHC.

In addition to stakeholder typology, we noted in Section 9.3 about the potential concerns about the sample size used within our study. While we maintain that our study has strong internal validity, it would be useful to spend more time *in situ* in order to identify and interview more key opinion leaders within the target stakeholder groups. This would act as a confirmatory study for the findings highlighted within this thesis, and reduce potential concerns about the robustness of our sample size.

Finally, we recognise the importance of the sub-national level in ensuring effective UHC policy implementation in Kenya. Our study was, however, limited to only one of 47 counties due to logistical and financial considerations. In future – time and resources permitting – we would conduct a stakeholder analysis where the value choices of sub-national stakeholders across all counties were considered. This would provide a more holistic perspective of the health considerations and societal values across the country, in order to collate a more representative set of health system values through which to define Kenya's UHC goals and process.

ii. Determinants of voluntary health insurance enrolment

As part of this thesis, we initially considered conducting a comparative analysis between the Kenyan and Cameroonian studies in order to investigate the extent to which the nature of health insurance scheme influenced the value proposition of voluntary health insurance. This idea was based on a desire to reflect the variety of health insurance schemes that have been implemented in the sub-Saharan African context. Indeed, the Kenyan voluntary health insurance scheme is a national health insurance scheme, while the Cameroonian one is a mutual health insurance scheme. Both schemes play a significant role in achieving universal population coverage through health insurance in their specific contexts. The feasibility of conducting this comparative analysis was, however, complicated by the fact that the Kenyan sample was exclusively urban, while the Cameroonian target population was a mixture of urban and rural inhabitants. It was impossible to adapt the Cameroonian sample, as our sample size calculations were based on the proportion of scheme members living across both the urban and rural areas in North-West Cameroon. This was driven by the original Swiss TPH client mandate of investigating the impact of the scheme on universal health coverage in North-West Cameroon. In view of this thesis's objectives, we would consider conducting an additional study where the urban sample size was expanded in order to allow for more robust analyses across the two countries. We would also suggest carrying out comparative analyses between similar informal sector population groups in order to assess whether the factors influencing voluntary health insurance demand are similar across these different settings. In addition to allowing us to assess the external validity of the social analysis used within this thesis, this approach would provide evidence on whether research findings on voluntary health insurance demand for smaller community-based health insurance schemes – which are more widely-

available in health financing scholarship – are transferrable to national health insurance schemes.

In addition to conducting comparative analyses, we view an opportunity to strengthen the Kenyan study by increasing the sampling of the target informal sector group. This may be achieved by the use of more innovative sample size calculations and sampling strategies.

This thesis also presents the opportunity for innovation in the way that target populations are considered and assessed. More in-depth interdisciplinary research involving expertise from health policy, labour economics, statistics, and behavioural economics will be necessary to refine and strengthen the findings of this thesis. This approach could be used to conduct qualitative and quantitative research through which the facilitators and barriers to voluntary health insurance enrolment may be better understood.

Finally, it is important to acknowledge that the presence of voluntary health insurance will continue to be an inevitable reality in the sub-Saharan African context as countries develop the fiscal space for more sustainable health financing mechanisms. In light of this, it will be important to develop and test various social marketing mechanisms to ensure that the various constituent groups of the informal sector are appropriately targeted for health insurance enrolment.

9.5 Policy recommendations

This thesis has addressed its main research questions by highlighting the socio-political and economic contexts in which healthcare decisions are made. While the implications of this research on existing and future health financing scholarship have

been discussed in detail, there is also an opportunity to apply our findings to improve institutional approaches towards government and household decision-making. The policy recommendations aligned to each research question are discussed in the sections below.

i. UHC priority-setting and health policy strategy

Government priority-setting for health has been critiqued as a highly complex and mutable process in light of the competing and evolving priorities inherent within a health system. Our research centres itself within this space by highlighting the opposing values and priorities influencing government actions and investments in Kenya's health sector.

It is clear from our findings that there has been a lack of strategic leadership from national and sub-national governments in driving the health priority-setting and planning process. As a result, it is necessary to appropriately address the variety of health needs within the country in a way that optimises its epidemiological, social, economic and political realities. We suggest that clear policy action is required from national government and county government in order to develop a logical and consistent approach towards UHC in Kenya. The suggested policy interventions, expected outcomes, and action timelines required to aid decision-making and planning for Kenya's UHC reforms are enumerated below.

National government

Given that the Kenyan Constitution explicitly lays the purview of health system governance on the national government, the responsibility for encouraging and influencing the actions of all actors within the sector ultimately falls to its Ministry of

Health (73). As such, our policy recommendations for national government highlight the need for leadership, communication, trust, transparency and accountability at national level, in order to foster collaboration in Kenya's health space. We submit that four key objectives should be prioritised by the national government in order to define a common and realistic set of health system values and goals in Kenya:

- Building a robust environment for intra-sectoral collaboration to allow all health stakeholders to contribute towards UHC agenda-setting;
- Developing and updating a viable UHC strategic vision that will drive priority actions and interventions within Kenya's health space;
- Developing systematic priority-setting rules through which potential UHC interventions may be objectively considered as the health system evolves; and,
- Spearheading clear communication channels for intra- and intersectoral collaboration to optimise UHC policy adaptation and implementation, as well as resource mobilisation for health.

The specific actions and deliverables required to fulfil these responsibilities are highlighted in Table 12 and reflect the adaptive, multi-level approach necessary to ensure cohesiveness within Kenya's health system.

Table 12: Policy recommendations for national stakeholder UHC priority-setting and health policy strategy

Policy actions	Outcomes	Timelines & associated deliverables		
		Short-term	Medium-term	Long-term
Health sector collaboration for UHC value- and agenda-setting				
Develop consultative platform for agenda-setting process	Reports cataloguing stakeholder values and beliefs	Steering board	Consultative forums	Consultative forums
UHC strategic vision and priority-setting rules for health system interventions				
Develop tools through which potential health systems interventions may be objectively considered	Strategic framework underlining priority health system goals		Technical committee	
	Technical model for ranking & prioritising health interventions	Literature review	Technical committee	Model development
Intra- and intersectoral collaboration to optimise the success of UHC policy adaptation and implementation				
Clarify roles and responsibilities for Kenya's evolving national and county health functions	Strategic directive underlining roles and responsibilities in core functional areas	Technical committee	Consultative meetings	Dissemination meetings
Spearhead collaboration to optimise resource mobilisation and healthcare delivery	Guidelines for collaboration on priority health policy areas	Consultative forums	Roundtable meetings	Roundtable meetings
Adapt legal framework regarding use of county funding to improve health resource allocation	Amend existing Public Finance Management Act*		Consultative forums	Amendment Act

*The Public Finance Management Act 2012 legislates the management of public finances at national and sub-national level.

In addition to the above-mentioned policy actions, we suggest that the Cabinet Secretary for Health should be responsible for lobbying efforts to convince County Governors to prioritise their public health expenditure over other competing development projects.

Sub-national level

The role of county governments has evolved over the past decade, with responsibility for healthcare provision shifting from national to sub-national level since 2013 (73). While these changes are largely supported by the stakeholders in our research, there are concerns about the capacity of county departments of health to adopt effective health budget allocation and annual planning mechanisms in order to optimise healthcare service delivery. Indeed, without proper health planning and implementation systems, Kenyan counties run the risk of misallocating public resources; alienating the citizenry from the healthcare system; and having unpredictable health budgets (28). Given this, we recommend three key areas for action to empower county departments of health in their evolving healthcare service provision role:

- Identifying unique sub-national health systems priorities;
- Developing representative county operational and implementation health plans;
- Capacity building to improve efficiency and effectiveness in the use of financial resources; and,
- Aligning county health plans with national health policy.

The specific actions and deliverables required to fulfil these responsibilities are highlighted in Table 13 below.

Table 13: Policy recommendations for sub-national stakeholder UHC priority-setting and health policy strategy

Policy actions	Outcomes	Timelines & associated deliverables		
		Short-term	Medium-term	Long-term
Identifying sub-national health systems priorities				
Articulate county health system gaps	Technical report highlighting evidence-practice gaps	Technical support	Burden of disease and health systems research	
	Policy brief highlighting resourcing priorities		Policy brief	Roundtable meetings with national and county government
Efficient and effective county health plans and health policy implementation				
Financial capacity building activities	Financial literacy training program		Completion of training course	Continuous education
Develop county-level health implementation plans	Annual county health plan, including proposed budget	Consultative meetings	Annual county health plan	Annual county health plan
Aligning county health plans with national health policy				
Formalise collaboration between national and county health functions	Policy brief highlighting agreed-upon health systems goals	Roundtable meetings with national and county government	Roundtable meetings with national and county government	

ii. Increasing voluntary health insurance demand

This thesis outlines the challenges faced in targeting the informal sector for voluntary health insurance coverage, revealing a difference not only in the factors considered by individuals when making the decision to enrol into health insurance, but also the characteristics hindering potential access to resources. As such, health insurance schemes seek to cover a broad set of households of differing social characteristics and health risks. It is therefore crucial to apply a multi-pronged strategy for targeting and sensitising informal sector members, as well as to offer necessary financial incentives to attract under-served groups. In terms of targeting more households with the financial power to pay premiums, we recommend that schemes:

- Conduct quantitative and qualitative research programs to understand the barriers to enrolment for target populations;
- Identify mechanisms for targeting large groups of financially-empowered individuals, such as through local savings groups or social networks; and,
- Allocate resources to hold local sensitisation and marketing drives.

We propose that the above-mentioned strategies should be employed in conjunction with efforts to target under-served and indigent households in order to promote solidarity and equity. Indeed, our findings suggest that some informal sector groups face inherent disadvantages in the sociocultural environment, leading to limited access to information, financial resources and support networks. We suggest that it will be necessary to employ strategies to limit the barriers to health insurance enrolment. These strategies are likely to be highly context-specific and may include incentives such as subsidies and flexible premium payment options. Nevertheless, we suggest

that schemes assess the viability of adapting best practice from other settings in order to increase their membership amongst under-served populations.

Implemented effectively, these complementary interventions will create an enabling environment for health insurance schemes to appeal to a broad population set, in order to ensure that they maintain a strong population base.

10 References

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11 Appendix

11.1 Ethical approval: Cameroon

CATHOLIC UNIVERSITY OF CAMEROON,
BOX 872, MANKON, BAMEDA



Institutional Review Board

May 17, 2016

ETHICAL CLEARANCE

Ms Tessa Oraro
Ph.D Student at Swiss TPH/ Master student at CATUC Bamenda Department of Health Economics,
Policy and Management

Ethics Reference No: 001/HEPM/CATUC-IRB/16
Please quote this ref on all correspondence

Project Title: Assessing the Contribution of Bamenda Ecclesiastical Province Health Assistance (BEPHA) towards Universal Health Coverage in Cameroon

Investigator(s) Name(s): Ms Tessa Oraro

1. Nestor Ngube (BEPHA)
2. Siddharth Srivastava (STPH),
3. Atohmboh Yuh George (BEPHA/ CATUC),
4. Dr Vivien Khumbah (CATUC)

Your research protocol name above has this day been reviewed by the IRB of the Catholic University of Cameroon in Bamenda with the following remarks:

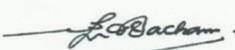
- Further simplify the language of the Informed Consent and to produce a French version of the informed consent should you come across French speaking citizens

Therefore, the chair, is satisfied with the decision of the committee and agreed to that there is no objection on ethical grounds to the proposed study. The study is of high medical and socio-economic importance; its implementation would contribute significantly to understanding health challenges. Adequate precautions have been taken by the researcher to manage potential risks that may arise in the course of this study. The IRB is therefore pleased to grant approval on the understanding that the research team will strictly abide to the conditions of the approval below:

- Strictly follow the plan of the approved protocol. Any changes to the approved protocol will require prior IRB approval.
- Must be promptly reported to the IRB: 1) Any deviations from or changes to the protocol which are made to eliminate immediate hazards to the study participant; 2) All risks that may be rare or remote and especially those which may entail serious consequences or compromise potential benefits or that would affect the conduct of the research.
- Must prepare and submit a standard progress report of the research study to the IRB at completion or one year from the date of issue of the approval letter and thereafter, on an annual basis.
- Must notify the IRB when the research is completed. Failure to submit an annual progress report on the study may affect the conditions of approval.

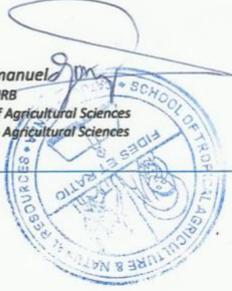
Your approval is given for one year renewable, on condition that a progress report is submitted to the IRB. While the IRB has given its approval for this study on a satisfactory ethical basis, it is still necessary for you to obtain Administrative approval from the relevant clinical directors or the health administrations where the work will be carried out.

Sincerely,


Wilfred Mbacham, MS, DS, MPH, ScD, FASI, FCAS
Chair, CATUC IRB
Chair, HEPM, CATUC
Professor of Public Health Biotechnology



Dr Tange Emmanuel
Co-Chair CATUC IRB
Provost School of Agricultural Sciences
Senior lecturer in Agricultural Sciences



Fides et Ratio, Sedes Sapientiae

11.2 Ethical approval: Kenya



REF: SU-IRB 0057/16

15th June 2016

Tessa M A Oraro
P.O. Box 51236-00200
Nairobi, Kenya.

Email: tessa.oraro@unibas.ch

Dear **Ms. Tessa Oraro**,

REF: SU-IRB 0057/16 PROPOSAL" INCLUSIVE AND SUSTAINABLE FINANCIAL RISK PROTECTION FOR THE INFORMAL SECTOR: INSTITUTIONAL AND HOUSEHOLD FACTORS INFLUENCING HEALTH INSURANCE COVERAGE IN KENYA"

I make reference to your email dated 13th June 2016, where you responded to concerns raised by the Strathmore University Institutional Review Board (SU-IRB).

The SU-IRB acknowledges receipt of the following resubmitted documents:

- a) Revised Study Proposal version 2.0 dated 13th June 2016
- b) Revised Participant Information and Consent Form version 2.0 dated 13th June 2016

The committee has reviewed your application and concluded that the issues raised have been adequately addressed.

The study has been granted **Approval** for implementation effective on **15th Day of June 2016**. Please note that authorization to conduct this study will automatically expire on **14th June 2017**.

If the study extends beyond the stated (one) year, you are required to seek an *Extension Approval* from the Ethics committee prior to its expiry. You are required to submit any proposed changes to this protocol to SU-IRB for review and approval prior to implementation of changes.

Thank you

Sincerely,

Amina Salim
Regulatory Affairs Fellow



11.3 Household survey questionnaire: Cameroon

BEPHA Member	
Household details obtained from BEPHA Kumbo Membership List	
BEPHA Non-member	
No one in the household is a member of BEPHA or any other health insurance scheme	

1. Respondent details

<p>1.1. What is the relation of the respondent to the household head (<i>HHRelat</i>)?</p> <p>Head 1 Husband/Wife 2 Son/Daughter 3 Grandchild 4 Father/Father-in-law 5 Brother/Sister 6 Nephew/Niece 7 Son-in-law/Daughter-in-law 8 Brother-in-law/Sister-in-law 9 Mother/Mother-in-law 10 Other Family Relative 11 Other person not related 12</p> <p><i>If respondent is unrelated to household head → terminate interview</i></p>	
<p>1.2. Does the household head make monthly payments into a pensions or social security scheme (<i>PenSch</i>)?</p> <p>Yes 1 No 0</p>	
<p>1.3. Have you or any of your household had health insurance coverage over the past year (<i>MembHI1</i>)?</p> <p>Yes 1 No 0</p>	
<p>1.4. In which health insurance scheme is the insured household member(s) enrolled (<i>HITypB</i>)?</p> <p>Bamenda Ecclesiastical Provincial Health Assistance (BEPHA) Scheme .. 1 Kumbo Mutual Health Cooperative Society (Kumbo MUHCOOPS) 2 Other (specify) 3</p>	
<p>1.5. For how long were you/have you been a member of BEPHA (<i>MbrDurnB</i>)?</p> <p>Less than one year 1 1 – 2 years 2 2 – 5 years 3 5 – 10 years 4 More than 10 years 5 Can't remember -999</p>	
<p>1.6. Please enter the household's BEPHA ID number (<i>BEPCINo</i>)</p>	

2. Composition of household and its characteristics

[Read out]: I would like to start by asking you about members of your household. In most cases, the household comprises of family members, but it may also include non-family members who live in your home. I will request that you provide the first names of the household members to ensure that we match the answers to the person concerned. Your names will remain confidential, and will not be passed on to anyone.

Household member #	2.0.1 Name of usual residents (NamRes0)	2.0.2 Relationship to household head (RelHH)	2.0.3 Age at last birthday (AgBrth)	2.0.4 Sex (Sex)	2.0.5 Religion (Relgn)	2.0.6 Marital status (MaritStat)	2.0.7 Literacy status (StatLiter)	2.0.8 Maximum level of education achieved (EduLev)	2.0.9 Main Employment activity during past 12 months (EmpAct)	2.0.10 Temporality of work activity (TempoWk)	2.0.11 Salary in previous month (Incom)	2.0.12 Nature of remuneration (RemNatr)
	List household head first	(Use code box)			(Use code box)	(Use code box)	Has <NAME> ever been to school?	(Use code box)	(Use code box)	(Use code box)	(Use code box)	(Use code box)
	First Name	Code	Years	Male.....1 Female2	Code	Code	Yes 1 No 2	Code	Code	Code	Code	Code
1												
2												
3												
4												
5												
6												
7												
8												
9												

<i>Code box for Question 2.0.2</i>	<i>Code box for Question 2.0.5</i>	<i>Code box for Question 2.0.6</i>	<i>Code box for Question 2.0.8</i>	<i>Code box for Question 2.0.9</i>
Head.....01	Catholic.....1	Single.....1	Primary school.....01	Self-employed.....01
Husband/Wife/Partner.....02	Protestant.....2	Monogamous marriage.....2	First cycle secondary.....02	Public sector employee.....02
Son.....03	Other Christian.....3	Polygamous marriage.....3	Second cycle secondary.....03	Private sector employee.....03
Daughter.....04	Muslim.....4	Widow/Widower.....4	Diploma.....04	Seeking employment.....04
Father/Father-in-law.....05	Traditional beliefs.....5	Divorced/separated.....5	University/ Tertiary.....05	Unpaid family worker.....05
Mother/Mother-in-law.....06	Atheist.....6	Traditional marriage.....6	Literate (Non-Formal Education).....06	Apprentice.....06
Grandchild.....07	Other religion.....7	Not applicable.....7	Don't know.....-999	Student.....07
Son-in-law/Daughter-in-law.....08	Don't know.....-999			Don't know.....-999
Brother-in-law/Sister-in-law.....09	Don't want to answer - 777			
Father-in-law/Mother-in-law.....10				
Niece/Nephew.....11				
Other: Family Relative (specify).....11				
Other: Unrelated (specify).....12				

<i>Code box for Question 2.0.10</i>	<i>Code box for Question 2.0.11</i>	<i>Code box for Question 2.0.12</i>
Permanent regular work.....01	<23 500 FCFA.....1	Fixed salary (weekly/monthly/quarterly).....1
Permanent seasonal work.....02	23 500 – 47 000 FCFA.....2	Daily or hourly pay.....2
Temporary, non-defined.....03	47 000 – 94 000 FCFA.....3	Task-based payment.....3
Temporary defined work.....04	94 000 – 188 000 FCFA.....4	Commission.....4
Not applicable.....05	188 000 – 376 000.....5	Business profits.....5
Don't know.....-999	376 000–752 000 FCFA.....6	Barter exchange.....6
	752 000 FCFA or more.....7	None.....7
	Not applicable.....-999	

3. Household assets and amenities

[Read out]: I would now like to ask you about the property you live in and the assets that your household possesses, including housing, transport, livestock and home appliances.

Interviewer to observe house materials for Qns 3.0.1 – 3.0.3 and enter the corresponding code into the box provided

3.0.1 What is the main material on the roof (*RoofMat*)?

- No roof 01
- Thatch/palm roof 02
- Rustic mat/plastic roof 03
- Reed/bamboo roof 04
- Wood planks roof 05
- Iron sheet roof 06
- Wood roof 07
- Asbestos/cement fibre roof 08
- Ceramic tile roof 09
- Concrete roof 10
- Roofing shingles 11

3.0.2 What is the main material on the floor (*FloorMat*)?

- Earth, sand, dung floor 01
- Rudimentary wood plank, palm, bamboo floor 02
- Polished wood floor 03
- Vinyl, asphalt strip floor 04
- Ceramic tile floor 05
- Cement floor 06
- Carpeted floor 07

3.0.3 What is the main material on the exterior walls (*WallMat*)?

- No walls 01
- Cane/palm/trunks/dirt walls 02
- Bamboo with mud walls 03
- Stone walls with lime/cement 04
- Uncovered mud walls 05
- Plywood walls 06
- Cardboard walls 07
- Reused wood walls 08
- Cement walls 09
- Baked brick walls 10
- Cement block walls 11
- Covered adobe walls 12
- Wood planks, shingles walls 13
- Other 14

Questions for interviewee

3.0.4 Number of household members per sleeping room (*SleepRm*).....

3.0.5 Does the household own land or property (*LandProp*)?

- Land 01
- Property 02
- Both land and property 03
- Neither 88

3.0.6 Does the household currently own cattle (*CattlNum*)?

Yes 01
No 02

If Yes:

- 3.0.6.1 How many cows/bulls are currently owned by the household (*CowBulNum*)?.....
3.0.6.2 How many horses/donkeys are currently owned by the household (*HorsDonkNum*)
3.0.6.3 How many goats are currently owned by the household (*GoatNum*)?
3.0.6.4 How many sheep are currently owned by the household (*SheepNum*)?
3.0.6.5 How many chickens/fowls are currently owned by the household (*ChickNum*)?
3.0.6.6. How many rabbits/guinea pigs are currently owned by the household (*RabtNum*)?
3.0.6.7. How many pigs are currently owned by the household (*PigNum*)?

3.0.7 What is the main source of cooking fuel (*FuelSrc*)?

LPG01
Natural gas02
Kerosene.....03
Coal/lignite.....04
Charcoal05
Wood.....06
Straw07
Agricultural crop.....08
Dung.....09
Other.....10

3.0.8 What is the main source of water (*WatrSrc*)?

Piped into dwelling.....01
Piped into yard/plot.....02
Public tap/standpipe.....03
Tube well or borehole04
Protected dug well.....05
Unprotected dug well.....06
Protected spring.....07
Unprotected spring.....08
Rain water.....09
Water from cart with small tank10
Surface water – river, lake, dam etc.....11
Bottled water12
Other water source13

3.0.9 What type of toilet facilities are available in the household (*ToiltFacil*)?

Flush toilet to sewer.....01
Flush toilet to septic tank.....02
Flush toilet to pit latrine.....03
VIP latrine04
Pit latrine with slab.....05
Traditional pit latrine.....06
Bucket toilet.....07
Hanging toilet/latrine.....08
Shares latrine/toilet with other households.....09
Other type of latrine/toilet.....10
No facility/bush/field.....11

3.0.10 Does the household own any of the following vehicles?

Yes

No

- 3.0.10.1 Bicycle (*BicyOwn*)
3.0.10.2 Motorcycle/scooter (*MotoOwn*)
3.0.10.3 Car/truck (*CarOwn*)

3.0.11 Does the household own any of the following?	Yes	No
3.0.11.1 Electricity (<i>Electr</i>)		
3.0.11.2 Generator (<i>GenerOwn</i>)		
3.0.11.3 Electric cooker (<i>CookOwn</i>)		
3.0.11.4 Refrigerator (<i>FridgOwn</i>)		
3.0.11.5 Water pump (<i>PumpOwn</i>)		

3.0.11 Does the household own any of the following amenities?	Yes	No
3.0.11.1 Radio (<i>RadioOwn</i>)		
3.0.11.2 Television (<i>TeleOwn</i>)		
3.0.11.3 Mobile telephone (<i>MobTelOwn</i>)		
3.0.11.4 CD/DVD player (<i>DVDOwn</i>)		
3.0.11.6 Computer (<i>CompOwn</i>)		
3.0.11.7 Internet connection (<i>InterCon</i>)		
3.0.11.8 Connection to TV/SAT (<i>SatTVOwn</i>)		

4. Household expenditure and consumption

[Read out]: I would now like to ask you questions about your food and non-food expenses.

4.0.1 How much did your household spend <u>in the past seven days</u> on the foods and beverages (FCFA) (<i>WFoodSpnd</i>)?	
4.0.2 How much did your household spend in <u>the past one month</u> on the following household items (in FCFA)?	
4.0.2.1.	Rent (<i>RntSpnd</i>).....
4.0.2.2.	Electricity (<i>ElecSpnd</i>).....
4.0.2.3.	Cooking gas (<i>GasSpnd</i>).....
4.0.2.4.	Kerosene/paraffin (<i>KerParSpnd</i>).....
4.0.2.5.	Charcoal (<i>CharSpnd</i>).....
4.0.2.6.	Firewood (<i>FirWdSpnd</i>).....
4.0.2.7.	Water (<i>WtrSpnd</i>).....
4.0.2.8.	Transport (<i>TranspSpnd</i>).....
4.0.2.9.	Telephone bills/ mobile airtime (<i>TeleSpnd</i>).....
4.0.2.10.	Salaries including wages for domestic workers (<i>SalarSpnd</i>).....
4.0.2.11.	Remittances (in cash and kind) (<i>RemitSpnd</i>).....
4.0.2.12.	Household products eg soap, tissues, toothpaste etc (<i>HygSpnd</i>).....
4.0.2.13.	Tobacco (<i>TobSpnd</i>).....
4.0.2.14.	Leisure and entertainment (<i>LeisSpnd</i>).....
4.0.2.15.	Hairdresser/barber (<i>HairSpnd</i>).....
4.0.2.16.	Others (<i>OthrSpnd</i>).....
[If a breakdown not possible, please provide the total amount spent on items]	
4.0.3 How much did your household spend in the <u>past one year</u> on the following (in FCFA)?	
4.0.3.1.	Education (registration, uniforms, books, exam fees) (<i>EduSpnd</i>).....
4.0.3.2.	Maintenance and repairs (car, buildings etc.) (<i>MntSpnd</i>).....
4.0.3.3.	Funerals (including contributions to other households) (<i>FunSpnd</i>).....
4.0.3.4.	Wedding/dowry (including contributions to other households) (<i>WedSpnd</i>).....
4.0.3.5.	Clothing and footwear (<i>ClothSpnd</i>).....
4.0.3.6.	Capital expenditures (including cars, plots etc.) (<i>CaptSpnd</i>).....
[If a breakdown not possible, please provide the total amount spent]	
4.0.4 Are you or any of your household members part of a <i>njangi</i> (<i>MCFMmbr</i>)?	
	Yes.....01
	No.....02

4.0.5 How many *njangis* are you and your household active in (MCFNo)?

One01

2 – 502

More than five.....03

4.0.6 On average, how much do you contribute per month to your *njangi/tontine* (in FCFA) (MCFPyt)?

5. Health-seeking behaviour

[Read out]: I would now like to ask you about the health status of members of your household any illnesses experienced in the last one month. Please try to recall details of all events in the last month. Please try to be as specific as possible about any illness episodes, because we have to look at each illness condition separately for this study.

Household member No.	5.0.1 Perceived health status compared to others of similar age (HlthgStats) Very good.....1 Good.....2 Satisfactory.....3 Poor.....4	5.0.2 When did you last consult with a medical practitioner? (LstConslt) (Use code box) Code	5.0.3 Illness in the past four weeks (IllMnth) Yes.....1 No.....2	5.0.4 Type of illness (IllTyp) (Use code box) Codes	5.0.5 Severity of illness (IllSvrty) Mild..... 1 Moderate.2 Severe .. 3	5.0.6 Was a medical practitioner consulted? (Conslt) Yes..... 1 No..... 2	5.0.7 If No to 5.0.6, main reasons for not seeking care? (NoCreReas) (Use code box) Code	5.0.8. Any informal consultations for illness (InfCons) (Use code box) Code
	1	2	3	4	5	6	7	8
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Code box for Question 5.0.2	Code box for Question 5.0.4	Code box for Question 5.0.7	Code box for Question 5.0.8
Less than two weeks.....01	Malaria.....01	Lack of money.....01	Home visits by practitioners 01
2 weeks – 1 month.....02	Respiratory tract infection.....02	Self-medication.....02	Informal drug sellers.....02
1 – 3 months.....03	Diarrhoeal disease.....03	Poor quality service.....03	Traditional medicine man 03
3 – 6 months.....04	Hypertension & cardiovascular health disease 04	High cost of care.....04	Juju man.....04
6 – 12 months.....05	Anaemia.....05	Religious/cultural reasons.....05	Other.....05
One year or more.....06	Diabetes.....06	Long distance to provider.....06	None.....88
	Other.....	Illness not considered serious enough...07	

5.1 Utilisation of outpatient services and other health-related services in the last four weeks

[Read out]: I will now ask you questions about the use of outpatient and other health-related facilities and services by members of your household, and the costs paid.

Illness event No.	Household member No.	5.1.1 For what illness did the household member visit the outpatient facility? (IIIOPTyp) (Use code box) Code	5.1.2 Outpatient visits made for illness episodes during the <u>past four weeks</u> (OPVist) Number	5.1.3 Type and ownership of health provider (FacOwnr) (Use code box) Code	5.1.4 Cost paid out-of-pocket for outpatient visits, including transport, registration, consultation, diagnosis, and medication? (OPCst) Cost(FCFA)	5.1.5 How were treatment costs covered? (OPCstMed) (Use code box) Code
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Code box for Question 5.1.1

Malaria	01
Respiratory tract infection	02
Diarrhoeal disease	03
Hypertension & cardiovascular health disease	04
Anaemia	05
Diabetes	06
Other (specify)	

Code box for Question 5.1.3

Public district or provincial hospital	01
Public Health Centre	02
Private For-Profit Health Centre	03
Private Clinic/Surgery	04
Mission/NGO facility	05
Dispensary	06
Pharmacy/Chemist/Shop	07
Other	08

Code box for Question 5.1.5

Salary/disposable income	01
Savings	02
Paid by household member	03
Paid by non-household member	04
Sold household assets	05
Paid in-kind	06
Other	07

5.2 Utilisation of inpatient services in the last one year

[Read out]: I will now ask you questions about the use of inpatient facilities and services by members of your household, and the costs paid. Please include any deliveries and hospitalisations of one day or more that have been faced by your household within the last year.

Illness event No.	Household member	5.2.1 For what illness was the household member admitted into a health facility? (IllIPTyp) (Use code box) Code	5.2.1 How many times was <NAME> admitted over the <u>past one year</u> ? (IPVist) Number	5.2.2 Type and ownership of health provider where admitted (FacOwnr1) (Use code box) Code	5.2.3 In which month was the patient admitted to hospital? (MntIP) (Use code box) Code	5.2.4 Cost paid out-of-pocket for hospital stay, including transport, doctor's fees, diagnosis, surgical operation and daily bed rate (IPCst) Cost (FCFA)	5.2.5 How were treatment costs covered? (IPCstMed) (Use code box) Code
1							
2							
3							
4							
5							
6							

Code box for Question 5.2.1

Malaria	01
Respiratory tract infection	02
Diarrhoeal disease	03
Hypertension & cardiovascular health disease	04
Anaemia	05
Diabetes	06
Other (specify)	

Code box for Question 5.1.5

May 2015	01
June 2015	02
July 2015	03
August 2015	04
September 2015	05
October 2015	06
November 2015	07
December 2015	08
January 2016	09
February 2016	10
March 2016	11
April 2016	12
May 2016	13

Code box for Question 5.1.3

Public district or provincial hospital	01
Public Health Centre	02
Private For-Profit Health Centre	03
Private Clinic/Surgery	04
Mission/NGO facility	05
Dispensary	06
Pharmacy/Chemist/Shop	07

Code box for Question 5.1.5

Salary/disposable income	01
Savings	02
Paid by household member	03
Paid by non-household member	04
Sold household assets	05
Paid in-kind	06
Other	07

6. Health insurance knowledge and perceived value

6.0 Health insurance literacy

[Read out]: I will now ask you some True/False questions to understand what you know about health insurance, and to gain perspective on your perception of health insurance/ assistance schemes. Please try to answer as accurately as possible based on your knowledge and/or experience with health insurance.

<p>6.0.1 Are you familiar with the concept of community-based health insurance (<i>HIconcp</i>)?</p> <p>Yes01 No02</p> <p><i>If Yes, proceed to Question 6.0.2</i></p>
<p>6.0.2 From which source did you first learn about health insurance (<i>HiKwlg</i>)?</p> <p>Radio01 Television02 Hospital03 Religious establishment (church/mosque)04 Family member05 Friend06 Health insurance agent07 Poster08 Other (specify)09</p>
<p>6.0.3 How would you rate your knowledge of the principles of health insurance (<i>KwngHI</i>)?</p> <p>Good01 Fair02 Poor03 Don't know999</p>
<p>6.0.4 Have you or any of your household members previously had health insurance/ assistance coverage (<i>HICov</i>)?</p> <p>Yes01 No02</p>
<p>6.0.5 Which health insurance scheme were you or your household a member of (<i>HISchm</i>)?</p> <p>Bamenda Ecclesiastical Provincial Health Assistance Scheme (BEPHA) ..01 Kumbo Mutual Health Cooperative Society (MUHCOOPS)02 Other</p>
<p>6.0.6 For how long were you/have you been a member of the health insurance scheme (<i>MbrDurn</i>)?</p> <p>Less than one year01 One to five years02 Five to ten years03 More than ten years04 Can't remember999</p>

6.1 General health insurance knowledge

[Read out]: I will now ask you some True/False questions to understand what you know about health insurance, and to gain perspective on your perception of health insurance/ assistance schemes. Please try to answer as accurately as possible based on your knowledge and/or experience with health insurance.

	Knowledgeable(1)	Not knowledgeable (0)
6.1.1 Health insurance reallocates funds from healthy to sick people in order to reduce the costs paid by individuals when sick (<i>SckHI</i>)		
6.1.2 Health insurance covers an pre-determined amount of an insured person's medical expenses (<i>HICvr</i>)		
6.1.3 A regular fee must first be paid to the insurer in order to be covered by a health insurance scheme (<i>PrmHI</i>)		
6.1.4 Once insured, <u>all</u> health-related expenses at <u>all</u> health facilities in your area will be covered (<i>AllHthExp</i>)		
6.1.5 You must pay the full cost of treatment if you are insured and the health facility is a partner of the health insurance scheme (<i>TrtCost</i>)		
6.1.6 Community-based health insurance schemes are profit-making businesses (<i>PrftHI</i>)		
6.1.7 If you do not claim benefits, you will get your money back (<i>BenHI</i>)		
6.1.8 How do you feel about other members of your community benefitting from health insurance when you don't fall sick (<i>SoldrtyHI</i>)?		
a) Highly agree		
b) Agree		
c) Neither agree nor disagree		
d) Disagree		
e) Highly disagree		

[Read out]: People in your household can sometimes become ill. When this happens, you try to help them as much as you can. You take them to the doctor or buy medicines. But this can be very expensive. Sometimes you may not have the money available and may need to borrow from your neighbours, sell your cattle or even visit the money-lender. While you run around trying to get the money together, the sick person suffers. If the person is taken seriously ill, they may have to be admitted in the hospital, which requires even more money. And of course, there can even be times when more than one family member falls ill. All these healthcare costs can sometimes be so much that they can put a lot of financial pressure on your family.

In order to reduce this financial risk, community-based health insurance/ assistance schemes have been set up across Cameroon. They require you to pay them a fixed amount of money at the beginning of a year so that, if you fall sick in that year, they will cover part of your healthcare costs.

6.1.9 What do you feel about buying health insurance for you and your household?

<i>PosNegHI</i>	Positive	<input type="checkbox"/>	OR	Negative	<input type="checkbox"/>
<i>ReliabHI</i>	Reliable	<input type="checkbox"/>	OR	Unreliable	<input type="checkbox"/>
<i>HIPrc</i>	Affordable	<input type="checkbox"/>	OR	Unaffordable	<input type="checkbox"/>
<i>UseHI</i>	Important	<input type="checkbox"/>	OR	Not important	<input type="checkbox"/>

6.0.6. Who would you trust the most to manage your health insurance (*TrstLv*)? *NB: You are allowed to select more than one answer*

Government	01
Private company	02
NGO	03
Church	04
Members of your community	05

6.2 Product-specific (BEPHA Kumbo) health insurance knowledge

[Read out]: I will now ask you some questions about the BEPHA Health Assistance Scheme.

6.2.1 When did you last renew your BEPHA Kumbo Health Assistance Scheme membership (*HILstRen*)?

Last June	01
Last November	02
1 – 5 years ago	03
5 – 10 years ago	04

[Read out]: I will ask some True/False and multiple choice questions in order to understand what you know about the BEPHA Scheme in Kumbo. Please try and answer the questions that I will ask as accurately as possible, based on your experience as a current/former BEPHA enrollee.

i. Product availability

6.2.2. You can register as an individual for BEPHA membership (*RegHI*)

6.2.3. You can join BEPHA as a family or member of a *njangi*(*FamRegHI*)

6.2.4. You must pay a one-time registration fee and annual premium/ contribution to be a BEPHA member (*BEPRRePy*)

6.2.5. You can start benefitting from BEPHA coverage immediately after registration (*BEPCvRg*)

6.2.6. To whom should BEPHA premium money be paid (*BEPPytWh*)?

NB: You are allowed to select more than one answer

a) BEPHA Diocesan Office	01
b) Priest	02
c) Kiosk owner	03
d) BEPHA partner hospitals	04
e) Any officially-recognised BEPHA agents.....	05

ii. Benefit package

6.2.7. What types of benefits are covered by BEPHA (*BenCovBEP*)? *NB: You are allowed to select more than one answer*

a) Outpatient services	01
b) Antenatal care and child birth	02
c) Laboratory tests	03
d) Surgery	04
e) Physiotherapy	05
f) Hospitalisation	06
g) Dialysis	07
h) Don't know	08

6.2.8. What percentage of health care costs is paid by BEPHA for its offered services (*PercPyBEP*)?

a) 50 percent.....	01
b) 75 percent	02
c) 100 percent	03

6.2.9. What documents are needed to claim BEPHA benefits in partner health facilities (*CImBEP*)?

a) BEPHA Beneficiary Card	01
b) National Identity Card	02
c) Birth Certificate	03

6.2.10. For how long is BEPHA membership valid (*MmbDurBEP*)?

a) One year	01
b) Five years	02
c) Forever	03

6.2.11. How often can you benefit from BEPHA coverage in a year (*OftCImBEP*)?

a) Five times	01
b) Eight times	02
c) Every time when sick	03

iii. Coverage

	True (1)	False (0)
6.2.12. It is the member's responsibility to renew their BEPHA membership (<i>RenwRsp</i>)		
6.2.13. If necessary, you can pay for BEPHA membership in three instalments (<i>BEPptinst</i>)		
6.2.14. BEPHA cancels membership if payment is not completed one month after due date (<i>CnclBEP</i>)		

7. Willingness-to-pay for health insurance package

[Read out]: *This interview will end soon, but before that, I would like to ask you some questions on how much you would be willing to pay for health insurance coverage.*

On average, how much does your household spend on healthcare expenses in a year (in CFCA) (*HlthExp*)?

[Read out]: *To buy a health insurance package, you must pay an annual premium for you and some or all of your family members. The health insurance/assistance scheme will then pay for some of the healthcare costs of the insured household members.*

Suppose we offer you a health insurance package that will cover 75% of the cost of outpatient consultations, laboratory tests, hospitalisation, medicines, and maternity services for one year? How much would you agree to pay for that? PLEASE NOTE THAT THE CONDITION FOR MEMBERSHIP IS THAT AT LEAST FOUR OF YOUR HOUSEHOLD MEMBERS, INCLUDING YOU, MUST JOIN. AND EACH MEMBER CAN ONLY CLAIM BENEFITS FOR A MAXIMUM OF EIGHT TIMES IN A YEAR.

Please take into consideration your annual healthcare expenses, and your household income and expenditure when answering these questions.

Would you agree to pay 12000 CFCA per person per year for such a package (<i>WTP11HI</i>)? No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 11500 CFCA per person per year (<i>WTP12HI</i>) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 11000 CFCA per person per year (<i>WTP13HI</i>) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 10500 CFCA per person per year (<i>WTP14HI</i>) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 10000 CFCA per person per year (<i>WTP15HI</i>) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 9500 CFCA per person per year (WTP16HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 9000 CFCA per person per year (WTP17HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 8500 CFCA per person per year (WTP18HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 8000 CFCA per person per year (WTP19HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 7500 CFCA per person per year (WTP20HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 7000 CFCA per person per year (WTP21HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 6500 CFCA per person per year (WTP22HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 6000 CFCA per person per year (WTP23HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 5500 CFCA per person per year (WTP24HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 5000 CFCA per person per year (WTP25HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 4500 CFCA per person per year (WTP26HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 4000 CFCA per person per year (WTP27HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 3500 CFCA per person per year (WTP28HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 3000 CFCA per person per year (WTP29HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 2500 CFCA per person per year (WTP30HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 2000 CFCA per person per year (WTP31HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 1500 CFCA per person per year (WTP32HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 1000 CFCA per person per year (WTP33HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 500 CFCA per person per year (WTP34HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 0 CFCA per person per year (WTP35HI) No = 0 Yes = 1

[Read out]: Suppose we offer you the same package as before, but instead of covering 75% of your costs for outpatient consultations, laboratory tests, hospitalisation, medicines, and maternity, the health insurance scheme will cover 100%? How much would you agree to pay for that?

Would you agree to pay 12000 CFCA per person per year for such a package (WTP36HI)?
No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 11500 CFCA per person per year (WTP37HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 11000 CFCA per person per year (WTP38HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 10500 CFCA per person per year (WTP39HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 10000 CFCA per person per year (WTP40HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 9500 CFCA per person per year (WTP41HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 9000 CFCA per person per year (WTP42HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 8500 CFCA per person per year (WTP43HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 8000 CFCA per person per year (WTP44HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 7500 CFCA per person per year (WTP45HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 7000 CFCA per person per year (WTP45HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 6500 CFCA per person per year (WTP47HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 6000 CFCA per person per year (WTP48HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 5500 CFCA per person per year (WTP49HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 5000 CFCA per person per year (WTP50HI) No = 0 Yes = 1

If no, continue by asking: Would you agree to pay a premium of 4500 CFCA per person per year (WTP51HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 4000 CFCA per person per year (WTP52HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 3500 CFCA per person per year (WTP53HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 3000 CFCA per person per year (WTP54HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 2500 CFCA per person per year (WTP55HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 2000 CFCA per person per year (WTP56HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 1500 CFCA per person per year (WTP57HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 1000 CFCA per person per year (WTP58HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 500 CFCA per person per year (WTP59HI) No = 0 Yes = 1
If no, continue by asking: Would you agree to pay a premium of 0 CFCA per person per year (WTP60HI) No = 0 Yes = 1

**This is the end of the questionnaire.
Thank you for taking the time to answer my questions.**

11.4 Household survey questionnaire: Kenya

Formally-employed household Household head makes monthly payments into both NHIF and NSSF	
Informally-employed household Household head does not make monthly payments both into NHIF and NSSF	

Terminate interview if household head is formally-employed

Informed consent

[Read out]: Hello. My name is <NAME> and I am carrying out research on behalf of a university. We do not work for the government, and we are not selling anything. We would like to ask you some questions on your use of health care services in order to understand how you manage your health-related costs and needs. This will help us to understand the reasons why some people join the National Hospital Insurance Fund, or NHIF, and others do not. The interview will take approximately 30 minutes, and the information collected will be strictly confidential. Your name will never be disclosed when presenting the results of the study anywhere.

[Note: Enter the code corresponding to the elicited response in the box provided]

<p>0.4.1 Are you willing to participate in this interview?</p> <p>No.....0</p> <p>Yes.....1</p> <p><i>If the answer to this question is no → terminate interview and move on to next interview</i> <i>If yes, ask respondent to provide signature and continue with the questionnaire</i></p>	
---	--

[Read out]: Thank you for agreeing to participate in this study. As mentioned, we will be seeking to collect information about your household spending and use of health care services and products. It is therefore important that you try to answer the questions as precisely as possible, to enable us to understand your situation well.

Thank you for taking the time to reply to our questions.

1. Respondent details

<p>1.0. Name of household respondent</p>	
<p>1.1. What is the relation of the respondent to the household head?</p> <p>Head.....01</p> <p>Husband/Wife.....02</p> <p>Son/Daughter.....03</p> <p>Grandchild.....04</p> <p>Father/Father-in-law.....05</p> <p>Brother/Sister.....06</p> <p>Nephew/Niece.....07</p> <p>Son-in-law/Daughter-in-law.....08</p> <p>Brother-in-law/Sister-in-law.....09</p> <p>Mother/Mother-in-law.....10</p> <p>Other Family Relative.....11</p> <p>Other person not related.....12</p> <p><i>If respondent is unrelated to household head → terminate interview</i></p>	

2. Composition of household and its characteristics

[Read out]: I would like to start by asking you about members of your household. In most cases, the household comprises of family members, but it may also include non-family members who live in your home. I will request that you provide the first names of the household members to ensure that we match the answers to the person concerned. Your names will remain confidential, and will not be passed on to anyone.

Household member #	2.0.1 Name of usual residents	2.0.2 Relationship to household head	2.0.3 Year of birth	2.0.4 Sex	2.0.5 Religion	2.0.6 Marital status	2.0.7 Literacy status	2.0.8 Maximum level of education achieved	2.0.9 Main Employment activity during past 12 months	2.0.10 Occupation group during past 12 months	2.0.11 Temporality of work activity	2.0.12 Salary in previous month	2.0.13 Nature of remuneration
	<i>List household head first</i>	<i>(Use code box)</i>			<i>(Use code box)</i>	<i>(Use code box)</i>	<i>Has <NAME> ever been to school?</i>	<i>(Use code box)</i>	<i>(Use code box)</i>	<i>(Use code box)</i>	<i>(Use code box)</i>	<i>(Use code box)</i>	<i>(Use code box)</i>
	<i>First Name</i>	<i>Code</i>	<i>Years</i>	<i>Male...1 Female 2</i>	<i>Code</i>	<i>Code</i>	<i>Yes1 No2</i>	<i>Code</i>	<i>Code</i>	<i>Code</i>	<i>Code</i>	<i>Code</i>	<i>Code</i>
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													

<p><i>Code box for Question 2.0.2</i></p> Head.....01 Husband/Wife/Partner.....02 Son.....03 Daughter.....04 Father/Father-in-law.....05 Mother/Mother-in-law.....06 Grandchild.....07 Son-in-law/Daughter-in-law.....08 Brother-in-law/Sister-in-law.....09 Father-in-law/Mother-in-law.....10 Niece/Nephew.....11 Other: Family Relative (specify).....12 Other: Unrelated (specify).....13	<p><i>Code box for Question 2.0.5</i></p> Catholic.....01 Protestant.....02 Other Christian.....03 Muslim.....04 Traditionalist.....05 Atheist.....06 Other religion.....07	<p><i>Code box for Question 2.0.6</i></p> Single.....01 Monogamous marriage.....02 Polygamous marriage.....03 Widow/Widower.....04 Divorced/separated.....05 Common law union.....06	<p><i>Code box for Question 2.0.7</i></p> Primary school.....01 Post-primary/vocational.....02 Secondary.....03 College.....04 University.....05 Literate (Non-Formal Education)06	<p><i>Code box for Question 2.0.9</i></p> Self-employed.....01 Public sector employee.....02 Private sector employee.....03 Seeking employment.....04 Unpaid family worker.....05 Apprentice.....06 Student.....07 Other (specify).....08 None.....88
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<p><i>Code box for Question 2.0.10</i></p> Legislators, administrators and managers.....1 Trained professionals.....2 Technicians and associate professionals.....3 Secretarial, clerical services and related workers.....4 Service workers, shop and market sales workers.....5 Skilled agricultural workers.....6 Craft and related trades workers.....7 Plant and machine operators and assemblers.....8 Elementary (labour) occupations.....9 Other.....10	<p><i>Code box for Question 2.0.11</i></p> Permanent regular work.....01 Permanent seasonal work.....02 Temporary, non-defined.....03 Temporary defined work.....04	<p><i>Code box for Question 2.0.12</i></p> <1 000 KShs.....1 1 000 – 3 000 KShs.....2 3 000 – 5 000 KShs.....3 5 000 – 10 000 KShs.....4 10 000 – 20 000 KShs.....5 20 000 – 50 000 KShs.....6 50 000 – 100 000 KShs.....6 100 000 KShs or more.....7	<p><i>Code box for Question 2.0.13</i></p> Fixed salary (weekly/monthly/quarterly) 1 Daily or hourly pay.....2 Task-based payment.....3 Commission.....4 Business profits.....5 Barter exchange.....6
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3. Household assets and amenities

[Read out]: I would now like to ask you about the property you live in and the assets that your household possesses, including housing, transport, livestock and home appliances.

<i>Interviewer to observe house materials for Qns 3.0.1 – 3.0.3 and enter the corresponding code into the box provided</i>		
3.0.1 What is the main material on the roof?		
No roof	01	<input type="text"/>
Natural material roof	02	
Corrugated iron roof	03	
Roofing tiles	04	
Other	05	
3.0.2 What is the main material on the floor?		
Dirt, earth floor	01	<input type="text"/>
Wood, plank floor	02	
Cement floor	03	
Tile floor	04	
Other	05	

Questions for interviewee

3.0.4 Number of household members per sleeping room		
3.0.5 Does the household own or agricultural land/ a farm?		
Yes	01	<input type="text"/>
No	02	
3.0.8 What is the main source of water?		
Piped into dwelling	01	<input type="text"/>
Public tap	02	
Public well	03	
River, canal, lake or surface water	04	
Rain	05	
Private well	06	
3.0.9 What type of toilet facilities are available in the household?		
Own flush toilet	01	<input type="text"/>
Shared flush toilet	02	
Own pit latrine	03	
VIP latrine	04	
No facility/ bush/ field	05	
Other	06	
3.0.5 Does the household employ a domestic worker not related to the household head?		
Yes	01	
No	02	
3.0.10 Does the household own any of the following vehicles?	Yes	No
3.0.10.1 Bicycle		
3.0.10.2 Motorcycle		
3.0.10.3 Car		

3.0.11 Does the household own any of the following facilities?	Yes	No
3.0.11.1 Electricity		
3.0.11.2 Radio		
3.0.11.3 Television		
3.0.11.4 Telephone		
3.0.11.5 Refrigerator		

4. Household expenditure and consumption

[Read out]: I would now like to ask you questions about your food and non-food expenses.

4.0.1 How much did your household spend in the past seven days on the following foods and beverages (in KShs)?

- 4.0.1.1 Oils and fats (vegetable oil etc.)
- 4.0.1.2 Cereals (maize grains, flour, beans, rice etc.).....
- 4.0.1.3 Livestock/poultry produce (milk, eggs etc.)
- 4.0.1.4 Fish
- 4.0.1.5 Meat (beef, chicken, pork etc.)
- 4.0.1.6 Sugar
- 4.0.1.7 Beverages (tea, coffee etc.)
- 4.0.1.8 Bread
- 4.0.1.9 Spices (e.g. curry powder)
- 4.0.1.10 Vegetables
- 4.0.1.11 Fruits
- 4.0.1.12 Roots (sweet potato, yams, arrow roots etc.)
- 4.0.1.13 Soft drinks (soda, juice etc.)
- 4.0.1.14 Alcohol
- 4.0.1.15 Meals (road-side vendors, restaurants etc.)

[If a breakdown not possible, please provide the total amount spent on food and beverages]

- 4.0.1.16 Did your household receive or provide any in-kind transfers of food products (name food product)?

4.0.2 How much did your household spend in the past one month on the following household items (in KShs)?

- 4.0.2.17. Rent
- 4.0.2.18. Electricity
- 4.0.2.19. Cooking gas.....
- 4.0.2.20. Kerosene/paraffin
- 4.0.2.21. Charcoal.....
- 4.0.2.22. Firewood
- 4.0.2.23. Water
- 4.0.2.24. Soap and detergent
- 4.0.2.25. Transport
- 4.0.2.26. Telephone bills/ mobile airtime
- 4.0.2.27. Salaries including wages for domestic workers
- 4.0.2.28. Remittances (in cash and kind)
- 4.0.2.29. Sanitary towels
- 4.0.2.30. Tobacco
- 4.0.2.31. Leisure and entertainment
- 4.0.2.32. Hairdresser/barber
- 4.0.2.33. Others

[If a breakdown not possible, please provide the total amount spent on items]

4.0.3 How much did your household spend in the past one year on the following (in KShs)?

4.0.3.7. Education (registration, uniforms, books, exam fees).....

4.0.3.8. Maintenance and repairs (car, buildings etc.)

4.0.3.9. Funerals (including contributions to other households).....

4.0.3.10. Wedding/dowry (including contributions to other households).....

4.0.3.11. Clothing and footwear

4.0.3.12. Capital expenditures (including cars, plots etc.)

4.0.3.13. Others

[If a breakdown not possible, please provide the total amount spent]

4.0.4 Are you or any of your household members part of a savings or micro-financing group (*chamaa/SACCO*)?

Yes.....01
 No.....02

4.0.5 How many *chamaas/SACCOs* are you and your household active in?

One.....01
 2 – 5.....02
 More than five.....03

4.0.6 On average, how much do you contribute per month to your *chamaa/SACCO* (in KShs)?

5. Health-seeking behaviour

[Read out]: I would now like to ask you about the health status of members of your household any illnesses experienced in the last one month. Please try to recall details of all events in the last month. Please try to be as specific as possible about any illness episodes, because we have to look at each illness condition separately for this study.

Household member No.	5.0.1 Perceived health status compared to others of similar age	5.0.2 When did you last consult with a medical practitioner?	5.0.3 Illness in the <u>past four weeks</u>	5.0.4 Type of illness	5.0.5 Severity of illness	5.0.6 Was a medical practitioner consulted?	5.0.7 If No to 5.0.6, main reasons for not seeking care?	5.0.8. Any informal consultations for illness
	Very good.....1 Good.....2 Satisfactory.....3 Poor.....4	(Use code box) Code	Yes.....1 No.....2	(Use code box) Codes	Mild..... 1 Moderate.2 Severe ... 3	Yes 1 No 2	(Use code box) Code	(Use code box) Code
1								
2								
3								
4								
5								
6								
7								

Code box for Question 5.0.2
 Less than two weeks.....01
 2 weeks – 1 month.....02
 1 – 3 months03
 3 – 6 months04
 6 – 12 months05
 One year or more06

Code box for Question 5.0.4
 Malaria01
 Sexually transmitted disease.....02
 Respiratory tract infection03
 Diarrhoeal disease04
 Skin conditions05
 Typhoid06
 Other (specify).....08

Code box for Question 5.0.7
 Lack of money.....01
 Self-medication02
 Poor quality service03
 High cost of care.....04
 Religious/cultural reasons05
 Long distance to provider06
 Illness not considered serious enough ..07

Code box for Question 5.0.8
 Government hospital01
 Private hospital02
 Mission hospital03
 Government health centre04
 Mission health centre05
 Government dispensary06
 Mission dispensary07
 Private clinic09
 NGO clinic10
 Community pharmacies (Bamako).....11
 Traditional healer.....12
 Other13

5.1 Utilisation of outpatient services and other health-related services in the last four weeks

[Read out]: I will now ask you questions about the use of outpatient and other health-related facilities and services by members of your household, and the costs paid.

Illness event No.	Household member No.	5.1.1 Outpatient visits made for illness episodes during the <u>past four weeks</u> Number	5.1.2 Type and ownership of health provider (Use code box) Code	5.1.3 Did <NAME> pay for the services received? Yes1 No 2	5.1.4 Total cost for visits, including transport, registration, consultation, diagnosis, and medication? Cost(KShs)	5.1.5 How were treatment costs covered? (Use code box) Code	5.1.6 If no health facility was attended, how much was spent on health-related services/ commodities (e.g. medicine) in the <u>past four weeks</u> ? Cost (KShs)
1							
2							
3							
4							
5							

Code box for Question 5.0.8

Government hospital	01
Private hospital	02
Mission hospital	03
Government health centre.....	04
Mission health centre	05
Government dispensary	06
Mission dispensary	07
Private clinic	09
NGO clinic	10
Community pharmacies (Bamako)...	11
Traditional healer.....	12
Other	13

Code box for Question 5.1.5

Had cash available	01
Given money by friends, relatives and family members.....	02
Harambee contributions	03
Borrowed money	04
Sold household assets	05
Waived/exempted	06
Given opportunity to pay later	07

5.2 Utilisation of inpatient services in the last one year

[Read out]: I will now ask you questions about the use of inpatient facilities and services by members of your household, and the costs paid. Please include any deliveries and hospitalisations of one day or more that have been faced by your household within the last year.

Illness event No.	Household member No.	5.2.1 How many times was <NAME> admitted over the <u>past one year</u> ? <i>Number</i>	5.2.2 Type and ownership of health provider where admitted <i>(Use code box)</i> <i>Code</i>	5.2.3 Did <NAME> pay for the services received? Yes 1 No 2	5.2.4 Total cost of hospital stay, including transport, doctor's fees, diagnosis, surgical operation and daily bed rate <i>Cost (KShs)</i>	5.2.5 How were treatment costs covered? <i>(Use code box)</i> <i>Code</i>
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Code box for Question 5.0.8

Government hospital 01
 Private hospital 02
 Mission hospital 03
 Government health centre 04
 Mission health centre 05
 Other 06

Code box for Question 5.2.5

Salary/disposable income 01
 Savings 02
 Loan 03
 Paid by household member 04
 Paid by non-household member 05
 Sold household assets 06
 Paid in-kind 07
 Other (please specify) 03

6. Health insurance knowledge and perceived value

6.1 Health insurance literacy

[Read out]: I would now like to ask you questions to understand your experience with health insurance products.

6.0.1 Are you familiar with the concept of health insurance?	
Yes	01
No	02
<i>If Yes, proceed to Question 6.0.2</i>	
6.0.2 How would you rate your knowledge of the principles of health insurance?	
Good	01
Fair	02
Poor	03
Don't know	-999
6.0.3 From which source did you first learn about health insurance?	
Radio	01
Television	02
Hospital	03
Religious establishment (church/mosque)	04
Family member	05
Friend	06
Health insurance agent	07
Poster	08
Other (specify)	09
6.0.4 Have you or any of your household members previously had or currently have health insurance coverage?	
Yes	01
No	02
6.0.5 What type(s) of health insurance coverage do you or any of your household members have?	
NHIF	01
Community-based health insurance	02
Private insurance	03
Others (specify)	04
<i>If yes, please specify which <u>household member(s)</u> and which <u>scheme</u></i>	
6.0.5. For how long were you/have you been a member of the health insurance scheme?	
Less than one year	01
One to five years	02
Five to ten years	03
More than ten years	04
Can't remember	-999

6.1.1 General health insurance knowledge

[Read out]: I will now ask you some True/False questions to understand what you know about health insurance, and to gain perspective on your perception of health insurance/ assistance schemes. Please try to answer as accurately as possible based on your knowledge and/or experience with health insurance.

	True	False
6.1.1 Health insurance reallocates funds from healthy to sick people in order to reduce the costs paid by individuals when sick		
6.1.2 Health insurance covers a pre-determined amount of an insured person's medical expenses		
6.1.3 A regular fee must first be paid to the insurer in order to be covered by a health insurance scheme		
6.1.4 Once insured, <u>all</u> health-related expenses at <u>all</u> health facilities in your area will be covered		
6.1.5 You must pay the full cost of treatment if you are insured and the health facility is a partner of the health insurance scheme		
6.1.6 Health insurance schemes such as the NHIF are profit-making businesses		
6.1.7 If you do not claim benefits, you will get your money back		
6.1.8 How do you feel about other members of your community benefitting from health insurance when you don't fall sick?		
	a) Highly agree	
	b) Agree	
	c) Neither agree nor disagree	
	d) Disagree	
	e) Highly disagree	
6.0.6. Who would you trust the most to manage your health insurance? <i>NB: You are allowed to select more than one answer</i>		
	Government	01
	Private company	02
	NGO	03
	Church	04
	Members of your community	05

6.1.2 Product-specific (NHIF Informal Sector Scheme) health insurance knowledge

[Read out]: I will now ask some True/False and multiple choice questions in order to understand what you know about the NHIF Informal Sector Scheme. Please try and answer the questions that I will ask as accurately as possible, based on your experience and knowledge.

i. Product availability

	True	False	Don't know
6.2.2. You can register for NHIF IS Scheme membership as an individual or as part of an organised group			
6.2.3. You can pay for NHIF membership monthly or annually			
6.2.4. Your children can receive health insurance coverage through your NHIF IS coverage			
6.2.5. NHIF membership can enable you to have obtain in healthcare services in the country for free			

ii. Benefit package

6.2.6. What types of benefits are covered by the NHIF in its IS Scheme? <i>NB: You are allowed to select more than one answer</i>			
<ul style="list-style-type: none"> a) Outpatient services b) Maternity services c) Caesarean section operations d) Hospitalisation e) Family planning procedures e.g. vasectomy f) Chronic diseases h) Don't know 			
6.2.9. What documents are needed to claim NHIF benefits in accredited health facilities? <i>NB: You are allowed to select more than one answer</i>			
<ul style="list-style-type: none"> a) NHIF Card b) Hospital invoices c) National Identity Card d) Birth Certificate 			
6.2.11. How often can you benefit from NHIF coverage in a year?			
<ul style="list-style-type: none"> a) Five times b) Eight times c) Every time when sick 			

iii. Coverage

6.2.12. How often must NHIF membership be renewed?			
<ul style="list-style-type: none"> a) Every month b) Every six months c) Every year d) Every two years e) Never 			
	True	False	Don't know
6.2.13. It is the member's responsibility to renew their NHIF membership			

6.2.14. If necessary, you can pay for NHIF membership in instalments

6.2.15. NHIF cancels membership if payment is not completed one month after due date

**This is the end of the questionnaire.
Thank you for taking the time to answer my questions.**

11.5 Key questions addressed during semi-structured UHC interviews

Topic	Key areas to be addressed	Stakeholder questions
Extending NHIF to non-covered population	Existing health financing programmes	Risk pools existing in Kenya (e.g. vertical programmes, other health financing schemes)
		Players providing financial/technical support to the Kenyan health sector and the NHIF
		Modalities of NHIF financial and technical support (type of contribution, amount, target population, time period of support)
	Targeting of under-represented populations	Targeting of specific segments of population by NHIF
		Outreach/marketing efforts towards the informal sector by NHIF
		Perceived success of marketing/targeting strategies towards informal sector coverage
	Inequalities in coverage	Perceived impact of current funding landscape on informal sector coverage
		Perceptions of feasibility of expansion of voluntary informal sector enrolment into the NHIF
	Including other services into NHIF benefit package	Current health benefits package for voluntary NHIF scheme
Health interventions on negative/exclusions list		
Expected budget for basic health package <i>per capita</i>		
Institutional mechanisms for rationing health benefits package (practice guidelines, <i>ex-post</i> rationing etc.)		
Perceived financial burden on informal sector patients with NHIF coverage		
Perceptions of overall NHIF funding landscape <i>vis-à-vis</i> the NHIF's cost of coverage		
Perceptions on appropriateness of current health package for Kenyan health landscape		

	Efforts to expand NHIF voluntary scheme health benefits package	Health interventions to be included in future (outpatient and inpatient)
		Prioritisation of particular health interventions by stakeholders
Reducing cost-sharing and fees	Scale of financial risk pooling	Current levels of payment into risk pools (who pays, how much, when, and for how long)
		Efforts to consolidate existing risk pools
	Minimising OOP payments	Perceptions on ability of NHIF to meet costs associated with current health benefits package
		Acceptability of patient copayments at different levels of hospitals
		Fully-subsidised healthcare services offered within and outside NHIF