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Accessibility to Health Care and Financial Obstacles: Evidence from Uganda

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Maria
Nannini
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Supervisor – Prof. Mario Biggeri

Doctoral Committee

– Prof. Carmen Diaz Mora

– Prof. Fabrizio Tediosi

– Prof. Luca Piccoli

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INTRODUCTION

Limited access to health care represents a prominent issue in low- and middle-income countries (LMICs), where unpredictable episodes of illness constitute an especially adverse event for households' welfare (Alam and Mahal, 2014). In these countries, only a small fraction of public revenues is allocated to the provision of health services (Adebayo et al., 2015); conversely, out-of-pocket payments dominate health care financing and utilisation of services often imply catastrophic expenditures (Xu et al., 2003). Impoverishing effects are mainly due to direct payment for treatment and transport costs (Vollmer, 2018), and to a substantial income loss associated with the reduction in labour supply and productivity (Gertler and Gruber, 2002). Negative consequences of health expenditures can affect different dimensions of household's well-being. First, health problems among family members are likely to have a critical effect on consumption and income (Dercon and Krishnan, 2000). Second, financial constraints negatively influence households' health seeking behaviours: individuals often tend to delay care utilization for affordability reasons, and this may exacerbate the burden of disease (Gilson, 1997). Third, impoverishing consequences of illness hold in the long run when productive assets are sold or educational investments are reduced to meet medical expenses (Dercon, 2002; McIntyre et al., 2006).

The claim to ensure financial risk protection is strongly supported by the international community (WHO, 2013), and the key goal of Universal Health Coverage (UHC) has been included among the Sustainable Development Goals (SDGs). The main equity principles underlying the concept of financial protection include pre-payment and cross-subsidization mechanisms where individuals contribute according to their ability to pay and receive according to their need (WHO, 2010). However, alternative strategies have been pursued to achieve UHC and each trajectory strongly depends on contextual factors (Frenk and De Ferranti, 2012; Savedoff et al., 2012). Against this background, country-specific lens are required to analyse single experiences for health coverage (Agier et al., 2016).

This dissertation aims to investigate the issue of health care accessibility and financial protection focusing on the case study of Uganda. The country constitutes a key example of low-income African country where impoverishing effects due to health services utilisation are critical for the population well-being (Kwesiga et al., 2015). The health financing system is extremely fragmented, out-of-pocket expenditures still represent 42 percent of total health expenditure (Ministry of Health Uganda, 2016), and occurrence of

catastrophic expenses did not decline during the last decades (Wagstaff et al., 2017; Xu et al., 2006).

The thesis consists of three independent chapters aimed to investigate multiple aspects which are relevant for population health coverage: (1) a national-level analysis of health financing reforms in Uganda; (2) a district-level investigation on the relevance of social capital to improve health services accessibility; and (3) an impact evaluation of a pilot program of Community Health Financing. Thus, the analysis adopts different perspectives to examine accessibility to health care and, specifically, financial protection in the country. The thesis progressively shifts its focus from a national level perspective (first chapter) to a local one (second and third chapters) considering the role of community and individual attributes on the main accessibility outcomes.

The first chapter adopts a political economy lens to analyse the Ugandan experience of health financing reforms for Universal Health Coverage. The study is based on a desk review of relevant documents and Key Informant Interviews in the health sector involving national and district-level stakeholders. Evidence on the country path of reforms is interpreted using an original political economy framework which considers the effects of stakeholders' interests and ideas on the negotiation process behind health financing reforms, and the resulting implications in terms of financial protection enjoyed by the population. The main findings show that the current political situation is not yet conducive for implementing universal coverage models; the health financing landscape remains extremely fragmented, whilst a leading role by the public sector is needed to improve financial protection outcomes.

The second chapter explores how the provision of social support through social networks operates at the behavioural level for health care demand. A multidimensional perspective is adopted to analyse the relevance of social capital in overcoming barriers to health care utilisation and coping with financial hardship due to health expenditures. The analysis is based on primary household data from a rural district in Uganda and relies on two main methods of investigation. First, a Social Network Analysis describes the structure of social networks that households activate to utilise health services. Second, logistic regression models allow us to verify whether social capital is significantly associated with the risk of financial hardship due to health expenditures. The results consistently indicate that social capital is crucial for health coverage outcomes in poor settings and highlight the potential role of social networks as a valid driving mechanism to enhance services utilisation through targeted interventions.

The third chapter aims at assessing the impact of a Community Health Financing pilot program on health expenditures and coping strategies in a rural district of Uganda. The analysis relies on a panel household survey performed before and after the intervention and complemented by qualitative data obtained from structured focus group discussions. The longitudinal nature of the survey allows us to infer the causal effect of the program on three alternative measures of household well-being, namely the incidence of catastrophic health expenditures, the share of health expenses over total expenditures and the adoption of coping practices which imply financial hardship. The identification strategy relies on an instrumental variable approach and exploits the random selection adopted to offer the voluntary program. Furthermore, the focus group discussions integrate the analysis by exploring community perceptions about the impact and heterogeneous effects on different households' categories. Overall, the study provides support for the positive role of community-based mechanisms to progress towards universal coverage and offers policy-relevant insights to timely design comprehensive health financing reforms.

All the performed analyses are based on primary data collected in the field. A preliminary phase was devoted to the definition of the research design, preparation and testing of the data collection tools, submission and approval of the specific research protocol by the "*Ugandan National Council for Science and Technology*". Further to the clearance received by the Ugandan authority for ethics and research, the protocol has been approved by the *"Ethic Commission for Research"* of the University of Florence. Then the field work of data gathering was conducted in collaboration with a trained research team. Both qualitative and quantitative methods were employed during the investigation. Whilst the first chapter mainly relies on qualitative evidence, the second chapter uses quantitative data to perform the analysis. In the third chapter, mixed methods are adopted to triangulate major findings and deepen the analyses on the underlying process.

The research questions developed in this dissertation are motivated by two main reasons. Firstly, analysing the process behind health coverage outcomes requires to consider several driving factors at the national, local and individual level. Therefore, we disentangle different aspects which contribute to determine the contingent path towards UHC in Uganda. The first chapter describes the national background of health financing reforms, thus framing the context for single interventions aimed at improving financial protection. In the second chapter, we narrow the focus by analysing local-level factors associated with accessibility to health services and financial hardship for rural households. Then the impact evaluation in the third chapter takes an additional step forward by identifying the potential contribution of community-based initiatives to improve financial

protection outcomes. Secondly, to the best of our knowledge, no comprehensive evidence exists on this specific subject in the context of Uganda. Political economy analyses performed in the country neither concern health sector reforms nor consider the structure of multi-level governance affecting the political process of negotiations. Existing investigations on the role of social support for health care accessibility do not rely on quantitative data enriched by specific network information. Finally, previous evaluations about community-based initiatives for health financing refer to qualitative evidence and cross-country data which do not permit to properly infer the causal impact of the program, especially considering the initial phases of the intervention.

The thesis shows that outcomes of health coverage and financial protection in Uganda depend on a variety of factors; these include the framework of national reforms, the level of social capital enjoyed by the household, and the development of specific community-based initiatives. A concerted effort is required to produce significant improvements for health care accessibility. The community at the local level plays an important role and can boost a positive change. Interventions aimed at enhancing services utilisation could consider strengthening social capital and addressing social exclusion as a valid driving mechanism to unlock local resources. The model of Community Health Financing is effective in expanding financial protection for those households who are part of Informal Risk Sharing Arrangements. However, in order to be sustainable over time and meet the ultimate goal of UHC, the transition triggered at the community level needs to be supported by the public sector. Within a plural and fragmented framework where many different actors deal with health care, a clear government leadership is crucial to ensure coordination and equity for health services provision and financing.

Overall, the thesis offers a contribution to the current debate on health coverage in LMICs. On one side, the new evidence based on the collection of primary data and the adoption of innovative methodologies allows to advance the academic knowledge on financial protection. On the other side, the main research findings have the potential to inform policy design and policy making to effectively improve health coverage outcomes in informal settings.

CHAPTER 1

Health Coverage and Financial Protection in Uganda:

a Political Economy Perspective

ABSTRACT

In 2001, the government of Uganda abolished user-fees to improve accessibility to health services for the population. However, after almost twenty years, the incidence of catastrophic health expenditures is still very high, and the health financing system does not present a unique scheme at the national level. This article adopts a political economy perspective to analyse the Ugandan experience of health financing reforms for universal health coverage and, particularly, financial protection. The qualitative study is based on a desk review of relevant documents and a multi-level stakeholder analysis based on 60 Key Informant Interviews in the health sector. We find that the current political situation is not yet conducive for implementing a universal financing system: dominant interests and ideologies do not create a net incentive to implement a comprehensive scheme for financial protection. By examining the political factors behind the negotiation process, this article intends to advance the debate about path-dependent strategies for improving the population health coverage and financial protection.

KEYWORDS: Universal Health Coverage; Political Economy; Health Financing; Financial Protection; Uganda.

1. Background

Forty years after the Alma Ata declaration, the international community reaffirmed its commitment to ensure access to quality health care for the population of all countries. Universal Health Coverage (UHC), defined as a situation where people who need health services receive them without undue financial hardship, gained renewed attention at the global level and was embraced in the Sustainable Development Goals (SDGs) (Cotlear and Rosemberg, 2018). The objective of UHC is informed by a horizontal approach for system-level interventions and, thus, brings about important implications for low- and middle-income countries (LMICs) (Agyepong, 2018; Kutzin, 2012). As part of the 2030 Agenda, international institutions strongly support the implementation of efficient and equitable health sector reforms for quality care, claiming, in particular, to ensure adequate financial risk protection for the population(WHO, 2013a). Making progress towards UHC implies an improvement throughout the three coverage dimensions, namely population, services and costs. These refer, respectively, to the proportion of the population that has financial protection, the range of services that are available, and the proportion of the costs of those services that are covered (WHO, 2010).

An extensive literature (Barroy et al., 2017; McIntyre et al., 2017) investigates the main technical factors enabling LMICs to move towards UHC by enhancing health financing systems. Although the discussion of the major technical channels facilitating the expansion of health coverage is relevant, political determinants driving these improvements deserve more attention (The Lancet Global Health, 2017). Several authors indicate that a political economy perspective can contribute to understanding contingent paths to UHC (Fox and Reich, 2015; Gilson and Raphaely, 2008; Savedoff et al., 2012; Stuckler et al., 2010) and, particularly, in the context of LMICs (Gilson, 2019). Health system analyses need to be supplemented with approaches that focus on the political context, as reflected in many studies (Agyepong, 2018; Chemouni, 2018; Croke et al., 2019; Hsiao et al., 2014; Lavers, 2019; Pisani et al., 2017; Reich et al., 2016; Shiffman, 2019; Sparkes et al., 2019).

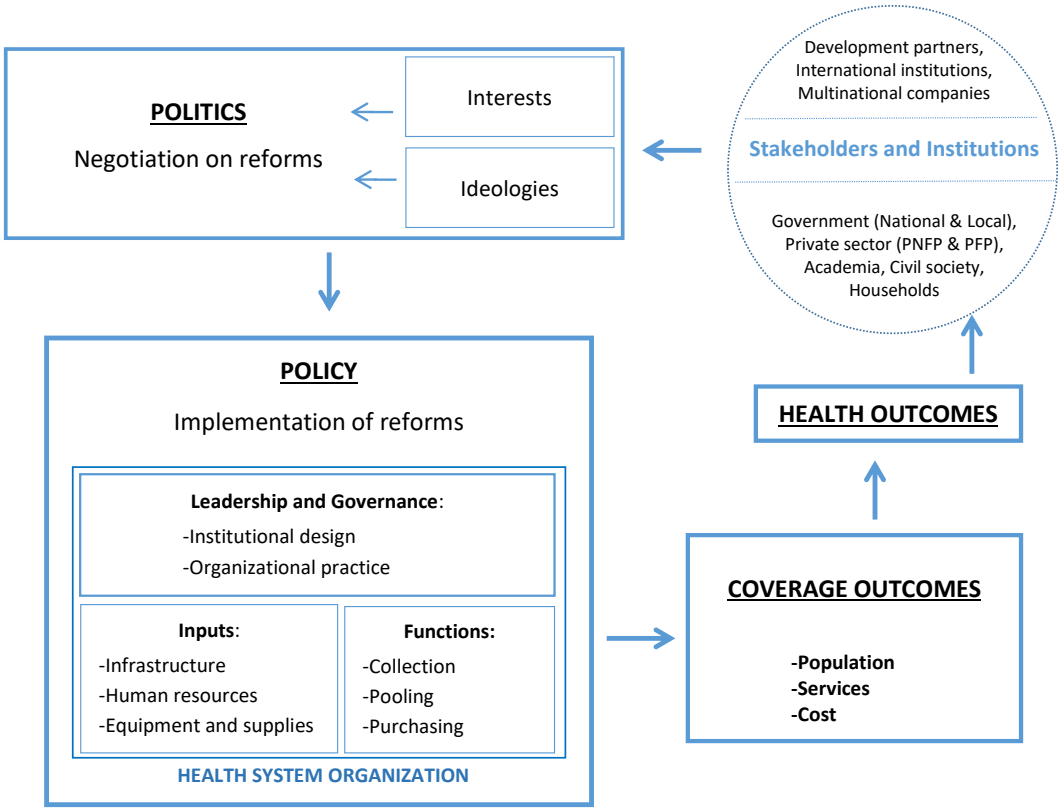
Following this strand of literature, the present investigation advances the debate on the political economy of health coverage by considering the case of Uganda and the country's experience of health financing reforms. Our analysis aims to identify the effects of stakeholders' interests and ideas on the negotiation process behind health financing reforms, and the resulting implications in terms of financial protection enjoyed by the population. A political economy framework is developed and tested in order to disentangle the Ugandan experience. The framework represents the first output of the research, and it

is functional to examine the different spheres which play a role in the political economy process. The investigation is informed by a desk review, and 60 Key Informant Interviews (KIIs) with major stakeholders in the health sector (32 at the national level and 28 in one district)

1.1 Conceptual Framework

Making progress towards UHC requires the convergence of several factors (Hsiao et al., 2014). In order to develop a coherent analysis of the Uganda's experience of health financing reforms, we adopt a political economy framework inspired by existing knowledge about politics and UHC (Shiffman, 2019). Since many different theories have been used to interpret health reforms and underlying political processes, we draw on contributions from several authors in political economy and public health analysis. As noted by Fox and Reich (2015), progress or delay in achieving positive health coverage outcomes strongly depends on the political economy discourse affecting the health system. Indeed, "*countries moving towards UHC face a number of choices, from policy negotiations and decisions to financing and implementation, that are inherently political*" (The Lancet Global Health, 2017, p. 633). The factors driving policy design and policy making for health financing reforms in LMICs are conceptualized in Figure 1. The circular and dynamic feature of the framework indicates the incremental nature of the process, where the spheres of politics and policy are animated by stakeholders' interactions and result in health coverage outcomes (Campos and Reich, 2019).

Figure 1. The political economy of health financing reforms



Source: Author's elaboration

The main actors behind the negotiation process on health reforms ("stakeholders and institutions" domain in Figure 1) include both external players, such as development partners, international institutions and multinational companies, and national institutions such as the government, the private sector, academia and civil society. A country's experience of reforms for UHC and, specifically, for health financing, is largely affected by the role played by the central government (Savedoff et al., 2012); in this respect, the degree of consensus governments manage to build for the reform process is crucial (Schmidt, 2002), as well as the political commitment to allocate considerable resources to the health system (OXFAM, 2013). Within the public sector, visions on policy making are often plural: finance ministries and health ministries who discuss the design of reforms may have conflicting priorities (The Lancet Global Health, 2017). Furthermore, external donors can greatly influence health system infrastructure; in case where they bypass the public sector, they may end up creating an unregulated private market for health services (Stuckler et al., 2010). Finally, active engagement of academia and civil society can contribute to policy

making, implementation, and monitoring for health reforms: collaboration among these actors has the potential to exert collective pressure on governments and other stakeholders for promoting universality and equity in health policy (OXFAM, 2013).

The way these stakeholders inform the politics of reforms (the "politics" domain in Figure 1) depends on their specific interests and ideas: here interests refer to how the benefits of reforms are distributed among actors, whilst ideas concern the main values and ideologies inspiring their vision about policies. Interests and power distribution are traditionally intended as a key factor in the sphere of politics. According to a more recent literature (Chemouni, 2018; Lavers, 2019), ideological values are also important to consider in order to obtain a broader understanding of social protection reforms and the political discourse supporting these policies.

If we consider political negotiations about health financing in LMICs, both interests and ideas have considerable influence on the ensuing reforms. Ruling parties can expand social protection as a means of legitimation to prevent the emergence of political opposition. Experiences in China (Hsiao et al., 2014), Rwanda (Chemouni, 2018), and Ethiopia (Lavers, 2019) are examples of regime legitimacy creation through the expansion of social insurance policies. The development of a comprehensive health insurance system can also be motivated by a desire to reduce financial dependency on donor contributions while increasing domestic resources, as in the case of Malawi (Gheorghe et al., 2019). The incentive of political elections often underlies the decision to implement universalistic reforms in the health sector. This has been the case for Thailand in 2001, Ghana in 2008, and Sierra Leone in 2010 (WHO, 2013a, 2013b). In contrast, commercial interests and lobbying from multi-national companies boost policies in favour of the private health sub-sector (Reich, 2002).

Policy making in the health system (the "policy" domain in Figure 1) requires coordinated action in multiple areas to be conducive for UHC (Hsiao et al., 2014). Health financing is key to ensure the system functions adequately (Barroy et al., 2017; Kutzin, 2013). Mathauer and Carring (2011) argue that two aspects of leadership and governance greatly affect achievements in terms of health coverage: first, the institutional design of rules for resources collection, resource pooling, and purchasing of services; second, the organizational practice and capacity of the system to implement and comply with formal regulation. Moreover, leadership and governance aspects interact with health system inputs (such as infrastructure, human resources, equipment and supplies) to determine the policy outcomes.

This framework helps to disentangle the complexity of the political economy discourse about health financing reforms. To verify whether health reforms bring about advancement towards UHC (the "coverage outcomes" domain in Figure 1), changes in the coverage dimensions of population, services, and costs are usually measured. It is expected that reforms for UHC, while increasing access to essential health services and improving financial protection, ultimately lead to better health outcomes for the population (Savedoff et al., 2012) (the "health outcomes" domain in Figure 1).

1.2 Historical Overview of Health Financing and Reforms

Uganda presents a pluralistic system where service provision is divided among public and private sub-sectors (Nabyonga-Orem et al., 2011). Within a decentralized architecture, districts are responsible for health care delivery, whilst the central government formulates policies and is responsible for supervision (Ministry of Health Uganda, 2010). The country constitutes a valid case study to examine the issue of health care financing; government expenditure on health has been uneven over time (Zikusooka et al., 2009) and lower than that of neighbour countries such as Kenya and Tanzania (USAID and Ministry of Health Uganda, 2016). Currently, health spending indicators and public budget for health are well below the recommended international targets, while sector financing is highly dependent on donor funding and direct payments[1]. The insurance sector is under-developed and contributes little to health financing (Ministry of Health Uganda, 2016)[2]. As in many LMICs, impoverishing effects due to health costs are critical: for the 12 percent of the population, health expenditures represent more than 10 percent of total income (WHO, 2015). Out-of-pocket expenses still represent 42 percent of total health

[1] On average, about 8 percent of public spending was devoted to the health sector between 2012/13 and 2016/17. This is well below the Abuja declaration target of 15 percent (Ministry of Health Uganda, 2017). During the same period, the total health budget as a percentage of GDP has remained about 1 percent compared to a regional average of 1.9 for Sub-Saharan African countries and the international target of 5 percent for LMICs (USAID and Ministry of Health Uganda, 2016). On a per capita basis, between 2012/13 and 2016/17 the government spent US $8 on health, against the WHO target of $34 (USAID and Ministry of Health Uganda, 2016).

[2] Figures from the Ministry of Health (MoH) show that 42 and 43 percent of Total Health Expenditure (THE) respectively were covered by development partners and private funds in 2015/16. In contrast, the public sector contribution only accounted for 15 percent of THE (Ministry of Health Uganda, 2017).

expenditure, and occurrence of financial catastrophes have not declined (Wagstaff et al., 2017; Xu et al., 2006).

Over the last period of political stability, social protection policies in Uganda have exhibited specific features of political economy. As we focus on the last two decades, a recent analysis considers the year 2008 to distinguish among two periods with respect to expenditure allocation criteria (Kjær and Ulriksen, 2017). The first period was characterised by high priority spending on social services in accordance with a national poverty reduction strategy. In the health sector, the principles of decentralisation, primary health care, health system strengthening, community participation and a sector wide approach constituted the chief reforms (Habraken et al., 2017). During the 2001 pre-elections phase, the President launched the "free health care" policy by abolishing user-fees in public facilities, thus helping to improve access to health services for the poor (Nabyonga-Orem et al., 2011).

The second period of expenditure allocation began in 2009 and reflects a new development strategy firmly centred on the goal of achieving higher economic growth. The government's decision to favour growth-enhancing sectors has involved a significant shift away from social spending and a greater support for infrastructure spending (MoFPED, 2018). At the same time, international actors emphasised the need to strengthen social policies (IMF, 2017). Public expenditure on health began to stagnate and efforts for decentralization, primary health care reforms, and public-private partnerships in health declined (Williamson et al., 2016).

Over the last decade, central government did not devote adequate effort to strengthening the system for service delivery (Nabyonga-Orem et al., 2011). Geographic accessibility continued to improve (Ministry of Health Uganda, 2018)[3], but low domestic revenue flows and modest public budget allocations were not sufficient to meet demand for services (Xu et al., 2006). As a result, the quality of care in government facilities deteriorated, with frequent shortages of essential medicines and poor availability of human resources lowering effective coverage (Ministry of Health Uganda, 2018; Odokonyero et al., 2017; UBOS, 2015)[4]. Given the evident financial weaknesses affecting the national health

[3] The proportion of households living within a radius of 5 km from health facilities raised from 72 in 2010/11 to 86 percent in 2016/17 (Ministry of Health Uganda, 2018, 2012).

[4] For example, in 2013/14, only 45 percent of Health Centre IVs have been found to be functional in terms of availability of Comprehensive Emergency Obstetric Care services (Ministry of Health Uganda, 2015). The density of health workforce, which increased from 0.498 in 2011/12 to 0.710 in

system in recent years, the design of a public health insurance program has been a recurring theme of debate among national stakeholders (Basaza et al., 2013; Zikusooka et al., 2014). However, discussion of a possible National Health Insurance (NHI) scheme is still inconclusive, and no policy reform has been passed into law by the government (Ministry of Health Uganda, 2019).

2. Methods

The analysis draws on two main qualitative research methods, namely a desk review and KIIs with major players in the health sector both at the national and at the district level[5]. The review covers academic writings, policy documents, technical reports, and government policy briefs. We reviewed all available policy documents on the health sector produced in the sector by the central public authority for planning and policy making going back to 1999, when the country started to develop guidelines for national health policy. Indeed, the position of the central government for health financing reforms is expressed in the core documents for planning and policy making in the sector. We consulted academic articles and books, as well as technical reports and background papers by other major stakeholders operating in the health system. Table 1 describes the main documents covered by the desk review (see Appendix 1 for the full list of consulted documents).

2014, remains well below the WHO recommended target of 2.28 health workers per 1,000 people (Odokonyero et al., 2017).

[5] In order to identify the scope of priority setting for health care, finalize the list of key informants and design interview questions, we performed a preliminary research phase by participating to eight workshops with health sector stakeholders at the district level and to two national conferences on UHC in Kampala.

Table 1. Summary list of consulted documents for desk review

Type of document	Authors' category as stakeholders	Institution represented	N documents
Official government documents	Government	Ministry of Finance Planning and Economic Development, Ministry of Health, Uganda Bureau of Statistics	25
Academic article, chapter or book	Development Partners	WHO, BTC, CUAMM	23
	Academia	Academicians from Ugandan universities and foreign academic institutions, independent experts	
Working or discussion paper	Development partners	WB, WHO, UNICEF	18
	Academia	Makerere university, New York university, Manchester university, Ghent university	
	Civil Society	ACODE	
Report	Private sector	Ugandan Catholic Medical Bureau	16
	Development Partners	IMF, WHO, BTC, DFID, USAID	
	Academia	Makerere university, EPRC, Birmingham university, ODI	
	Civil Society	CORDAID, Global Network for Health Equity, Save for Health Uganda	
			Total: 82

Individual interviews targeted firstly major stakeholders involved in health reforms and policy making at the central level: KII participants were purposively selected based on their current or previous roles in the Ugandan health system. In total, we conducted 32 KIIs with national representatives of central government (including both technical and political leaders at the Ministry of Health), private sector and medical bureaus, academia, health development partners from bilateral cooperation and UN agencies, and civil society organisations. Furthermore, we performed 28 interviews in the district of Oyam[6] with technical and political leaders, health providers of public and private facilities, Village Health Workers, and community leaders at the district level. Table 2 provides a summary

[6] The regional health system in Oyam is similar to the rest of Uganda, featuring a wide variety of health providers (Biggeri et al., 2018).

list of the main stakeholders involved in the interviews[7]. Whilst most of these actors are the ones driving policy making for reforms, the position of the general population is represented by the civil society and community leaders at the district level.

Table 2. Summary list of Key Informant Interviews

Level	Stakeholders	Institutions represented	N participants
National	Government	Ministry of Health, National Planning Authority	6
	Private sector	Ugandan Catholic Medical Bureau, Pharmaceutical companies	4
	Development partners	WB, WHO, UNICEF, USAID, DFID, BCT, CUAMM	9
	Academia	Universities and Independent experts	9
	Civil Society	Save the Children, CORDAID, Save for Health Uganda	4
			Total: 32
District	Government	Districh Health Office, District Local Government	13
	Private sector	Ugandan Catholic Medical Bureau	2
	Development partners	CUAMM	1
	Civil Society	Community leaders, Village Health Workers	12
			Total: 28

Ethical issues were set using a protocol on high-level ethical standards and approved by the University of Florence. All respondents were asked to provide informed consent to participate in the study in respect of anonymity, and no ethical concerns arose during the research. Data collection took place during three missions in Uganda between November 2018 and January 2020, and interviews were performed in Kampala and in Oyam district.

Interviews were conducted using semi-structured questionnaires that had been previously tested. The contents of the national stakeholders' questionnaire are the following: stakeholders' function within the health system; major reforms and policies affecting health financing; the role of ideology and power differences in driving change; results in terms of health coverage; the nature current of debates about UHC; and the main

[7] Such categorization does not reflect uniform ideological positions and influence in the negotiation process.

challenges and opportunities for enhancing financial coverage. These topics echo domains in our conceptual framework and enrich the discourse on political economy. The questionnaire used with district-level stakeholders was adapted to investigate access to health services and financial coverage for the population, thus focusing mainly on the sphere of coverage outcomes in the political economy framework. Interviews were conducted in English, audio recorded (with permission from participants), and then transcribed verbatim. Documents and interview transcriptions were coded manually employing selective coding by identifying the central issue of health care financing as the core category of analysis; then we categorized other topics according to domains associated with our conceptual framework. The data relevant to each category was identified and analysed using a constant comparative method, in which single items are systematically checked with the rest of available information in order to triangulate findings and establish sound connections between categories (Pope et al. 2000). While the desk review has been initially functional to inform the early stages of the investigation, depicting the historical overview of reforms, it was then used throughout the following phases of the investigation. Indeed, after concluding data collection, we systematically integrated evidence from the KIIs with the findings from the desk review. We acknowledge some methodological limitations to this study. First, given the great diversity of actors underlying the political economy negotiation some categories of stakeholders may be underrepresented in the sample of respondents. Second, although this does not hinder generalisability of the main findings, interviews at the local level were performed in one single district. Third, the historical path affecting the political discourse is analysed considering only the last two decades, since we decided to focus on the current implications of health financing reforms.

3. Results

The political discourse surrounding health financing in Uganda is animated by multiple actors and we analysed their position and role with respect to key reforms for improving financial protection such as the abolition of user-fees and the potential implementation of a NHI scheme. Following the line of reasoning illustrated in our conceptual framework, we present the main findings by referring to the domains of "stakeholder and institutions"," politics", and "policy" for health financing reforms as depicted in Figure 1. Findings from interviews at the district level shed more lights on the

domain of "health coverage outcomes" and, specifically, financial protection for the general public.

3.1 Stakeholders' Position in the Health Sector

After user-fees abolition in 2001, the government only increased per capita health expenditure marginally, while public investments to enhance health care delivery have been inadequate (Nabyonga-Orem et al., 2011; USAID and Ministry of Health Uganda, 2016). Over the last decade, efforts to decentralise health care delivery at the district level lost momentum (Ssennyonjo et al., 2018) and, according to several KIIs, central government did not provide clear guidance about health system reforms and services provision, although it is responsible for policy formulation.

In recent years, the Private for Profit (PFP) sub-sector has expanded substantially. Low quality health care in public hospital and health centres has partly contributed to the higher utilization of PFP facilities (Zikusooka et al., 2014). However, the lack of common regulation of quality standards and pricing raises concerns about the fragmentation of the health care landscape (Nabyonga-Orem et al., 2011). The collaboration between private and public institutions was less vibrant over the last decade, and financial contributions from the government to the Private not for Profit (PNFP) sub-sector experienced a decline (Ssennyonjo et al., 2018).

Considering the position of development partners, poor accountability for large sums of money involving the Ministry of Health has led to important changes in the form of support for health initiatives (Steurs, 2018). During the late 2000s, a shift occurred from budget support to vertical programs with poor coordination and weak system strengthening (Habraken et al., 2017). Nonetheless, programmes and initiatives driven by development partners continue to play a central role for health care financing and services provision (Ministry of Health Uganda, 2017).

Looking at the role of other stakeholders, there is a consensus among many KIIs that the available evidence produced by academia does not currently influence the process of policy making in the health sector to any real extent. Some informants argue that, in the foreseeable future, the development of strategic plans within the SDGs framework will make the role of academia more relevant. Indeed, several universities and research institutions have been engaged in producing a country-specific roadmap towards UHC to orient policies for the health system (SPEED, 2017). At the time of KIIs at the national level (January 2019),

the process of roadmap definition was ongoing, and this assumed a more prominent role of the Makerere University School of Public Health within the national debate on health financing reforms.

KIIs indicated that civil society organisations also contribute to the evidence base on health sector practices and have repeatedly called for additional investment and effort to be directed towards health care. Although civil society often creates partnerships with donors, governments and local communities (Razavi et al., 2019), many respondents argue that support for specific initiatives did not translate into influential negotiation power to affect the overall process of decision making at the national level.

Finally, we focus on the position of the community within the functioning of the health financing system. A significant proportion of the population continues to bear a large financial burden for out-of-pocket health expenditures, which are likely to lead to disparities in access to quality health services (Kwesiga et al., 2015; USAID and Ministry of Health Uganda, 2016). While involving the local community is vital for Primary Health Care effectiveness and the achievement of UHC (Allotey et al., 2019), several informants believe that the dominant approach is still oriented towards curative services and considers households as mere recipients of health care. As pointed out by a recent study (Razavi et al., 2019), the general public is largely excluded from policy design and decision making at the district level.

3.2 Politics for Health Financing

Table 3 summarizes the main findings about health financing for the politics sphere, highlighting differences in influence among actors and their respective contributions in terms of interests and values that help shape policy outcomes.

Table 3. Stakeholders' position for health financing reforms

STAKEHOLDERS	Influence	Interests and values	Implications for policy making
Central government	Weak guidance for reforms and lack of political will to be the first player in the sector	Productive sectors and market expansion as strategic priorities	Poor leadership in the sector; expansion of health facilities infrastructures without proper functionality
Private sector	Strong economic power	Market supremacy	Development of PFP sub sector without effective regulation
Development partners	Important financial contribution and influence	Fragmented preferences of single donors	Vertical programs without harmonization
Academia	Potential increasing influence in the negotiation process	Evidence-based approach	Not yet systematic use of evidence for policy design and policy making
Civil society and population	Low influence in the negotiation process	Participatory bottom-up approach	No systematic engagement of civil society and population

The commitment of central government to the health sector has changed over the last decade, as demonstrated by the stagnant pattern of public health expenditure in terms of percentage of GDP (Ministry of Health Uganda, 2017). A significant increase in competition within the political landscape and new leadership at the Ministry of Health may have contributed to a shift of national priorities from social services to productive sectors (Kjær, 2015; Ssennyonjo et al., 2018). Most representatives of the central government expressed the idea that devoting efforts to infrastructure will lead to positive spill-over effects on health, since expansion of infrastructures is considered as an enabling condition to progress towards UHC[8]. In this sense, different priorities are not conceived as mere alternatives. A stakeholder from the Ministry of Health argues[9]:

> *"The Ministry of Health is not the only responsible for health: social determinants of health are beyond this sector, and if we do not address social determinants many causes of diseases such as safe water, housing, personal behaviours are neglected.*

[8] For example, geographic accessibility to health services improved after great efforts to build new health facilities.

[9] KII, Kampala, February 25, 2019.

We believe that promoting a multisectoral approach will allow the country to record faster progress towards UHC."

According to most respondents, there is a lack of consistent political commitment at the central level to enforce and strengthen public health service delivery and, specifically, tension exists between the Ministry of Finance and the Ministry of Health concerning strategic policy making for health care. A representative of development partners explicitly states that the government has currently no interest in being the first player for the provision of health services and, thus, for health care financing. Consequently, development partners unanimously believe that health services have deliberately been delegated to them, who heavily finance the sector.

Many key informants reiterate the common opinion that, over the last decade, much more scope than before has been given to market forces on the one hand, and to development partners on the other. Accordingly, a recent analysis of health care financing in the country attributes the drop in public funds to the crowding out effect of external subsidies (USAID and Ministry of Health Uganda, 2016). As expressed by a national academic, the presence of external donors creates a disincentive for central government to invest in the health sector:[10]

"Maybe there is a side effect: as donors' funds increase, government responsibility for health reduces, so you don't see sufficient increase in the public budget as [it might be] expected."

Several participants affirm that the presence of international donors is particularly important in specific areas, such as tackling Malaria, HIV and TB. The vulnerability of Uganda to fluctuations in development partners' contributions is recognized in some studies (CORDAID, 2011; Shiffman, 2008; USAID and Ministry of Health Uganda, 2016; Zikusooka et al., 2014).

The private sector is also expanding its influence over services delivery. The strategic goal of promoting national economic growth is reflected in the health sector

[10] KII, Kampala, February 22, 2019.

through renewed emphasis on market expansion (Zikusooka et al., 2009). As a result, inequalities in access to services are increasing (USAID and Ministry of Health Uganda, 2016), while market forces tend to advantage those who are better placed to afford health. One independent expert declares[11]:

> *"The shift […] is towards those who are economically powerful: the rich now have a greater voice in policies. […] Responding to investors in the sector, [and] responding to those who have money has become more important than having service coverage for those who need it most."*

Whilst the influence of the PFP and development partners for health financing and policy design is increasing, the relevance of civil society and general public for policy design is still minimal, as confirmed by a district-level stakeholder analysis (Razavi et al., 2019). Similarly, many respondents observe that the current involvement of academia in the negotiation process does not translate into systematic use of evidence to inform reform processes. However, the SPEED initiative which directly involves the universities into the definition of a roadmap for UHC in the country represents a factor of optimism for the future.

3.3 Implications for Policy Reforms

In terms of the evolution of major reforms for health care financing, the values and interests of the most influential stakeholders have driven the negotiation process concerning policy design and implementation. In 2001, the President launched the "free health care" initiative as part of political discourse regarding key reforms. According to several analyses, the vision of universal access to basic health care was intended to legitimise the government during a period of transition to a multi-party system of governance (Ssennyonjo et al., 2018; UNICEF, 2018). Similarly, many respondents argue that the ideological position of "free health care" was motivated by political gain of the elite

[11] KII, Kampala, February 27, 2019.

who had interest to maintain the status quo in a landscape of increasing political competition.

After the change in the government strategic vision, the dominant ideology became the supremacy of market forces. Meanwhile, discussions on the reform of NHI remained inconclusive and members of parliament have not yet achieved agreement on the design of a possible scheme (Odokonyero et al., 2017). A prepayment mechanism involving financial contributions from users would contradict the promise of "free health care" and, according to many KIIs, the President is apparently reluctant to implement this reform. The ambiguity between the "free health care" slogan and the design of NHI remains thus crucial for health financing reforms and heavily influences the political decision-making process (Basaza et al., 2013).

Most informants from the central government suggest that the negotiations process for NHI is delayed due to the conflicting commercial interests of private companies and basic misunderstandings of insurance principles by formal sector employees. Public policies in the country are often designed to retain support from prominent factions (Kjær, 2015). In the case of NHI, political incentives are provided by private companies and trade unions to refrain from implementing a comprehensive scheme covering the whole population (Basaza et al., 2013). On one side, the private sector fears competition between social health insurance and commercial schemes; on the other side, trade unions are concerned about payroll deduction from workers' pay. Furthermore, after corruption scandals in the public sector, these actors have doubt about the government capacity and transparency in implementing a unique national scheme (Barya 2011). The process to design the NHI scheme failed to create ownership among the main players in the private sectors and the lack of backing from these stakeholders protracted the discussion (Basaza et al., 2013). In other words, poor stakeholder's engagement appears to be a critical factor both for the decision of user-fees abolition, which has not been discussed within a health sector forum, and for the ongoing and inconclusive debate about NHI.

Overall, conflicting interests, ideas, and perceptions about insurance do not create favourable ground for cultivating a consensus on the design and implementation of a national insurance to improve financial protection. Including the informal sector within the health financing system represents a relevant issue. Although participants from civil society and the PNFP sub-sector have less voice than other stakeholders, they advocate active involvement of the community within the health system. The idea of financing health care in a sustainable way and, meanwhile, empowering the demand side is reflected in the design of Community Based Health Insurance (CBHI) (Soors and Devadasan, 2010). This model

aims to provide financial protection to individuals in the informal sector. Interest in CBHI is increasing in Uganda[12], but the implementation of single schemes remains highly fragmented in the absence of an overall public insurance programme at the national level (Nshakira-Rukundo et al., 2020).

In conclusion, the current political negotiation process for health financing reforms is failing to harmonize interventions driven by individual stakeholders: development partners are mainly financing vertical programs, whilst the public sector, PNFP and PFP sub-sectors are not yet coordinated to contribute to a unique system for resource collection, pooling and services provision. In other words, both institutional design and organizational practices to guarantee the adequate functioning of the system are not yet favourable for expanding financial coverage in an equitable manner.

3.4 Consequences for Coverage Outcomes and Financial Protection

Given the lack of comprehensive and equitable health financing reforms at the national level, outcomes in terms of population, services and costs coverage are not improving. As we consider a rural and informal setting (Oyam district), the political economy discourse results into a generally low financial protection at the local level. Most interviewees in the district argue that impoverishing effects due to health expenditures are becoming more frequent over recent years as the private sector expands without adequate regulation and the public sector is not able to offer adequate quality of care[13]:

> *"The main concerns about accessing health care are, on one side, the poor availability of drugs and medicines in public health centres and, on the other side, the [lack of] affordability of services in private clinics."*

[12] Several recent studies in Uganda are focused on CBHI schemes (Biggeri et al., 2018; Cecchi et al., 2016; Nshakira-Rukundo et al., 2020). Furthermore, a National Conference on Community Health Financing takes place every year in the country since 2016 (Save for Health Uganda 2016; 2017; 2018; 2019).

[13] KII, Oyam, January 21, 2020.

Given such difficulties, some community representatives observe that the spirit of solidarity among the population in rural area is high, and the practice of risk-sharing for health expenditures is quite widespread[14]:

> *"Community members use to support each other during illness, providing in-kind and monetary gifts. This spirit is stronger in remote areas where utilising health services is really challenging."*

Health providers stated that sometimes community groups bring their pooled contributions to pay user-fees for admitted members. However, evidence from a specific study in Uganda (Basaza et al., 2007) shows that the absence of a coherent policy framework prevents these informal mechanisms from operating as a functional scheme of social protection. Furthermore, some authors (Nshakira-Rukundo et al., 2020) pointed out that the poorest remain excluded from this informal safety-net since they cannot afford to join community groups. The fact that solidarity regards only members of defined groups implies an important equity concern, since risk-sharing practices bring advantages only for those who share a common identity. Consequently, caution is needed when considering the potential role of these informal practices for health financing: spontaneous initiatives by the population require to be channelled through a solid legislative framework in order to effectively contribute towards a comprehensive scheme of financial protection.

We can interpret the rationale to rely on informal networks for coping with health expenditures as partly due to the delay to implement effective national reforms for financial protection. Indeed, the population in the informal sector is not supported neither by the government nor by the private sector to improve coverage outcomes.

4. Discussion and Concluding Remarks

The introduced framework and the main findings allow us to disentangle the dynamic and incremental process of political economy for health financing reforms in Uganda, and to interpret the current level of financial protection for the population. Whilst

[14] KII, Oyam, January 23, 2020.

transition towards UHC requires "*several essential forces […] to mature and come together*" (Hsiao et al., 2014, p. 24), we contend that political conditions are currently delaying an effective expansion of financial coverage for the population.

The negotiation process for health financing reforms is characterised by divergent ideologies concerning health care as well as conflicting interests. In recent years, central government has not regarded social services and, in particular, health care, as a strategic priority, and the ensuing public budget remained stagnant. On the other hand, development partners and private institutions are gaining influence within the sector. In contrast, academics and civil society have at the moment weaker voices within the national debate on health financing.

The dominant ideology of market supremacy and the regime's strategic vision to transform Uganda into a middle-income economy has added to an unfavourable background for designing and implementing a comprehensive insurance scheme. The central government has not solved the dichotomy between the slogan of "free health care" and the planned reform for NHI. Important stakeholders have not been adequately engaged into the process of reform design, and a broad consensus about NHI has not yet been reached. Consequently, an extremely fragmented and inequitable landscape for health financing remains in place, with weaknesses in terms of service delivery and harmonization of interventions undermining the capacity of the system to improve coverage outcomes.

Finally, we identify two enabling factors that provide positive stimulus for advancing the political process behind health financing reforms. Whilst the scope for this political process is national, the two factors originate, respectively, from the international arena and from the local community background. First, the 2030 Agenda is creating strong momentum towards UHC that can be exploited at the national level to unlock the negotiation process for a comprehensive scheme of financial protection. The mission to promote a broad access to essential health services without suffering financial hardship needs to be translated into national-level reforms for health financing: in this sense, the global community can exert pressure on the central government in order to clarify the ambiguity between the "free health care" policy and the inconclusive debate on NHI. The political process to define the national strategy for the goal of UHC also constitutes the opportunity to create an effective platform of dialogue and discussion between national partners from different sectors (such as the private sector and the academia). Second, another stimulus comes from bottom-up leverage involving the population and, in particular, the informal sector through community-based initiatives aimed to expand the practice of risk-sharing for health expenditures. Increasing collection and pooling of

prepayment contributions and promoting an active role in the health system for linking the demand and supply-side of health care represents a promising opportunity to expand financial coverage; however, this architecture for health financing can be sustainable and efficient only if coordinated by a multi-level governance (Biggeri et al., 2018). In other words, if efforts by the community represent an important boost, poor stewardship by the government does not permit to effectively advance towards UHC. Engagement of the civil society and the general public can bring important advantages to health system strengthening, but this requires a clear political will and does not imply a shift of responsibility away from the central government.

To conclude, this analysis contributes to the emerging literature on the political economy of health sector reforms in LMICs. The study highlights key political factors that influence the context-dependent trajectory of Uganda for health financing reforms. By interpreting the various factors driving negotiation processes for health care financing and the resulting consequences on the population, we have shown why Uganda exhibits slow progress for achieving UHC and widespread financial protection.

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APPENDIX 2. Topic guide for Key Informant Interviews

The political economy of Universal Health Coverage in Uganda

This research is organised by the University of Florence.

Objective

Our research aims to document and analyse Universal Health Coverage and accessibility to health services in Uganda. We would like to ask you some questions about the general situation of health service coverage in the country, and issues related to health financing.

Consent form

- Your participation is entirely voluntary. You may refuse to take part in the interview, and you may stop at any time if you do not want to continue.
- The time it takes to complete the interview will vary depending on your answers (approximately 30 minutes).
- All information collected for this evaluation will be kept strictly confidential.
- Your personal details will be kept on our records in order that you can be re-contacted for further questions or for other evaluation purposes.

For any additional information you might need, please contact us.

Best regards,

Maria Nannini (maria.nannini@unifi.it)

Name and surname of interviewee:
Name of organization:
Position / role within the organisation:

Q1. During the last 20 years, what have been the **most relevant changes/reforms** in the national health system to improve accessibility to health services by the population?

Q2. During the last 20 years, how has been the **trend in financing** the health sector (contribution in terms of public funds, development partners' funds, private funds)? How is the **current situation**?

Q3. What has been the **role of your organization** within the national health sector and how did the role evolve over time?

Q4. Health coverage is usually measured according to 3 **dimensions**: population, services, and costs. Which of these dimensions do you think are better covered in Uganda and which need further improvements?

Q5. Have **ideology and dominant values** contributed significantly or not to determine the current situation in terms of accessibility to health service and financial protection? If yes, in which way?

Q6. Have **political interests** of main stakeholders involved in the health sectors contributed significantly or not to determine the current situation in terms of accessibility to health service and system financing? If yes, in which way?

Q7. Do you think the decision-making process for health financing reforms is affected **by bottom-up forces** (population/civil society demand as important stimulus)?

Q8. Do you see a change in the **current debate** about health coverage and financial protection in Uganda? If yes/no, why so?

Q9. Looking forward, what are according to you the **main barriers** that are going to prevent the expansion of health coverage in Uganda?

Q10. Looking forward, what are according to you the **leverage points/enabling factors** that will potentially stimulate the expansion of health coverage and financial protection in Uganda?

Q11. Overall, are you **optimistic or pessimistic** about the achievement of UHC in the next 10 years in Uganda?

Thank you!

CHAPTER 2

Exploring the Role of Social Capital for Health Care Utilisation: Evidence from Rural Uganda

ABSTRACT

An important relation exists between social capital and demand for health services. However, quantitative evidence on social capital activation to utilise health care is still limited. This paper aims to analyse the role of social networks to facilitate access to health care. A case study in rural Uganda is examined using primary household data. Social network analysis and logistic regressions explore social capital characteristics and correlation with the risk of financial hardship due to health costs. The descriptive analysis shows that the extended family and contacts beyond the village are important to facilitate health care utilisation. Networks are heterogeneous and particularly weak for specific households. Moreover, regressions indicate that the risk of financial hardship is higher among those reporting less robust networks. In conclusion, the analysis argues that role of social capital is crucial for expanding health coverage: targeted interventions could envisage the potential role of social networks as a valid driving mechanism to enhance services utilisation.

KEYWORDS: Social Capital; Social Network Analysis; Health Care Accessibility; Uganda.

1. Introduction

The concept of social capital has become increasingly important in health research (Harpham et al., 2002; Hawe and Shiell, 2000), and the application of network methods gained recognition in this field (Luke and Harris, 2007). Social capital strongly depends on the resources that individuals or groups are able to mobilize through their social relationships[15] (Moore and Kawachi, 2017). Following this conceptualisation, here we use the notion of social networks to indicate the main structure of social capital creation. Social networks are found to present a significant association with mortality rates, general well-being, and specific physical and mental health disorders (Goldberg et al., 1985; Kawachi & Berkman, 2000; Kef et al., 2000; Parra et al., 2011; Pinillos-Franco and Kawachi, 2018; Savage and Russell, 2005; Ziersch, 2005). Further to directly affect health and well-being, social capital can be considered as an asset to be leveraged during illness and the network architecture can provide compensatory resources that are accessed at times of need (Ayé et al., 2002; Cohen and Wills, 1985; Goudge et al., 2009). In this sense, social capital influences demand for health services through multiple pathways (Berkman et al., 2000). Social networks can ensure material and immaterial resources to access health services, thus shaping health-seeking behaviours (Amoah et al., 2018; Woolcock and Narayan, 2000)[16].

In low- and middle-income countries (LMICs), where government resources devoted to the health care system are limited, local communities often rely on informal networks that provide financial, informational and emotional support to access health services (Deri, 2005; Hollard and Sene, 2016; Kawachi et al., 1999). In these contexts, analysing social capital and social networks at the local level is relevant to complement the health care system analyses and to better understand health coverage outcomes. While a strand of literature focuses on the relationship between social capital and health in LMICs (Adams et al., 2002; Amoah et al., 2018; Ayé et al., 2002; Bakeera et al., 2009; Di Falco and Bulte, 2013; Goudge et al., 2009; Hollard and Sene, 2016; Mladovsky et al., 2014; Moore et al., 2018; Pronyk et al., 2008), network analyses in these contexts are mainly focused on health outcomes rather than on service accessibility, and evidence is limited in regard to

[15] According to Bourdieu (1986), the extent and benefits of network connections define the volume of social capital possessed by each agent. Similarly, Putnam refers to social capital as "*the features of social organizations, such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit*" (Putman, 1995, p. 664-665).

[16] See Derose and Varda (2009) for an exhaustive literature review on the relation between social capital and health, including the theoretical background description.

specific pathways by which social capital and networks influence health-seeking behaviours and coping strategies in response to illness.

Our work draws on the conceptual model developed by Berkman and colleagues (2000) exploring how social networks influence health. The model shows that social capital operates at the behavioural level for health care utilisation and health financing. Specifically, four primary social capital pathways which impact health are identified: provision of social support; social influence; social engagement and attachment; and access to resources and material goods. Social capital is thus embedded into a larger process affecting health behaviours, with critical domains to be considered, as well as specific structural characteristics. Following this approach (Berkman et al., 2000; Moore et al., 2018), we focus on the first pathway category, namely provision of social support, and analyse the complexity of social networks according to the different roles played by network members and the types of contacts in the network structure. Interactions are multifaced and can vary according to geographical proximity, functional roles, and relationship quality (Antonucci et al., 2010).

The provision of social support, reflected into the networks structure, regards various aspects and, in this sense, a multifaced perspective is here adopted to analyse the facilitating role of social capital to access health care in the context of rural Uganda. Scholars pointed out the crucial role played by social resources and informal networks for health care utilisation among Ugandan households (Bakeera et al., 2009; Ekirapa-Kiracho et al., 2017). Other studies in Uganda found significant association between the level of social capital and the decision to enrol into health insurance (Cecchi et al., 2016; Nshakira-Rukundo et al., 2019). The present paper contributes to the existing literature by studying the relevance of social capital in

i) overcoming barriers to health care utilisation and

ii) coping with financial hardship due to health expenditures.

The analysis is based on primary household data from a rural district and relies on two main methods of investigation. First, a Social Network Analysis (SNA) describes the structure of social networks that households activate to utilise health services. Second, logistic regression models allow us to verify whether social capital is significantly associated with the risk of financial hardship due to health expenditures. The evidence generated by this study originates from an innovative methodology and constitutes a valuable contribution to advance knowledge on the central role of social capital in accessing health care. Our findings on the structural features of health-related networks in a rural and informal setting allow policy makers to identify barriers related to social determinants of

health which prevent expansion of health care coverage. In this sense, documenting social support characteristics and exploring the implications for utilisation of health services contribute to inform public health policies.

The paper is structured as follows: section 2 describes the methodology of the study. Section 3 provides a presentation of the main results, while in the last section a discussion about the most important findings and some concluding remarks are reported.

2. Data and Methods

2.1 Study Setting

The present research takes place in the rural district of Oyam (Uganda). The area counts an estimated population of 426,200, and, as in the rest of Northern region, subsistence agriculture and pastoralism represent the main economic activities for the local community (UBOS, 2014). Due to a long post-conflict period, this territory records lower coverage outcomes for maternal health services than those at the national level (Wilunda et al., 2015). Moreover, financial obstacles to health care utilisation are still critical for the local population (Biggeri et al., 2018). Therefore, the district constitutes a solid case study with analytical relevance regarding access to health care by the local community.

2.2 Sampling Design and Data Collection

The study is based on a cross-sectional household survey performed in the district in January 2019. A power analysis allowed us to determine the required sample size to investigate accessibility to health care in this setting[17]. In order to examine social networks among households, a cluster of population living in two distinct villages has been targeted. We decided to consider two units rather than solely one population cluster in order to verify

[17] The share of households who experienced health problems during the six months preceding the survey is an extremely relevant variable to capture essential information for our analysis. Knowing that 97.0 percent of families reported a health problem among household members during the considered period (Biggeri et al., 2018) and fixing the maximum error at 2 percent, the power analysis pointed out a minimum sample size of 120 households. Using alternative socio-economic variables in the power analysis, such as the employment status of the household head or the land size of the household, the required sample size raised to a minimum of 195.

whether the main network characteristics are repeated within the two villages. The survey covered all the households residing in these villages in order not to remove any sample units from their social context and, thus, to obtain a quite complete picture of the existing networks at the community level. The two villages have been selected using a multiple-stage sampling strategy. First, the analysis proceeded with the selection of two sub-counties (out of a total of twelve sub-counties in Oyam district) presenting similar socio-economic features and comparable distances from the main district health care facilities, namely the health centre IV and the referral hospital, and from the main asphalted road[18]. Second, a group of villages with a comparable population size ranging between 90 and 110 households was identified using the district census records; this criteria was applied in order to compare network structures with population densities similar to the average population per village[19]. Finally, two among these villages (one in each sub-county) were randomly drawn. Figure 1 shows the position of Onyapoyere (Village 1) and Telela (Village 2). All the households living in these villages, specifically 100 in Village 1 and 106 in Village 2, were interviewed. In total, the survey gathered information from 206 households and 1025 individuals.

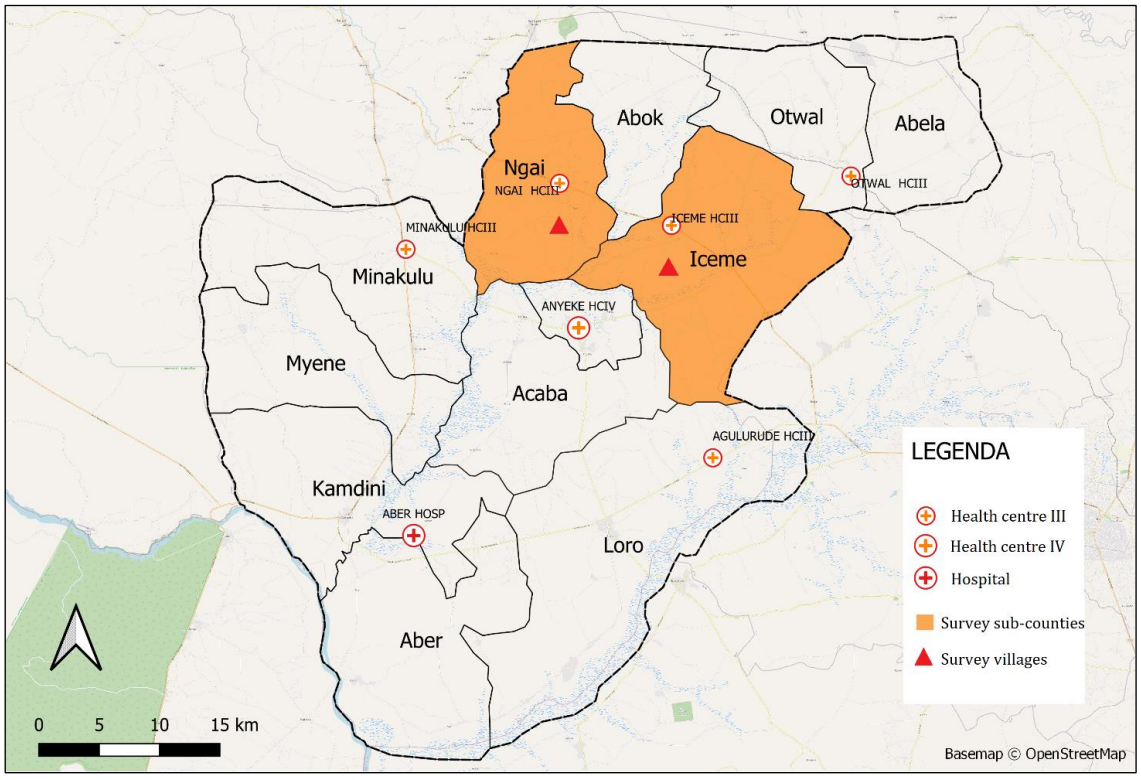
A structured questionnaire was developed to conduct the household survey and pre-tested in the field. Trained enumerators administered the questionnaire using smart devices and collecting a wide range of information both at the individual and household level. A specific module for social networks allowed to investigate the relationships and connectivity links among households in relation to health-seeking behaviours. Written informed consent was obtained from each respondent[20], and the Uganda National Council for Science and Technology provided ethical approval to conduct the survey.

[18] The two sub-counties are neither among the richest nor among the poorest sub-counties of the district. The average distances from health care facilities and from the main road belong to an intermediate range between the nearest and the most remote locations in Oyam.

[19] After removing the smallest villages, the average population per village was 96 households. Thus, 52 villages out of a total of 107 were selected in one sub-county; 61 villages out of a total of 119 were selected in the other sub-county.

[20] The respondent was the household head or, alternatively, another adult household member.

Figure 1. Map of Oyam district with the two sampled villages



Source: Authors' elaboration

2.3 Social Network Analysis

A SNA was developed to describe the characteristics of social networks that households activate to utilise health services and their differentiation according to specific population categories. Following the main literature on network survey design in the field of health (Moore and Kawachi, 2017; Morris, 2004; Valente et al., 2010), we used data on connectivity links to trace the health social network during time of illness. This network concerns contact persons who provide support to the household for accessing health services. The structure of the social network is composed of a) the type of support provided, b) the intensity of the interaction, c) the relationship with the contact person and d) the physical proximity to the contact person. The types of support include receiving informational support; emotional support; agricultural support; monetary support; transport support; and support for treatment and drugs. For each of these dimensions the respondent was asked to indicate up to five persons usually contacted during times of need. Informational and emotional support represent immaterial resources for health needs

while the other dimensions provide different forms of material support. To compare the health social network with a reference social capital network, participants were also asked about their usual visit relationships among households during normal periods. The intensity of these interactions was measured according to a Likert scale ranging from 1 (very low) to 5 (very high). To capture the existing relationship between network members, respondents had to classify each listed contact into six possible categories (namely, relative, neighbour, friend, community leader, health staff, and boda-boda moto taxi driver). Information about physical proximity was obtained by recording the residence place of each contact. Thus, complete networks with directed edges were mapped for the two villages, knowing for each household how many inward and outward relationships are activated. Networks were disentangled according to the structure characteristics and for different population sub-groups. Gephi software allowed us to systematically measure network statistics and to build illustrative network graphs.

2.4 Regression Model

Following the approach of Leive and Xu (2008), logistic regressions were employed to examine factors associated with the risk of financial hardship (Equation 1).

$$\text{Log}\frac{\Pr(Financial\ hardship=1)_i}{1-\Pr(Financial\ hardship=1)_i} = \alpha + \beta\, SC_{\boldsymbol{i}} + \gamma\, H_i + \varepsilon_i \qquad (1)$$

where *Pr* expresses the probability that a household *i* experiences financial hardship; SC_i indicates the level of social capital enjoyed by the household, H_i is a vector of other household control characteristics, and ε_i is an error term. It is important to note that the model was applied to households who reported illness and out-of-pocket expenditures during the 30 days preceding the survey (178 observations out of 206).

Table 1 describes the variables included in the regression analysis. The dependent variable for financial hardship refers to the coping strategies adopted to meet out-of-pocket health expenditures (Kruk et al., 2009), while the variable of interest for social capital considers the extent of respondent's personal network and it is measured by three alternative network characteristics. Thus, three alternative regression models were run using different network measures. In Model 0, weighted outdegrees represent the number of contacts activated by the interviewed household weighted according to their intensity;

this measure is related to the reference social network for usual visits. In Model 1, the variable of weighted outdegrees is specific for the health social network. In Model 2, social capital is measured as social inclusion in the health social network. Other control variables were selected referring to the main literature on catastrophic health expenditures and coping strategies to meet health costs (Kaonga et al., 2019; Kruk et al., 2009; Leive and Xu, 2008; Onah and Govender, 2014). Stata software was used to develop the regression analysis.

Table 2. Variables' descriptive summary

VARIABLE	TYPE	CODING	OBS	MEAN	ST. DEV.	MIN	MAX
Dependent var.							
Financial hardship	Binary	= 1 if household members borrow money or sell household's items or increase casual labour to meet health costs	178	0.697	0.461	0	1
Var. of interest							
Weighted outdegree usual visit (Model 0)	Continuous	Number of contacts activated by the household in the reference network for usual visit	206	4.451	2.394	0	16
Weighted outdegree health (Model 1)	Continuous	Number of contacts activated by the household to receive support in the health network	206	15.723	7.927	0	37
Social inclusion health (Model 2)	Binary	= 1 if the household contacts at least 2 persons to receive support in the health network	206	0.796	0.404	0	1
Control var.							
Wealth tertiles	Categorical	Wealth index divided into 3 categories: = 1 first tertile (poor), = 2 second tertile (average), = 3 third tertile (rich)	206	1.976	0.829	1	3
Employment	Binary*	= 1 if the household has at least one additional source of income different from subsistence farming	206	0.325	0.470	0	1
Religion	Binary*	=1 if the household is catholic	206	0.684	0.466	0	1
HH size	Continuous	Number of people residing in the household	206	4.981	2.050	1	11
N shocks	Continuous	Number of negative shocks experienced by the household during the previous year	206	3.515	1.573	0	8
Age HH head	Continuous	Age of the household head	206	43.005	15.736	18	95
Gender HH head	Binary	= 1 if the household head is female	206	0.199	0.400	0	1
Marital status HH head	Binary*	=1 if the household head is married polygamously	206	0.053	0.225	0	1
Literacy status HH head	Binary	= 1 if the household head is able to read and write	206	0.762	0.427	0	1
Residence village	Binary	= 1 if the household lives in Village 1	206	0.485	0.501	0	1

* These variables are treated as binary rather than categorical (more categories are grouped together) since our sample size is too small to allow considering each category separately.

3. Results

3.1 Social Network Characteristics

The SNA allowed us to identify the main structure characteristics of the social networks activated by respondents. As shown in Table 2, the main features do not vary among the population of the two villages[3] and this permits to observe similar patterns with respect to social capital activation. Considering the density of the overall health social network, every household is engaged into an average of 4-5 support relations during illness. Informational support, in particular, mobilizes alone the highest number of relationships. Emotional support and financial support are also relevant in the health social network, followed by material support for treatment and drugs and for transport arrangements. On average, relationships activated for agricultural support during illness are less numerous than for other dimensions. Most contacts live outside the surveyed villages, and involve relatives, followed by friends, health staff, and neighbours.

[3] We verified that no statistically significant difference affects the measures of network structure for the two villages.

Table 3. Social network structure by village

	VILLAGE 1	VILLAGE 2
NETWORK SIZE AND TYPE OF SUPPORT	**Mean N of personal contacts**	**Mean N of personal contacts**
Reference social network: usual visit	1.6	1.8
Health social network		
Informational support	1.25	1.56
Emotional support	0.99	1.20
Agricultural support	0.89	0.88
Monetary support	1.02	1.15
Transport support	0.70	0.86
Treatment and drugs support	0.77	0.81
PHYSICAL PROXIMITY (health social network)	**Percentage**	**Percentage**
Contacts living within village	39.27%	36.55%
Contacts living outside village	60.73%	63.45%
	100%	100%
RELATIONSHIP WITH CONTACT (health social network)	**Percentage**	**Percentage**
Relative	42.15%	42.65%
Friend	20.94%	18.91%
Neighbour	11.78%	12.82%
Community leader	0.52%	4.83%
Health staff	18.33%	16.18%
Boda-boda driver	6.28%	4.62%
	100%	100%

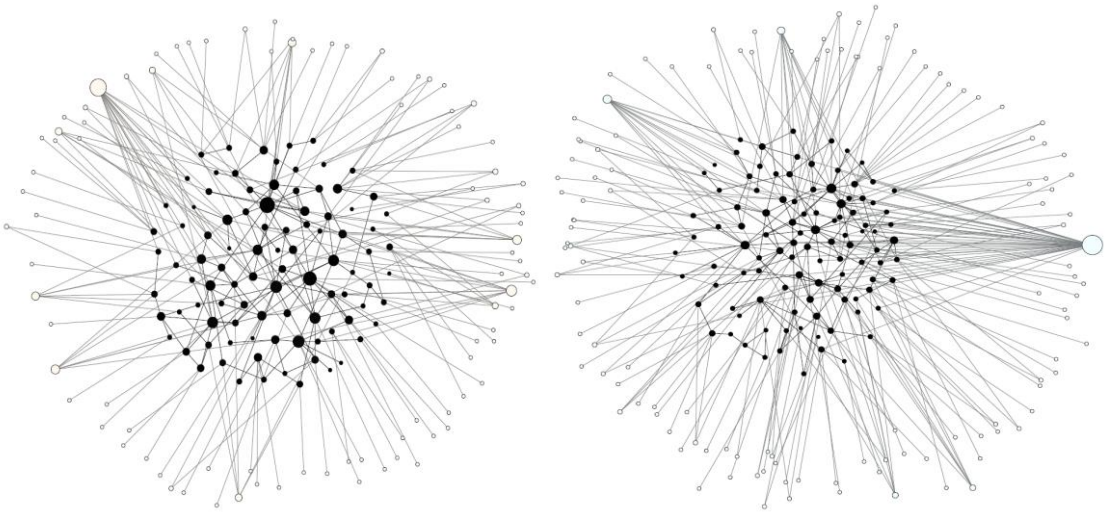
As the health social network is disentangled considering the type of support and different relationship among contacts (Table 3), the crucial role played by the extended family in providing help for accessing health care is more evident. Relatives are the most frequently contacted persons when asking for informational, emotional, agricultural, and monetary support in case of illness. Health staff and boda-boda drivers, not surprisingly, are essential to provide material support for treatment and transport arrangements, respectively.

Table 3. Health social network: type of support and relationship with contacts

	TYPE OF SUPPORT					
	Informational support	Agricultural support	Emotional support	Monetary support	Treatment & Drugs support	Transport support
RELATIONSHIP WITH CONTACT						
Relatives	48%	47%	69%	47%	7%	34%
Friends	30%	32%	14%	32%	1%	8%
Neighbours	15%	20%	8%	16%	2%	15%
Community leaders	6%	1%	2%	4%	0%	1%
Health staff	1%	0%	6%	1%	89%	0%
Boda boda drivers	0%	0%	1%	0%	1%	42%
	100%	100%	100%	100%	100%	100%

Looking at graphical representations of networks, Graph 1 outlines the health social network mobilized by village residents. Nodes are households and lines are relations activated by them. Specifically, black nodes are interviewed households in each village, and white nodes are households/individuals living in other villages who are involved in the relations. The size of each node is proportional to its degree centrality[1], thus the extent of its personal network. Here the importance of social interactions outside the village is evident at a glance, since the great majority of interviewed households (black nodes) are involved into relations with individuals who are not resident in the same village (white nodes).

Graph 1. Health social network: all contacts



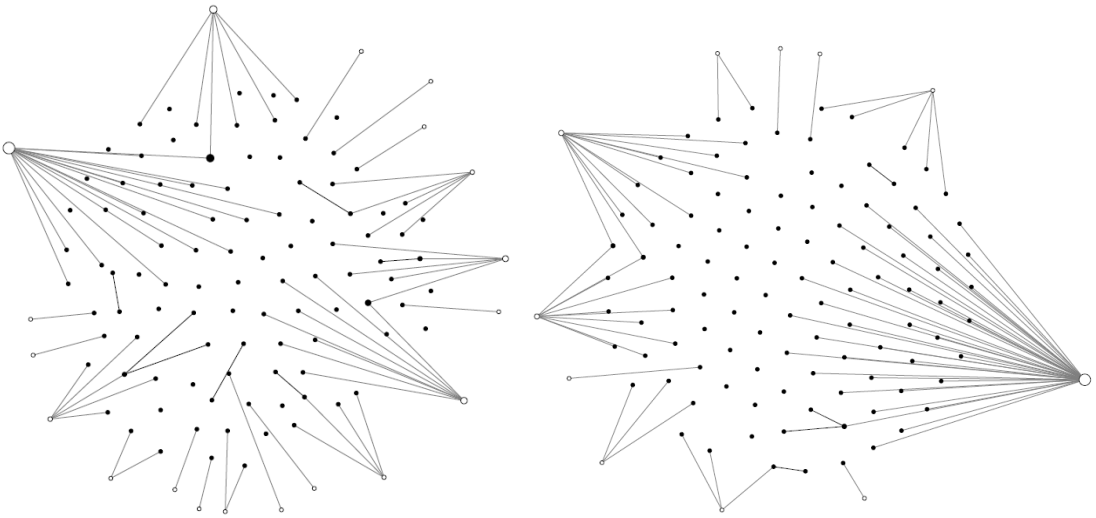
Village 1 **Village 2**

The mobilization of social relationships, however, is peculiar to the specific need of the household. In other words, the networks activated for different dimensions of social support do not present a common structure. For example, households contact few experts (health staff outside the village) to receive treatment and drugs. As shown in Graph 2, these contacts (white nodes), endowed with technical skills and material supplies, are central nodes with a strong attraction power in the specific network for material support . Differently, informational support is mainly provided by the extended family, and the

[1] The degree centrality of each node (household) is directly proportional to the total number of its relations.

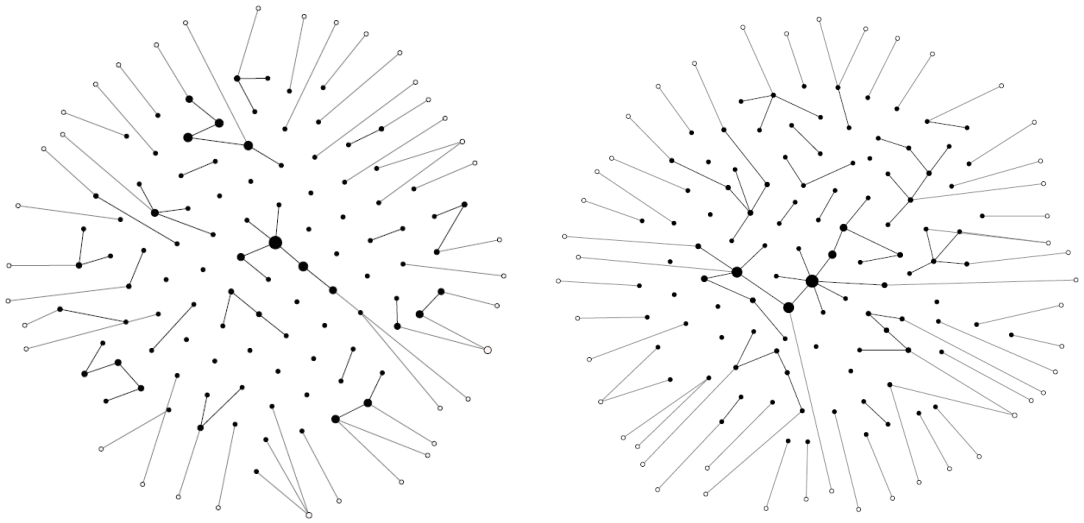
resulting network (Graph 3) does not report single nodes with exceptional attraction power.

Graph 2. Health social network: material support for treatment and drugs



Village 1 **Village 2**

Graph 3. Health social network: informational support



Village 1 **Village 2**

In order to verify whether patterns of social capital activation differ according to population characteristics, average health network statistics[2] have been unpacked distinguishing among specific categories (Table 4). Results show that some population sub-groups present a weaker social network for accessing health care. Poorer households, households that are not part of community groups, and households headed by single women have less relationships and are less central in the network than other households. By performing a t-test robustness check, it was verified that the difference in network centrality is statistically significant among the considered groups.

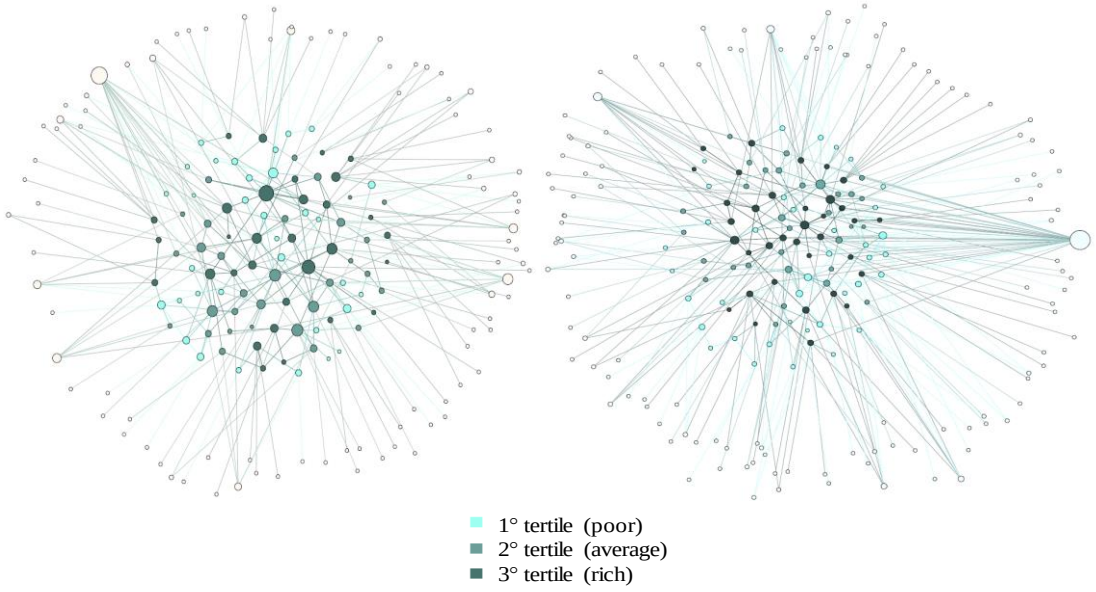
[2] It is possible to measure network statistics of degree and centrality for each node (household) and, thus, to compute average statistics for each population category. The degree indicates the total number of relations in which the single node (household) is involved. This can be decomposed into indegree (number of interactions targeting the node, i.e. relations activated by other households to receive support from that household) and outdegree (number of interactions originating from the node, i.e. relations activated by that household to receive support from other households). The centrality of each node within the network can be expressed by two measures: first, the closeness centrality refers to the proximity of each node (household) with respects to other network nodes. Second, the betweenness centrality quantifies the number of times a node acts as a bridge along the shortest path between two other nodes.

Table 4. Health social network: mean statistics for specific population categories

	Obs.	Degree	Indegree	Outdegree	Closeness centrality	Betweenness centrality
Wealth						
First wealth tertile (poor)	73	3.66	0.81	2.85	0.3967	0.000683
Second wealth tertile (average)	65	4.48	1.54	2.94	0.4153	0.000871
Third wealth tertile (rich)	68	5.60	1.76	3.84	0.4203	0.001175
Membership community groups						
Households not part of groups	78	3.96	0.96	3.00	0.4307	0.000624
Households part of groups	128	4.92	1.59	3.33	0.3980	0.001075
Gender and marital status of household head						
Households headed by single/separate/widow woman	43	3.79	0.81	2.98	0.4241	0.000317
Other households	163	4.76	1.50	3.26	0.4068	0.001059
Total	206	4.56	1.35	3.20	0.4104	0.000904

The last results about heterogeneity of health social networks among population subgroups are also confirmed by the network graphical representation. Graph 4, for example, shows the health social networks by distinguishing among wealth tertiles. It is quite evident that darker nodes (the rich) have more contacts and are more central than lighter nodes (the poor).

Graph 4. Health social network: differentiation for wealth tertiles



Village 1 **Village 2**

3.2 Regression Findings

Results of the logistic regression are presented in Table 5. Model 0 shows that the extent of social networks activated for usual visit does not disclose any statistically significant relationship between social capital and financial hardship. Differently, coefficients of interest in Model 1 and 2 suggest that a stronger social capital in the health social network is associated with a reduced probability of incurring financial hardship due to health expenditures. In other words, households relying on many relevant relationships to support health care needs are less vulnerable to the financial burden of illness. This finding is statistically significant and robust both considering the extent of social networks (Model 1) and the dummy variable for social inclusion (Model 2). In Model 1, a unitary

increase in the weighted outdegree for health network is correlated with a decrease of 1.5 percentage points in the likelihood of financial hardship. The effect in this case is small considering the high variation of the variable of interest which ranges from 0 to 37. In Model 2, households considered as socially included within the health network have a probability of incurring in financial hardship that is lower by approximately 26 percentage points with respect to socially excluded households.

Looking at other covariates, households with an additional source of income other than subsistence farming present a risk of financial hardship lower than others. Family size is another good predictor of financial hardship: the more numerous the households, the higher the probability of selling items, borrowing money, or increasing casual labour to meet health expenditures. Indeed, households with many members, who are often children, are more likely to utilise health services with respect to households composed by few individuals. Considering the population place of residence, findings indicate that households in Village 1 are less vulnerable to health expenses than households in Village 2. However, it is difficult to interpret this evidence: the difference might be due to some unobservable variables at the village level. A high number of negative shocks experienced by the household during the previous year is significantly associated with an increase in the risk of financial hardship due to health expenses; reasonably, the vulnerability level depends on the occurrence of many adverse events which may affect the household's capacity to cope with unpredictable expenses.

As for the characteristics of the household's head, the age and the literacy status do not seem to have any significant relation with the probability of financial hardship. Gender and marital status, instead, are good predictors: households headed by women are more likely to incur in financial hardship. Most of these women are widows or separated. On the contrary, households headed by a polygamous individual (man) present a lower risk. Both these findings may indicate that the level of vulnerability against financial hardship is rooted in gender-based structural features.

Table 5. Logistic regression results for financial hardship

	Model 0		Model 1		Model 2	
VARIABLES	**Logit**	**Marg. Eff.**	**Logit**	**Marg. Eff.**	**Logit**	**Marg. Eff.**
Weighted outdegree usual visit	0.0480	0.00776				
	(0.0765)	(0.0124)				
Weighted outdegree health			-0.105***	-0.0151***		
			(0.0317)	(0.00372)		
Social inclusion health					-1.765***	-0.264***
					(0.606)	(0.0815)
First wealth tertile (poor)	Ref		Ref		Ref	
Second wealth tertile (average)	0.391	0.0585	0.297	0.0393	0.455	0.0616
	(0.500)	(0.0749)	(0.511)	(0.0678)	(0.500)	(0.0676)
Third wealth tertile (rich)	-0.776	-0.135	-0.764	-0.116	-0.870	-0.140
	(0.537)	(0.0913)	(0.549)	(0.0801)	(0.564)	(0.0867)
Employment	-0.938**	-0.152**	-0.721	-0.104	-1.047**	-0.157**
	(0.453)	(0.0685)	(0.465)	(0.0647)	(0.499)	(0.0699)
Religion	-0.441	-0.0713	-0.619	-0.0890	-0.203	-0.0304
	(0.444)	(0.0711)	(0.480)	(0.0679)	(0.431)	(0.0643)
HH size	0.356***	0.0575***	0.370***	0.0532***	0.444***	0.0665***
	(0.113)	(0.0168)	(0.110)	(0.0143)	(0.124)	(0.0163)
N shocks	0.392***	0.0634***	0.517***	0.0743***	0.453***	0.0677***
	(0.142)	(0.0207)	(0.144)	(0.0171)	(0.141)	(0.0186)
Age HH head	-0.00152	-0.000246	0.00502	0.000722	0.00305	0.000456
	(0.0143)	(0.00230)	(0.0169)	(0.00242)	(0.0154)	(0.00231)
Gender HH head	1.426**	0.230**	1.648**	0.237**	1.803**	0.270***
	(0.688)	(0.103)	(0.760)	(0.0992)	(0.740)	(0.0977)
Marital status HH head	-1.937*	-0.313**	-2.048	-0.294	-2.458*	-0.368*
	(1.007)	(0.157)	(1.276)	(0.185)	(1.279)	(0.189)
Literacy status HH head	0.380	0.0615	0.649	0.0933	0.574	0.0859
	(0.535)	(0.0858)	(0.606)	(0.0848)	(0.563)	(0.0826)
Residence village	-0.724*	-0.117*	-0.985**	-0.142**	-0.936**	-0.140**
	(0.418)	(0.0638)	(0.443)	(0.0569)	(0.447)	(0.0613)
Constant	-1.725		-0.639		-1.134	
	(1.104)		(1.254)		(1.176)	
Observations	178	178	178	178	178	178

Robust standard errors in parentheses

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

By decomposing the health social network for material (monetary, agricultural, transport, treatment and drugs) and immaterial (emotional and informational) sources of social support, it is possible to deepen the investigation about exposure to financial hardship. Results reported in Appendix 1 indicate that the decrease in the risk of financial hardship is much more associated with the material component of social capital than with the immaterial social capital. Having more contacts supporting the family for the payment of services, the transport to the health unit, the implementation of agricultural work and the provision of treatment and drugs implies a lower vulnerability against health costs.

4. Discussion and Concluding Remarks

The study analyses the relevance of social networks at the local level for the accessibility to health care. The main findings from the SNA indicate that the extended family is a crucial component of social capital that households activate to enhance utilisation of services. This is in line with previous works on the role of kinship networks in Sub-Saharan Africa (Di Falco and Bulte, 2013) and adds specific evidence for health care-related issues. Consistently with the general literature on risk mitigation and risk coping in LMICs (Di Falco and Bulte, 2013; Fafchamps and Lund, 2003), support networks for health care go beyond the village boundary and mainly involve small groups of households. Results on population groups and network characteristics contribute to shed light on inequalities affecting health care utilisation. The support provided by social capital is significantly lower for poor households, households not part of community groups, and households headed by single women. The differentiation with respect to socio-economic status confirms the findings from rural Uganda, Ethiopia and Tanzania (Bakeera et al., 2009; De Weerdt et al., 2007). Our results, however, originate from an innovative methodology and help to deepen the understanding of the hindrances affecting the poor in accessing health care.

Findings from the logistic regression enlarge the existing evidence on the higher risk of financial hardship for specific household categories (Kaonga et al., 2019; Kruk et al., 2009; Leive and Xu, 2008; Onah and Govender, 2014; Tahsina et al., 2018). Our analysis, which considers support provided by social networks, offers a new contribution to the important body of literature on coping strategies in response to health expenditures. While the general level of social capital for usual visits does not show any relevant correlation with financial hardship, our variable of interest expressing the level of social capital enjoyed by the household for health needs (Model 1 and 2) is significantly associated with the probability

of incurring financial hardship. In fact, families with a stronger social support network during illness present a lower vulnerability to health expenses. It flows that in poor rural settings the role of social capital is key for ensuring an adequate utilisation of services. Networks, as financial capital, can be mobilised during periods of difficulties, and families enjoying a higher level of connectivity are less vulnerable to health shocks. Specifically, contacts providing material support to households in case of health needs are more important to lower the risk of financial hardship than those providing immaterial support. In a similar context, where no formal scheme of social protection is available for the local population, assistance from network members may represent the only reliable support for households who face unpredictable health expenses. Although the detected relation between social capital and ability to cope with health costs is not causal, highlighting the existence of this significant association allowed us to identify socially excluded households as a population group with greater difficulties than others during periods of illness.

This work constitutes a valuable addition to the existing literature linking social capital to health-related outcomes. The descriptive SNA documents structural features of health-related social networks, and the regression analysis shows important implications in terms of financial hardship. Connections highlighted by the study indicate that social capital plays a role in shaping inequalities for health care accessibility. Therefore, considering social networks and their catalysing role is useful to develop more effective programs of public health: a cross-sectoral and inclusive strategy tackling social exclusion could be effective to improve service coverage in synergy with health promotion. For example, interventions that involve community mobilisation and empower vulnerable categories such as single women are likely to have positive effects on their social networks and, also, on health seeking behaviours. Policy makers planning activities of health education and promotion could consider collective actions and membership to community groups as informative for health services coverage: households who remain excluded from these associations lack social support and are at higher risk of not seeking care. In general, social network analyses equip policy makers and practitioners with knowledge to better identify those categories of population who have greater difficulties to use services. Moreover, considering how material or immaterial support is spread across the population is useful to detect those constraints which mostly limit health services coverage: for example, in case the analysis shows that informational support is mostly provided by relatives and friends, it may indicate that messages of health education are not passing through Village Health Workers or health staff at the facilities. The extent of networks for

transport arrangements may also suggest the burden that private transportation implies for health care seeking in the surveyed area.

While the paper inspires an extremely useful discussion about accessibility to health care for populations living in a low-income rural setting, it is important to acknowledge few methodological limitations. First, given the sample size determined by a specific power analysis, external validity of results holds only in the context of Oyam district. However, it is reasonable to suppose that patterns to access health services and to cope with health expenses are not much different among poor rural households in Uganda. Second, considering the cluster population under analysis, results show that households of the two villages differ in terms of network density and financial hardship exposure, but it is not possible to fully explain this variation. Perhaps unobservable characteristics of the social structure vary among the two communities and this would require further analysis. Moreover, our econometric model assumes that underlying network characteristics do not create autocorrelation problems among the observed units, and an alternative model would be required to take into account the specific influence of the network structure on the outcome variables. Finally, the SNA was performed at household level although individual level characteristics are likely to influence the nature and the extent of networks (Valente, 2010). The decision, in this case, was motivated by the necessity to use the level of social capital as variable of interest in the regression for financial hardship. When examining coping strategies to face health costs, indeed, the household represents the usual unit of analysis. In order to verify that the network statistics were not significantly biased by the respondent's identity, a t-test on the main outcomes of the SNA was run. However, the latter did not report any important difference related to the respondent's characteristics.

Despite these limitations, the research provides an original analysis of social capital that is relevant to advance the debate on health care accessibility in poor and rural contexts. The new evidence enlarges the informational space for policy planning and suggests that interventions aimed at improving health coverage should envisage the potential role of social networks as a valid driving mechanism to enhance services utilisation. Addressing social exclusion could effectively improve access to health care whilst the reliability and effectiveness of the public health system are strengthened. In conclusion, evidence from this paper indicates that a community-based model pursuing universal health coverage in LMICs could leverage the relevance of social capital resources at the local level.

APPENDIX 1. Logistic regression results decomposing for material and immaterial support

	Model 1				Model 2			
VARIABLES	**Logit**	**Marg. Eff.**	**Logit**	**Marg. Eff.**	**Logit**	**Marg. Eff.**	**Logit**	**Marg. Eff.**
Weighted outdegree health (Material support)	-0.188***	-0.0260***						
	(0.0491)	(0.00532)						
Weighted outdegree health (Immaterial support)			-0.0780	-0.0124				
			(0.0511)	(0.00783)				
Social inclusion health (Material support)					-2.235***	-0.314***		
					(0.668)	(0.0787)		
Social inclusion health (Immaterial support)							-1.010**	-0.157**
							(0.464)	(0.0642)
First wealth tertile (poor)	Ref		Ref		Ref		Ref	
Second wealth tertile (average)	0.252	0.0316	0.348	0.0513	0.417	0.0537	0.466	0.0677
	(0.510)	(0.0646)	(0.501)	(0.0740)	(0.534)	(0.0699)	(0.500)	(0.0723)
Third wealth tertile (rich)	-0.824	-0.119	-0.770	-0.132	-0.958	-0.144*	-0.608	-0.102
	(0.571)	(0.0783)	(0.527)	(0.0880)	(0.590)	(0.0826)	(0.520)	(0.0864)
Employment	-0.562	-0.0774	-0.950**	-0.151**	-0.770	-0.108*	-0.977**	-0.152**
	(0.482)	(0.0658)	(0.448)	(0.0665)	(0.473)	(0.0650)	(0.446)	(0.0639)
Religion	-0.548	-0.0756	-0.528	-0.0842	-0.443	-0.0621	-0.525	-0.0815
	(0.474)	(0.0646)	(0.451)	(0.0708)	(0.461)	(0.0641)	(0.462)	(0.0706)
HH size	0.422***	0.0581***	0.354***	0.0564***	0.398***	0.0559***	0.352***	0.0546***
	(0.119)	(0.0144)	(0.110)	(0.0162)	(0.124)	(0.0158)	(0.109)	(0.0155)
N shocks	0.521***	0.0719***	0.440***	0.0701***	0.494***	0.0694***	0.439***	0.0681***
	(0.148)	(0.0171)	(0.143)	(0.0200)	(0.142)	(0.0174)	(0.138)	(0.0184)
Age HH head	0.00632	0.000872	0.000217	0.00003	0.00724	0.00102	0.00120	0.000186
	(0.0170)	(0.00234)	(0.0148)	(0.00236)	(0.0170)	(0.00239)	(0.0152)	(0.00237)
Gender HH head	1.492*	0.206**	1.588**	0.253**	1.607**	0.226**	1.571**	0.244**
	(0.776)	(0.0988)	(0.691)	(0.0999)	(0.766)	(0.100)	(0.708)	(0.0985)
Marital status HH head	-2.500	-0.345	-1.936*	-0.308*	-2.540*	-0.357*	-1.765	-0.274
	(1.531)	(0.211)	(1.120)	(0.175)	(1.329)	(0.185)	(1.193)	(0.183)
Literacy status HH head	0.533	0.0735	0.506	0.0806	0.610	0.0857	0.426	0.0662
	(0.630)	(0.0849)	(0.541)	(0.0851)	(0.631)	(0.0875)	(0.551)	(0.0845)
Residence village	-0.946**	-0.130**	-0.821*	-0.131**	-0.990**	-0.139**	-0.797*	-0.124**
	(0.445)	(0.0550)	(0.419)	(0.0624)	(0.456)	(0.0577)	(0.409)	(0.0598)
Constant	-0.754		-1.269		-0.796		-1.169	
	(1.299)		(1.100)		(1.306)		(1.140)	
Observations	178	178	178	178	178	178	178	178

Robust standard errors in parentheses

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

CHAPTER 3

Financial Protection and Coping Strategies in Rural Uganda: an Impact Evaluation of Community Health Financing

ABSTRACT

In low- and middle-income countries, catastrophic health expenditures and economic hardship constitute a common risk for households' welfare. Community health financing, under certain conditions, has the potential to improve financial protection, but robust impact evaluations are needed to advance the debate concerning universal health coverage in informal settings. This study aims at assessing the impact of a community health financing pilot program and, specifically, of the initial phase involving zero-interest loans on health expenditures and coping strategies in a rural district of Uganda. The analysis relies on a panel household survey performed before and after the intervention and complemented by qualitative data obtained from structured focus group discussions. We found that the intervention of zero-interest health care loans is effective in improving financial protection. Community perceptions suggested that the population excluded from the scheme is disadvantaged when facing unpredictable health costs. Among the enrolled members, the poorest seem to receive a greater benefit from the intervention. Overall, our study provides support for the positive role of community-based mechanisms to progress towards universal coverage and offers policy-relevant insights to timely design comprehensive health financing reforms.

KEYWORDS: Community Health Financing; Impact Evaluation; Financial Protection; Coping Strategies; Uganda.

1. Introduction

Direct payments for health services represent a crucial obstacle to Universal Health Coverage (UHC). In low- and middle-income countries (LMICs), the absence of prepayment mechanisms exposes many households to the risk of catastrophic health expenditures and financial hardship when coping with illness. Traditional risk-coping mechanisms, such as borrowing and selling assets, are widely used to cover out-of-pocket medical expenses and have a detrimental effect on households' welfare, therefore increasing their vulnerability (Kruk et al., 2009; Leive and Xu, 2008; Wagstaff et al., 2011). As a result, the imperative need to extend financial protection against unpredictable health costs led to the emergence of many Community Health Financing (CHF) schemes in LMICs. The model of CHF aims to protect individuals from financial catastrophe due to health-related costs and, thus, to enhance access to health services. These schemes mainly target the informal and rural sectors and involve the community in their design and management (Jütting, 2004). Whilst Community-based Health Insurance (CBHI) represents the evolution of CHF arrangements and fully applies the principle of risk-pooling, in this paper we refer to CHF as the general model of community-based financing for health, and, specifically, we focus on the operational phase of zero-interest loans for health care at the inception of the insurance implementation.

Following the proliferation of CHF interventions, the effectiveness of the model to reduce the financial burden of illness became the subject of an important empirical literature (for reviews, see Ekman, 2004; Umeh and Feeley, 2017). Evaluations concern different contexts and show mixed results. Most studies from Africa (Baine et al., 2018; Chankova et al., 2008; Dekker and Wilms, 2010; Jütting, 2004; Mebratie et al., 2019; Strupat and Klohn, 2018; Yilma et al., 2015), Asia (Aggarwal, 2010; Devadasan et al., 2010; Dror et al., 2016; Savitha and Kiran, 2015; Yip and Hsiao, 2009) and Latin America (Galárraga et al., 2010; King et al., 2009) found a positive impact of CHF and, specifically, of CBHI on financial protection and health services utilisation. Other authors show negative or no significant effects (Karan et al., 2017; Raza et al., 2016). Findings from several regions stress that equity constraints hinder the success of CHF, since the probability to enrol into the scheme and the magnitude of the impact in terms of reduction of out-of-pocket medical expenses are greater for the rich (Jütting, 2004; Nshakira-Rukundo et al., 2019; Parmar et al., 2014; Wagstaff et al., 2009; Williams et al., 2017; Woldemichael et al., 2019).

Although the body of evaluation literature concerning CHF has expanded in recent years, rigorous studies are still needed to advance the debate on financial protection in

LMICs. In fact, most of the available evidence is based on cross-sectional data which does not allow to infer a causal impact of CHF since it ignores the effect of self-selection in the uptake of voluntary insurance. Moreover, different dimensions of welfare are to be taken into account when examining the economic burden associated with illness and the impact of the scheme. These dimensions include household's income or consumption patterns, but also the costly informal strategies adopted to mitigate the effects of illness. Indeed, a reduction in the incidence of selling assets or borrowing at high interest rates can suggest an improvement in the general well-being of the household during a considerable period of time (Dekker and Wilms, 2010; Woldemichael et al., 2019). Accordingly, studies which examine households' reliance on specific risk-coping practices (Aggarwal, 2010; Dekker and Wilms, 2010; Dror et al., 2016; Raza et al., 2016; Yilma et al., 2015) allow to assess the intervention effect on welfare also in a long-run perspective. Finally, there is a dearth of studies considering the initial phase of CHF interventions at the inception of the insurance implementation. Dupas and Robinson (2013) find that group-based credit schemes alone are effective to increase health savings and, thus, to reduce households' vulnerability to health shocks in rural Kenya. Differently, a randomised evaluation in Mali shows no significant impact of village saving groups on health expenditures and coping strategies to deal with illness (Beaman et al., 2014).

We intend to add to this strand of literature and fill the gaps on methods and contents of evaluation studies by showing how community-based mechanisms can contribute to provide financial protection and progress towards UHC in Uganda. The country exhibits the lowest coverage of health insurance (1 percent) and the highest health expenses contribution by out-of-pocket in the East and Southern Africa region (USAID and Ministry of Health Uganda, 2016). Although Uganda presents a long history of CHF, studies about the effectiveness of these schemes refer exclusively to cross-sectional data and do not consider the initial phases of CHF (Baine et al., 2018; Cecchi et al., 2016; Dekker and Wilms, 2010; Nshakira-Rukundo et al., 2020).

Based on data from a rural district in Uganda, this paper aims to assess the impact of a pilot program of CHF involving zero-interest loans on health expenditures and coping strategies. The analysis relies on a panel household survey performed before and after the intervention and on qualitative data obtained from structured focus group discussions. The longitudinal nature of the survey allows us to infer the causal effect of the program on three alternative measures of household well-being, namely the incidence of catastrophic health expenditures, the share of health expenses over total expenditures and the adoption of coping practices which imply financial hardship. The identification strategy relies on an

instrumental variable approach and exploits the random selection adopted to offer the voluntary program. Furthermore, the focus group discussions integrate the analysis by exploring community perceptions about the impact of CHF and heterogeneous effects on different households' categories.

Results show that, after one year of intervention, the program led to a significant decrease in the incidence of catastrophic health expenditures, the share of health expenditures and the occurrence of financial hardship. Causal estimates are robust and consistent with the qualitative investigation. Furthermore, findings from the focus group discussions suggest that the program did not target disadvantaged households who were not part of informal community groups, and, among the enrolled members, the effects have been relatively greater for the poorest.

This paper provides two main contributions related to the methodology adopted and the subject of the analysis. First, it adds to the existing empirical evidence by assessing the causal impact of a pilot intervention of CHF in rural Uganda using panel data to infer causality and integrating the estimates with qualitative evidence. Second, the focus on the initial phase of the CHF program involving zero-interest loans for health care is novel in the literature and offers important insights for timely policy-making design. Monitoring the initial evolution of CHF is helpful to inform effective pathways to meet the goal of UHC and, to the best of our knowledge, this is the first rigorous evaluation concerning zero-interest loans for health care at the inception of health insurance implementation.

The next section describes the pilot program of CHF. In section 3, data and research methods are presented. Section 4 illustrates the main results, and the last section provides a discussion and concluding remarks.

2. Pilot Project

The international NGO "Doctors with Africa CUAMM" is implementing a multi-year program in the rural district of Oyam (Northern Uganda) aimed to improve accessibility and quality of health services. In January 2019, as part of the general program, CUAMM launched a pilot intervention of CHF, following the main recommendations emerged from a specific feasibility study (Biggeri et al., 2018). The objective of the intervention is to enhance households' capacity to deal with health expenses by setting up a prepayment financing mechanism owned by the community. Since the principles of insurance require a reasonable period of time to be fully understood and accepted by the population, the scheme

implemented during the first year of the project consisted of a preliminary mechanism of prepayment where each member contributed a fixed amount and, in case of need, borrowed at favourable conditions for health care expenses. The pooled funds are used to pay health expenses for members covering both out-patient and in-patient services which do not exceed a maximum amount (ceiling). After benefitting from the health services, the household who drew from the pooled funds has four months to repay the group with zero interest. Whilst this model of zero-interest loans does not allow to achieve a complete risk-sharing for health expenses, it has the advantage to ensure a reliable source to finance health services and, thus, to accelerate access to care. Borrowing from friends, family or money lender represents a costly strategy in terms of repayment of loan interests and possible delay to seek treatment (Kruk et al., 2009). Differently, the CHF scheme also during its initial phase can provide immediate resources to pay for health services and does not imply extra-costs for the intertemporal money transfer.

As argued by many authors (Chemin, 2018; Dercon et al., 2014; Mladovsky et al., 2014; Sommerfeld et al., 2002), coverage of CHF can be facilitated by nesting the scheme into existing informal groups within the community. These arrangements include savings groups and mutual-help associations, representing a safety net for low income groups facing economic hardship (Preker et al., 2002). In the rural context of Oyam, where nearly 75-80 percent of the population is part of at least one community group (Biggeri et al., 2018)[1], the roll-out of the pilot program exploited the existing risk-sharing practices by empowering the involved informal groups for the specific purpose of CHF. In other words, community groups represented the entry point to provide sensitisation and training for health financing. The intervention area for the pilot scheme consisted of two sub-counties with a total estimated population of 60,500 individuals (UBOS, 2017). The two administrative units were randomly selected among all the twelve district sub-counties. After mapping the presence of community groups in the intervention area, the pilot program targeted 42 randomly selected groups and all the affiliated members, hence reaching 2137 households and 10,304 individuals. It is important to highlight here that, further to the selected households, in the intervention area other two categories of people are present, namely

[1] It is important to note that members of the informal groups share an identity base nurturing mutual help and solidarity practices among them. Differently, the population who remains excluded from the groups often consists of vulnerable and poor households who can rely less on social support at the village level.

households who are part of groups but not targeted by the pilot project, and households who are not part of groups and, thus, not covered by the intervention.

CUAMM launched the initiative by implementing general sensitisation to the targeted households, training to group leaders and regular support supervision. These activities were aimed at mobilising the community and improving their preparedness for utilising health services when needed. During sensitisation activities, their awareness was raised on the impoverishing effects of illness and on the potential benefits of mutual help to facilitate access to health care, thus stimulating community ownership of the initiative. Sensitisation sessions incorporate the offer to households to voluntary enrol into the scheme. Enrolment into the scheme was made on a voluntary basis and at the household level. During training sessions, the CUAMM staff provided the group leaders with the appropriate skills to manage the group funds for health financing. The scheme functioning and possible challenges were regularly discussed during the monthly support visits, as well as the definition of specific rules to ensure accountability and to prevent adverse selection and moral hazard.

After analysing households' willingness to pay and health expenses recorded during the previous year, it was defined the annual individual contribution by enrolled members (10,000 UGX), the fixed co-payment to be paid in case of health services utilisation (5,000 UGX) and the maximum amount for each zero-interest loan (150,000 UGX). This ceiling represents the highest sum each household can borrow from the group for each episode of illness, and it was defined after calibrating the amount with the 85th percentile of households' health expenditure distribution. The group funds are kept by the treasurer within a specific metal saving box, recorded into the group registers and checked regularly during weekly group meetings.

The groups selected specific health facilities as accredited providers for ambulatory services or admissions and formal agreements were stipulated to arrange payments. Since public health facilities in Uganda are not allowed to charge user-fees for services, only private structures are eligible for this intervention. In Oyam territory, the district hospital as well as several other second and third level health centres are private-not-for-profit facilities. The latter mainly serve the population of the catchment area but are also available for other users who select specific centres due to a perceived better quality (Massavon et al., 2017). The great majority of the involved groups independently decided to select these PNFP facilities as accredited units where they already used to go; borrowed funds were directly given by the group leaders to the health facility after verifying health service utilisation by enrolled members. On average, during each episode of illness household

expenditure in PNFP facilities has been around 29,100 and 92,800 UGX for ambulatory service and admission respectively.

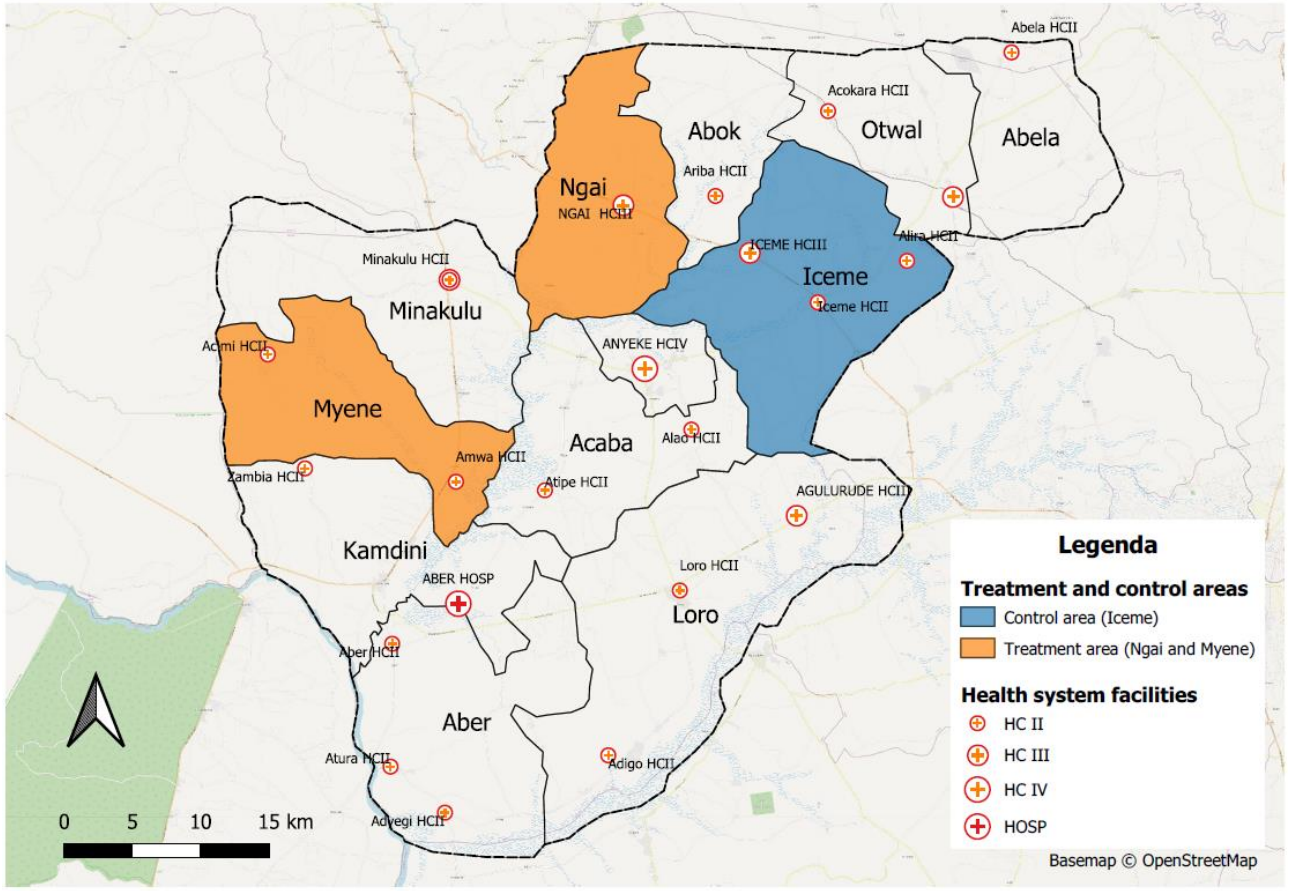
A clear strategy of operational research drives the CUAMM intervention of CHF: data collection and analysis are functional to orient the implementation policy and to consider whether to upgrade the scheme to a pure insurance (CBHI) and to expand the scale of intervention in the district. In this sense, a key point to be addressed regards the partnership between the PNFP sub-sector and the public health system: in order to build a sustainable strategy to improve health coverage of the local population, effective coordination and stewardship is required from the public sector. An entry point should be identified to link community-based initiatives for health financing with the provision of public health services, thus solving the ambiguity of the "free health-care" slogan.

3. Data and Methods

3.1 Research Design and Data Collection

The study adopts an experimental design to infer the impact of the pilot intervention exploiting the randomized offer to join the scheme of zero-interest loans for health. The impact evaluation is primarily based on panel data from a household survey. Quantitative estimations are then integrated with qualitative findings from structured focus group discussions. These were functional to complement data from the household survey while deepening the understanding of the processes through which effects are achieved. The data collection was performed in the intervention area of the district (two sub-counties) and in a control area represented by a third sub-county. The latter was purposively selected considering homogeneous characteristics with respect to the intervention sub-counties in terms of socio-economic profile, distance from the main road and from the health facilities (Figure 1).

Figure 2. Map of Oyam district with intervention areas



Source: Authors' elaboration

After using a dedicated power analysis with a confidence interval of 95 percent and a margin of error of 2 percent to determine the required minimum sample size for the household survey (120), we applied a two-stage sampling design within the survey sub-counties. First, we identified the cluster areas of intervention and another comparable area within the control sub-county, including in total 62 villages; second, we randomly selected the participants among the residents of these villages. Surveyed residents included households targeted by the intervention (who received the sensitisation and the offer to enrol into the scheme) as well as control units who were not covered by the pilot project.

The survey baseline was collected during January 2019, shortly before the roll-out of CHF, and covered 320 households (1751 individuals); the second round of the survey, after one year of intervention, was performed in January 2020 and targeted 336 households (1892 individuals), seeking to track also the split-off units. The attrition rate during the follow-up was around 11 percent, and the impact evaluation analysis considered a balanced longitudinal sample of 285 households.

The survey questionnaire contained information on a wide range of individual and household characteristics; these included demographic and socio-economic attributes, health conditions and expenditures, perceptions about health and risk-sharing, coping strategies in response to negative shocks. Specifically, the health module gathered information on health status, utilisation of health services and related costs for each household member. The recall period for out-patient health care was one month preceding the survey and 12 months in case of in-patient health care. The module recorded health expenditure distinguishing between transport costs and consultation or drug costs for each episode of illness. During the second round, it was enquired whether the household received sensitisation and, eventually, whether they decided to enrol. The research team conducting the survey was headed by principal investigator and composed by seven enumerators and two supervisors. Participants were interviewed using smart devices which permitted to gather geo-referenced information.

Four structured focus group discussions were then carried out during the second round of data collection in the intervention area. Participants of SFGDs were purposively selected in order to create a quite representative and heterogenous sample of enrolled members. Each discussion involved 12 individuals who decided to join the intervention and were willing to share their opinion on it. These people differed in terms of age, gender and socio-economic position: during two SFGDs female and men participants were equally distributed (6 and 6 in each discussion), whilst other two discussions involved exclusively women (12 in each discussion). Age of participants ranged from 19 to 67 years (with an

average of 39 years old), and the great majority of them (approximately 85 percent) were subsistence farmers without additional source of income. Participants included, among others, local political and religious leaders, representatives from women's group, and members of village health teams. In total, SFGDs were attended by 48 individuals, all coming from different villages where the intervention was in place. Each discussion was conducted by two facilitators and one note-taker in the intervention area.

In order to perform a participatory exercise to evaluate the impact of the intervention, the research team applied a tool that is often associated with the capability approach: the Opportunity Gap Score matrix. This matrix, which is explained in detail elsewhere (Biggeri and Ferrannini, 2014) was built on the ground and used to identify the level of capability (intended as ability and opportunity) to access health care when needed, without anxiety and impoverishment related to health expenditures. Participants were requested to discuss and assign a score to the level of capability ranging from 0 (enjoying no opportunity at all) to 10 (enjoying the maximum level of opportunity). During the ranking exercise, four household categories were considered, including rich household enrolled into the intervention, poor household enrolled into the intervention, rich household not enrolled into the intervention, and poor household enrolled into the intervention. Specifically, participants were requested to be quasi-impartial spectator and to assign to each household category a score according to different scenarios. These scenarios referred to the situation one year before (previous to the intervention in early 2019), the current situation (after the intervention in early 2020) and a counterfactual situation without CHF (how it would have been without the implementation of zero-interest loans for health).

During the SFGDs, the scoring system was explained to participants and debated. The final specification of the score in each matrix cell (i.e. the level of opportunity assigned to specific households in a specific scenario) resulted from a process of collective discussion and enquiry while taking into account different points of views. Overall, the exercise permitted to identify the intertemporal change in the level of opportunity attributed to the intervention and, thus, to compare results from quantitative estimates with the opinions of enrolled members.

Ethical approval for the study was obtained by the Uganda National Council for Science and Technology, and informed written consents were collected from each research participant. All interviews and discussions were conducted in the local language and took place in respect of anonymity.

3.2 Variables and Empirical Strategy

The analysis sought to measure the effects of zero-interest loans for health care on household welfare by focusing on health expenditures and coping strategies. Accordingly, we considered as outcome variables the incidence of catastrophic health expenditures (1), the share of health costs over total monthly consumptions (2), and the incidence of financial hardship due to health costs (3). First, following similar studies (Karan et al., 2017), health expenses were considered as catastrophic in case they amounted to at least 25 percent of households' non-food monthly expenditures. Second, the share of health costs constitutes an alternative measure for health expenses, and it refers to the total household consumptions. Third, financial hardship is related to the adoption of costly coping strategies in response to illness costs. These strategies involve selling household assets, borrowing with interest rates, increasing casual labour by family members. Different household and household head characteristics were then included in the regressions as controls. Attributes concern the socio-economic profile of the household (wealth tertiles and additional source of income different from subsistence farming), demographics (household size), number of negative shocks affecting the household during the previous year, gender, age, and literacy status of the household head.

Since receiving the program offer was conditional to being part of one community group, only a sub-sample composed by 226 eligible households, meaning those who were part of at least one community group in 2019, was included in the evaluation analysis. In other words, households who were not part of groups at the baseline, accounting for almost the 20 percent of the representative population sample, were excluded from the analysis: this population sub-group presents a lower level of willingness to join CHF arrangements (Biggeri et al., 2018), as well as other important differences with respect to observable characteristics (Appendix 1). Consequently, they cannot be easily compared to other households. It was also verified that households not part of community groups differ systematically from the rest of the population with respect to several socio-economic and demographic characteristics. Estimates of financial hardship considered 158 observations rather than 226 given that observing this specific outcome was conditional upon the utilisation of health services.

The identification strategy relied on an instrumental variable (IV) approach. In order to address the potential selection bias due to the voluntary nature of the program, we took advantage of the cluster-randomisation adopted to offer the program and exploited the

chance to enrol as a valid IV for the treatment status (Imbens and Wooldridge, 2009). The instrumental variable approach was set as follows:

$$Y_i = \beta T_i + \gamma X_i + \varepsilon_i$$
$$T_i = \pi Z_i + v_i$$

where Y indicates our outcome variable(s), T is the effective treatment status (correlated with other unobservable variables and, hence, considered endogenous) and X is a matrix of other control variables. Z, the instrument, represents the assigned treatment status (correlated to the endogenous treatment but not directly to outcome Y). The two-stage procedure can be used to obtain an unbiased estimate of the impact as long as the instrument is relevant -correlated to T- and valid -no direct effect of Z on Y- (Angrist and Imbens, 1995). In our case, being assigned to the treatment and receiving sensitisation is significantly and positively associated with the decision to enrol into the scheme, but it does not directly affect the outcomes of financial protection, nor the adoption of coping strategies since it does not provide the households with innovative tools for health financing.

The baseline observable characteristics (Table 1) points out a general balance across the treatment and control groups except for a minor gap regarding the existence of an additional source of income and the number of negative shocks. To adjust for this minimal bias and improve the group balance delivered by the cluster-randomisation approach, inverse probability weights were computed and included in the regression models.

Table 4. Observables among treatment (offered program) and control (not offered program) groups

	Mean		Difference	(SE)
	Control	Treatment		
(1) Catastrophic health expenditure	0.324	0.382	-0.058	(0.068)
(2) Share health expenditure	0.191	0.192	-0.001	(0.031)
(3) Financial hardship	0.492	0.413	0.079	(0.078)
First wealth tertile (poor)	0.527	0.474	0.053	(0.071)
Second wealth tertile (average)	0.149	0.230	-0.081	(0.057)
Third wealth tertile (rich)	0.324	0.296	0.028	(0.066)
Other income source	0.216	0.118	0.098*	(0.050)
Household size	5.541	5.901	-0.360	(0.299)
Shocks	3.703	3.230	0.473*	(0.245)
Female HH head	0.189	0.118	0.071	(0.049)
Age HH head	44.459	42.362	2.097	(2.016)
Illiterate HH head	0.203	0.151	0.052	(0.053)

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

Therefore, the intention-to-treat (ITT) effect and the average treatment effect on the treated (ATET) were estimated. The ITT effect was measured as the impact of the program on households who were offered the intervention during sensitisation, regardless of whether they decided to enrol. Conversely, the ATET considered only those who effectively participated to the scheme as the treatment group, thus including non-compliers in the control group (Table 2). In this case, the ATET and the local average treatment effect (LATE) were equal because no household in the control group accessed the program and compliance in the treatment group was imperfect. In addition, since the uptake of the program (enrolment ratio) was high among the sensitised population, we expected the ITT to be a lower-bound of the ATET with a good level of approximation (Acharya et al., 2013).

Table 2. Treatment and control groups

		Assigned treated (sensitisation and offer)		
		No	Yes	**Total**
Effective treated (uptake)	No	74	28	**102**
	Yes	0	124	**124**
	Total	**74**	**152**	**226**

The ITT and the ATET were estimated using ordinary least squares and two-stages least squares respectively. Logistic regression and bivariate probit methods were used to confirm the results for the two binary outcomes (catastrophic health expenditures and financial hardship). All models were estimated applying robust clustered standard to adjust for spatially correlated shocks (Angrist and Pischke, 2008).

3.3 Limitations

Some methodological limitations need to be acknowledged here. Although focusing on the sub-sample of eligible households, who were already part of community groups during the baseline data collection, was fundamental to validate the analysis, this did not allow us to generalise our findings to the whole population. Households who are not member of informal groups (approximately 20 percent of the population) must be excluded from the interpretation of results, thus reducing external validity. Moreover, the sample size did not allow to perform an appropriate heterogeneity analysis to test whether the impact of the program is different for specific household categories and whether it induced any spill-over effects on households who were not directly involved into the pilot project. While the qualitative investigation was not capable to fix these limits, it provided some useful insights on the effectiveness of the program with explicit reference to different household categories. However, also in the case of focus group discussions, participants included only enrolled members and it has not been possible to gather direct views and opinions of those households who decided not to enrol.

4. Results

4.1 Econometric Estimates

The effects of the randomised offer to enrol (ITT) are presented in Table 3. Results on catastrophic health expenditures and financial hardship are statistically significant at 1 percent level, while those on the share of health expenditures are significant at 2 percent level. All estimates are robust to the inclusion of controls. The ITT coefficients show that receiving sensitisation and having the chance to enrol in the scheme decreases the incidence

of catastrophic spending by almost 18 percentage points with respect to not receiving sensitisation. In terms of the share of health expenditure, this is reduced by 4 percentage points due to the assignment to treatment. The incidence of financial hardship is also reduced by almost 22 percentage points in case the household received sensitisation.

Observing the effects of other household characteristics on the three outcomes, we found that recording catastrophic health spending during the first round of data collection is positively associated with the probability of incurring in catastrophic expenses during the second round. Indeed, the nature of vulnerability against unpredictable health costs is likely to be path dependent over time. An additional source of income, on the contrary, presents a negative correlation with the incidence of catastrophic spending. Other attributes which are significantly associated with an increase in the share of health expenses over total expenditures include a lower household size and a female or illiterate household head leading to a higher share of health expenditures. We can interpret these findings considering that families headed by a woman or an illiterate individual are more likely to show greater vulnerability to income shocks, thus a higher proportion of health expenditures compared to other consumption items. A bigger household size, on the other hand, might imply a higher share of consumption devoted to different things, such as food or education. Finally, belonging to the second or third wealth tertiles with respect to the first poorest one implies a lower probability of financial hardship. This confirms the relevance of the socio-economic status to determine the level of household vulnerability against health costs.

Table 3. Effects of the randomised offer (intention to treat)

	Catastrophic health expenditures			Share health expenditures			Financial hardship		
ITT	-0.170***	-0.175***	-0.177***	-0.0394*	-0.0385*	-0.0385**	-0.218***	-0.217***	-0.215***
	(0.0474)	(0.0446)	(0.0454)	(0.0203)	(0.0197)	(0.0176)	(0.0741)	(0.0668)	(0.0716)
HOUSEHOLD									
Cat He Exp 2019		0.118***	0.114***						
		(0.0380)	(0.0393)						
Share He Exp 2019					0.0182	0.00470			
					(0.0334)	(0.0358)			
Fin Hardship 2019								0.0694	0.0673
								(0.0813)	(0.0705)
First wealth tertile (poor)		Ref			Ref			Ref	
Second wealth tertile (average)		0.0807	0.0949		0.00975	0.0145		0.219**	0.224**
		(0.0649)	(0.0689)		(0.0179)	(0.0174)		(0.0969)	(0.0957)
Third wealth tertile (rich)		-0.00006	-0.0181		0.00225	0.00736		0.160**	0.127
		(0.0566)	(0.0638)		(0.0195)	(0.0141)		(0.0655)	(0.0803)
Other income source		-0.193***	-0.190***		-0.0240**	-0.0179		-0.0263	0.0160
		(0.0269)	(0.0291)		(0.0111)	(0.0129)		(0.0783)	(0.0767)
Household size		-0.00633	-0.0121		-0.0143***	-0.0127***		0.0114	0.00408
		(0.0127)	(0.0143)		(0.00516)	(0.00468)		(0.0142)	(0.0137)
Shocks		0.0104	0.00802		-0.00221	-0.00112		0.00939	0.00812
		(0.0127)	(0.0137)		(0.00507)	(0.00447)		(0.0171)	(0.0175)
HOUSEHOLD HEAD									
Female HH head			0.00772			0.0645**			-0.00927
			(0.0485)			(0.0301)			(0.0898)
Age HH head			0.00366**			0.00002			0.00411
			(0.00182)			(0.000392)			(0.00379)
Illiterate HH head			-0.0544			0.0520**			0.0652
			(0.0636)			(0.0254)			(0.0762)
Constant	0.365***	0.340***	0.237**	0.161***	0.248***	0.216***	0.726***	0.498***	0.366*
	(0.0370)	(0.0818)	(0.108)	(0.0194)	(0.0486)	(0.0450)	(0.0333)	(0.135)	(0.189)
Observations		226			226			158	
R-squared	0.036	0.087	0.099	0.026	0.096	0.172	0.050	0.097	0.113

Note: Clustered robust SE in parentheses

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

Estimates of the effects of the intervention uptake (ATET) are provided in Table 4. Significance levels do not change, and, as expected, ATET coefficients are greater than those of the ITT effects, meaning that the impact of the program is higher when considering members who are effectively enrolled. Participating to the program leads to a decrease in the incidence of catastrophic spending by 22 percentage points. The share of health expenditures and the incidence of financial hardship are reduced respectively by 5 and 27 percentage points due to the program uptake. As in the case of the ITT effect, other factors significantly associated with the three outcomes include the previous experience of catastrophic spending, socio-economic indicators, household size, gender and literacy status of the household head.

Results from the logistic and bivariate probit regressions (Table 5) confirm the effects of the program on the incidence of catastrophic health expenditures and financial hardship. The impact on the two considered outcomes is highly significant and marginal effects indicate nearly the same measures of the ITT and ATET coefficients.

Table 5. Effects of the uptake of CHF (average treatment effect on treated)

	Catastrophic health expenditures			Share health expenditures			Financial hardship		
ATET	-0.210***	-0.217***	-0.218***	-0.0486**	-0.0476**	-0.0475**	-0.270***	-0.270***	-0.268***
	(0.0590)	(0.0538)	(0.0546)	(0.0245)	(0.0232)	(0.0205)	(0.103)	(0.0917)	(0.0968)
HOUSEHOLD									
Cat He Exp 2019		0.118***	0.114***						
		(0.0373)	(0.0384)						
Share He Exp 2019					0.0183	0.00438			
					(0.0337)	(0.0354)			
Fin Hardship 2019								0.0631	0.0591
								(0.0767)	(0.0681)
First wealth tertile (poor)		Ref			Ref			Ref	
Second wealth tertile (average)		0.0903	0.105		0.0119	0.0168		0.237**	0.243**
		(0.0639)	(0.0674)		(0.0171)	(0.0168)		(0.103)	(0.104)
Third wealth tertile (rich)		0.0213	0.00821		0.00694	0.0131		0.182***	0.154**
		(0.0515)	(0.0576)		(0.0189)	(0.0132)		(0.0568)	(0.0656)
Other income source		-0.186***	-0.187***		-0.0225**	-0.0172		-0.00906	0.0256
		(0.0259)	(0.0275)		(0.0108)	(0.0124)		(0.0677)	(0.0688)
Household size		-0.00679	-0.0116		-0.0144***	-0.0126***		0.00971	0.00331
		(0.0113)	(0.0125)		(0.00507)	(0.00461)		(0.0153)	(0.0142)
Shocks		0.00436	0.00239		-0.00354	-0.00234		0.00234	0.00130
		(0.0118)	(0.0127)		(0.00500)	(0.00442)		(0.0200)	(0.0201)
HOUSEHOLD HEAD									
Female HH head			0.0351			0.0705**			0.0196
			(0.0484)			(0.0289)			(0.115)
Age HH head			0.00327*			-0.00006			0.00378
			(0.00169)			(0.000406)			(0.00352)
Illiterate HH head			-0.0621			0.0503**			0.0448
			(0.0644)			(0.0243)			(0.0915)
Constant	0.365***	0.353***	0.257***	0.161***	0.251***	0.220***	0.726***	0.524***	0.400**
	(0.0366)	(0.0770)	(0.0993)	(0.0192)	(0.0481)	(0.0452)	(0.0329)	(0.139)	(0.189)
Observations		226			226			158	
R-squared	0.036	0.087	0.099	0.013	0.083	0.163	0.006	0.057	0.072

Note: Clustered robust SE in parentheses

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

Table 6. Effects on catastrophic health expenditures and financial hardship using logit and bivariate probit regressions

	Intention to treat					Average tratement effect on treated			
	Catastrophic health expenditures		Financial hardship			Catastrophic health expenditures		Financial hardship	
	Logit	Marg Effects	Logit	Marg Effects		Probit	Marg Effects	Probit	Marg Effects
ITT	-0.967***	-0.175***	-0.999***	-0.209***	ATET	-0.684***	-0.210***	-0.741***	-0.253***
	(0.237)	(0.0428)	(0.334)	(0.0637)		(0.160)	(0.0478)	(0.274)	(0.0848)
Controls	Yes	Yes	Yes	Yes	Controls	Yes	Yes	Yes	Yes
Obs.	226		158		Obs.	226		158	

Note: Clustered robust standard errors in parentheses

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

4.2 Focus Group Findings

The performance of structured focus group discussions allowed us to verify that the community opinions about the impact of the intervention were in line with the estimated effects. Indeed, in all the four discussions, an improvement in the opportunity to access health care was identified and attributed to the zero-interest loans for health care. The perceived impact appears heterogeneous with respect to different household categories. Considering households that are part of community groups targeted by the intervention, the average opportunity score shows an increase of 100 percent (from 3 in early 2019 to 6 in early 2020) for poor households and an increase of 67 percent (from 6 to 8) for rich households. Considering the population not part of community groups, the temporal increase in the average score is less pronounced in absolute terms, rising from 1 to 2 for the poor and from 5 to 6 for the rich. Participants agreed on the fact that the contribution provided by the program to raise the opportunity score had been substantial for group members, and especially for those not having other means to meet unpredictable health expenses, namely the poor.

As we take into account the opportunity scores assigned to the counterfactual scenario, participants argued that a minimal increase would have had occurred regardless of the intervention since households always seek to improve their living standards: it was identified a potential increase of 33 percent (from 3 to 4) and 17 percent (from 6 to 7) respectively for poor and rich households part of community groups, and a potential increase of 50 percent (from 1 to 1.5) and 20 percent (from 5 to 6) for poor and rich households not part of community groups.

Findings from this exercise were the same during all four structured focus group discussions and suggested two main points about the heterogeneity of the effects. A first distinction regards membership to informal groups. The community clearly perceives the benefits obtained by the target population through the program. Participants argued that some positive spill-over effects could occur at the village level when households not part of community groups learn from their neighbours about the practice of saving for health expenses. However, without access to the common pool of resources the impact remains minimal, and the counterfactual figure indicates no significant deviations from the starting level of opportunity for households not part of community groups. A pre-existing difference between being or not being part of a community group is also evident: households not members of community groups were identified as more vulnerable against health shocks. Such difference was often explained by participants during the structured focus group

discussions when referring to solidarity and mutual help practices which have some potential to alleviate the burden of unpredictable expenses. The second distinction concerns the opportunity level enjoyed by poor and rich households enrolled into the scheme: all members record an improvement due to the program, but the change for the poor is perceived as relatively greater. Participants argued that, on one hand, the rich already have some means to meet health expenditures and membership to the intervention represents an additional safety strategy for them. On the other hand, for the poor who do not own significant assets or savings, the new possibility to rely on the scheme funds considerably improves their situation in case of need.

5. Discussion and Concluding Remarks

This paper examines the impact of the initial phase of a CHF pilot scheme on health expenditures and coping strategies in a rural context of Uganda. The analysis is based on a panel household survey and exploits the randomisation of the offer to enrol in the pilot scheme as a valid instrumental variable for the treatment status. Our approach allowed us to avoid selection bias and to obtain reliable estimates on the ITT effect on sensitised households and the ATET on effectively enrolled members. As shown by the results, the program led to a significant decrease in the incidence of health expenditures, as well as of the share of health expenses, and of the occurrence of financial hardship. Estimates are robust and indicate that the intervention is effective in improving households' financial protection and in reducing the adoption of costly coping strategies in response to unpredictable health costs. The effect on financial hardship also suggests longer-term benefits in mitigating vulnerability to other forms of shocks. Results are consistent with existing studies on CHF in different contexts (Aggarwal, 2010; Chankova et al., 2008; Dror et al., 2016; Galárraga et al., 2010; Jütting, 2004; Mebratie et al., 2019; Savitha and Kiran, 2015), and add to the body of the evaluation literature which mainly relies on longitudinal data.

Core findings obtained through the econometric analysis are confirmed by the community perceptions expressed during the structured focus group discussions. Qualitative evidence provides valuable clues to acknowledge the heterogeneity of the impact on different household categories. In line with other studies (Jütting, 2004; Umeh and Feeley, 2017), structured focus group findings suggest that more disadvantaged people in terms of access to health care are excluded from participating to the scheme, thus raising

equity concerns on the impact of the intervention. Among enrolled members, the poorest are likely to receive greater benefits from the scheme. This point is not consistent with existing quantitative evidence on a higher impact of health insurance on the richer (Wagstaff et al., 2009; Woldemichael et al., 2019). Our findings relate to the initial phase of CHF and this may suggest that the impact of this type of intervention does not present the same heterogeneity effects. Furthermore, community perceptions require to be interpreted according to a different perspective: when able to participate to the scheme, the poor receive a relatively more important contribution than the rich to improve their opportunity to access health care when needed. Although external validity of our results holds only in the context of Oyam district, it is reasonable to suppose that patterns to access health services and to cope with health expenses are not much different among rural households participating in informal community groups in Uganda and in other LMICs. Consequently, the presented evidence suggests that encouraging health savings arrangements at the village level has the potential to significantly improve financial protection and coping strategies in response to illness in similar settings.

Overall, our analysis provides support for the positive role of community-based mechanisms to progress towards UHC and brings forward important policy considerations. Models of CHF and zero-interest loans for health care are effective in reducing the incidence of catastrophic health expenditures and represent an initial and preliminary step in the implementation of a comprehensive insurance platform. Catalysing demand for financial protection through informal community groups is extremely useful to set up the scheme while creating awareness on the harmful effects of financial hardship and benefits of risk-sharing. However, careful attention is required to meet equity objectives when designing the upgrade and scaling-up of the CHF intervention. In fact, it is crucial to extend the target of the scheme to the whole population in the informal sector, and this is possible only by complementing community-based arrangements with subsidies for the poorest. Appendix 1 presents summary results on differences with respect to observable characteristics between households who are members of community groups (about 80 percent of the population) and those who are not part. These statistics show that excluded households are more likely to be poor, to have a lower household size, to be headed by women and older people, thus confirming the importance of proper planning to envisage tailored subsidies provided by the government.

In conclusion, this type of intervention alone does not constitute a valid solution for achieving universal coverage but has the potential to trigger an effective improvement in this direction. In order to be sustainable over time and meet the ultimate goal of UHC, the

transition needs to be supported by a clear stewardship from the public sector to ensure equity and coordination in the insurance management. In other words, while acknowledging the positive transformative impact of CHF initiatives, this needs to be channelled into a comprehensive and long-term national strategy to extend financial protection for the entire population. Positive effects obtained by these initiatives at the community level can constitute an investment and a lever to weigh on the reactivity of the system, but they are likely to deplete their potential in case no effective policy agenda is in place at the higher level of governance.

APPENDIX 1. Differences on observables characteristics related to community groups membership

	Mean		Difference	(SE)
	HHs not part of community group	HHs part of community group		
First wealth tertile (poor)	0.533	0.293	0.240***	(0.066)
Second wealth tertile (average)	0.300	0.348	-0.048	(0.067)
Third wealth tertile (rich)	0.167	0.359	-0.192***	(0.066)
Other income source	0.183	0.152	0.031	(0.052)
Household size	4.283	5.898	-1.615***	(0.316)
Shocks	2.400	2.598	-0.198	(0.203)
Female HH head	0.333	0.170	0.163***	(0.056)
Age HH head	46.683	42.996	3.687*	(2.194)
Illiterate HH head	0.317	0.116	0.201***	(0.050)

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

GENERAL CONCLUSIONS

The present dissertation fits into the global debate on health care coverage in LMICs. Accessibility to health services and financial protection represent interconnected issues extremely relevant within the 2030 Agenda. These are investigated in the context of Uganda, taking into consideration different levels of governance and multiple implications for the country trajectory towards Universal Health Coverage. In order to fill existing knowledge gaps and to contribute obtaining a comprehensive assessment on health coverage in the country, the three chapters adopt specific analytical lenses for addressing complementary research questions.

In the first chapter, a political economy perspective permits to examine the national experience of health financing reforms considering the aspect of financial protection. It is possible, in this way, to identify the most important mechanisms behind the political negotiation process of policy design and policy making in the health sector: divergent ideologies concerning health care as well as conflicting interests are delaying an effective implementation of reforms to achieve widespread financial protection for the population. The dichotomy between the slogan of "free health care" and the plan for National Health Insurance has not been solved by the central government, who currently does not conceive health care as a strategic priority for the country development. Furthermore, the private sector and the development partners are gaining influence within the sector and, at the same time, they create fragmentation in the health financing landscape. Other important stakeholders, such as the academia and the civil society, tend to be underrepresented on the discussion platforms for reforms design. Enabling factors which could contribute to unlock the political process are identified; the first one is represented by the strong momentum at the international level to advocate for UHC, and, thus, to exert pressure on the national government for developing and implementing dedicated policies. As regards the second enabling factor, efforts at the community level to promote an active role of the population in the health system have the potential to strengthen the link between the demand and supply side of health care, leveraging important changes for services coverage and financial protection. Whilst it is envisaged the positive stimulus which could be provided by the global arena, on one side, and by local community-based initiative, on the other side, it is clear that the public sector will continue to play a paramount role in determining the overall coverage outcomes.

In the second chapter, the analytical focus is narrowed at the local level to investigate factors associated with accessibility to health services for rural households.

Specifically, the role of social capital is analysed with respect to the households' ability to overcome obstacles for health services utilisation and cope with financial hardship. The structure of social networks activated to access health care is described, highlighting the relevance of the extended family as the most important component providing support in case of illness. Socio-economic inequalities are reflected into greater obstacles faced by the poor to obtain both material and immaterial support from other households. Furthermore, the level of social capital is significantly associated with the risk of financial hardship due to health expenditures. The evidence generated by this analysis originates from an innovative methodology and permits to step forward in the understanding of different aspects at the community and household level influencing health coverage outcomes of the population. Shedding lights on the mechanisms related to social capital can also suggest policy implications in the field of public health: initiatives tackling social exclusion and promoting empowerment of vulnerable categories are expected to produce positive effects on health care accessibility by reducing drivers of inequalities.

In the third chapter, the focus at the local level is maintained and the impact evaluation of a community-based intervention for health financing is presented. The initial phase of implementation consists of a scheme of zero-interest loans for health expenditures and involves existing informal groups of risk-sharing. The analysis reveals that the intervention is effective in reducing the burden of catastrophic health expenditures and improving financial protection for households who are part of the groups. However, equity concerns on the impact of the intervention are raised since vulnerable categories of population are more likely not to participate into the scheme. This new piece of evidence suggests that community-based models can represent an initial step to progress towards UHC while producing a positive transformative effect on the population. At the same time, the equity issue must be solved while designing the scaling up and upgrade of the intervention, and attention is required not to create additional fragmentation in the health financing landscape. Therefore, it is extremely important to channel these local initiatives within a comprehensive strategy at the national level to improve financial protection under a clear stewardship of the central government.

Overall, this dissertation depicts multiple levels of analysis and disentangles different aspects which are relevant for health care accessibility in Uganda. While progressing towards Universal Health Coverage, the potential of community-levels initiatives to boost financial protection at the local level is envisaged. In parallel, it is also acknowledged the importance of an active engagement of civil society and academia

stakeholders for policy design on health care reforms. Finally, the leading role of the public sector remains the most important component to determine the future trajectory.

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