

Poverty and Household's Healthcare Decision-Making Behavior: Evidence from North Shoa Zone, Amhara Region, Ethiopia

Muhammed Siraj*¹, Kidane Kerebih², Sisay Mulate³

¹Department of Economics, Debre Berhan University, P.O. Box 445, Debre Berhan, Ethiopia

²Department of Accounting and Finance, Debre Berhan University, P.O. Box 445, Debre Berhan, Ethiopia.

³Department of Accounting and Finance, Debre Berhan University, P.O. Box 445, Debre Berhan, Ethiopia.

DOI: <https://doi.org/10.61593/DBU.BIRJSH.01.09.24>

Abstract

Poverty constrains poor households from accessing healthcare services especially in developing economies. This study explored the influence of poverty on households' healthcare insurance decision-making behavior through households' participation in the Community-Based Health Insurance (CBHI) scheme in four purposively selected woredas of North Shoa zone, Amhara region, Ethiopia. A quantitative research approach was employed. Primary data was obtained by convenience sampling from 356 sample households through a semi-structured questionnaire for empirical analysis. Both descriptive and binary logistic regression methods of data analysis were applied. The study finds being a household above poverty line is less likely to join the CBHI [AOR=0.003, $p<0.05$]. In addition, head of household's age [AOR=1.551, $p<0.05$], marital status [AOR=1.011, $p<0.05$], year of schooling [AOR=1.937, $p<0.05$], perceived health service quality, scope and adequacy [AOR=54.820, $p<0.05$], and awareness about the scheme [AOR=408.795, $p<0.05$] have positive and significant influence on households' decision to participate in the CBHI scheme. Moreover, household's family size [AOR=7.996, $p<0.05$], and previous year's annual health expenditure [AOR=1.005, $p<0.05$] have positive and significant influence on households' decision while distant households to the nearest public health institutions [AOR=0.421, $p<0.05$] are found less likely to join CBHI. More importantly, this study found that poverty is a pertinent factor in influencing households' healthcare decision-making behavior among other socioeconomic, demographic, and institutional factors. This suggests that the CBHI scheme in Ethiopia should prioritize being more pro-poor to ensure health equity and reduce healthcare financial risk by improving accessibility, building community trust, and raising awareness, as ensuring healthy households is crucial for breaking the poverty cycle.

Keywords: Poverty, Decision-making, Healthcare, CBHI, Ethiopia.

*Corresponding author email: muhasiraj@gmail.com; ORCID links: <https://orcid.org/0000-0003-0819-0833>

Article information: Received 05 July 2025; Revised on 26 November 2025; Accepted on 25 December 2025

© 2025 Debre Berhan University. All rights reserved

INTRODUCTION

Poverty is a state of deprivation where people lack access to essential resources and necessities needed for wellbeing, healthy and dignified life (Haughton & Khandker, 2009; Lister, 2021). It is a significant detrimental issue affecting nearly about one-fifth of the global population and has far reaching implications for health and well-being particularly in Sub-Saharan Africa countries, where two third of world's population live in extreme poverty (World Bank Group, 2024; World Health Organization; World Bank, 2023). As per WHO (2024), globally about 1.3 billion people have been pushed into poverty due to out-of-pocket health costs as they are often compelled to delay or forgo lifesaving treatments, resulting in worsening health outcomes and perpetuating illness and poverty the cycle.

High poverty rate and high out-of-pocket health spending coupled with poor health system are among the most striking features of the developing countries (Sirag & Mohamed Nor, 2021). In low-income countries, access to health services is limited especially for vulnerable groups of people. Although financial barriers contribute significantly to poverty, the causal relationship between health access and poverty is reciprocal. When people demand healthcare but are not availed or delayed, their health worsens, which in turn makes them less productive, lose income, and have higher healthcare costs that all contribute to and sustain poverty (Peters et al., 2008; Wagstaff, 2002). Hence, vulnerabilities to health issues are creating a cycle in which poverty leads to poor health that perpetuates poverty.

Ethiopia remains one of the poorest countries with inadequate health systems that exposes the people to a higher out-of-pocket health expenses (e.g. Asfaw, Shifaw, Belete, & Aychiluhm, 2022; Mekonen, Gebregziabher, & Teferra, 2018; Noubiap, Joko, Obama, & Bigna, 2014). The ramifications of inadequate health system of Ethiopia disproportionately affect vulnerable groups, notably impoverished women, elderly and children. To this end, the Ethiopian government has been promoting a voluntary financing system, community-based health insurance (CBHI) program since 2011 for vulnerable poor households (EHIA, 2020). Although the scheme targeting vulnerable people, the participation of households still stands lower especially in food insecure areas of the country (Moyehodie, Mulugeta, & Amare Yilema, 2022; Tadesse, Atnafu, Ketemaw, & Alemu, 2020a).

The Amhara Regional state of Ethiopia has widely varied level of participation in CBHI scheme across its zonal and woreda level administrations. It is ranging from the highest (82%) in East Gojjam (82%) to the lowest (32%) in Awi zone reported in the year 2023 (Amhara region CBHI report, 2024). In this regard, North Shoa Zone in the Amhara region has about 64% enrollment rate though the enrollment rate varied across its administrative woredas ranging from the highest (71%) in Ankober and Mojana woreda to the lowest (38%) in Menz Mama (EHIA, 2022).

Households' decision to participate in the CBHI scheme is likely driven by several socioeconomic, demographic, institutional, and other factors. Previous studies from various countries reported that membership in CBHI schemes is influenced by key factors including gender, family size, annual income, and occupation (see, e.g. Fite *et al.*, 2021; Geferso & Sharo, 2022; Moyehodie *et al.*, 2022); education level (refer to Moyehodie *et al.*, 2022; Negash, Dessie, & Gobena, 2019); as well as social norms and beliefs, peer influence, household composition, and overall socioeconomic conditions (see e.g. Glazer & Karpati, 2014; Löckenhoff, O'Donoghue, & Dunning, 2011; Riedijk & Harakeh, 2018; Tadesse, Atnafu, Ketemaw, & Alemu, 2020b; Worthy & Maddox, 2012). Additionally, satisfaction with healthcare professionals, perceived quality of healthcare services, family history of illnesses, perceived affordability of health insurance schemes, and anticipated health conditions within the households' were identified as factors influencing households' decision to enroll in the health insurance scheme (Fite *et al.*, 2021; Geferso & Sharo, 2022; Ghimire, Ghimire, Khanal, Sagtani, & Paudel, 2023; Mirach, Demissie, & Biks, 2019; Negash *et al.*, 2019).

In the Ethiopian context, similar studies were conducted aiming at identifying factors affecting household's enrollment in the CBHI scheme. However, the findings of these studies lack consistency. For instance, studies conducted by Minyihun, Gebregziabher, and Gelaw (2019) in Bugna District, Northeast Ethiopia; Ebrahim, Yonas, and Kaso (2019) in the West Arsi Zone, Oromia; Negash *et al.* (2019) in Gida Ayna District, Oromia region; and Kibret, Leshargie, Wagnew, and Alebel (2019) in the East Gojjam Zone, Northwest Ethiopia highlight household income, occupation; education, family dependency level, and health expenditure have influence to enroll in the CBHI scheme. However, a study by Haile, Ololo, and Megersa (2014) in Benchi Maji Zone, Southwest Ethiopia, suggest that household income and education are less relevant for household's decision to participate in the scheme. The inconsistencies of the findings are likely due to data set used and research methods applied. For instance, many studies on CBHI in the country have utilized datasets that do not adequately represent study subjects from both high and low CBHI enrollment performing areas. Moreover, previous studies constrained in terms of adequately addressing the impact of households' poverty status on their decision to enroll in the CBHI scheme. Furthermore, the relationship between poverty and CBHI enrolment was not thoroughly explored in Ethiopian context particularly in the North Shoa Zone.

In response to the aforementioned gaps, the current study considered study sample households from both high and low enrollment performing woredas for a more comprehensive analysis by focusing on the impact of household's poverty status on their enrollment decision to the CBHI scheme. Therefore, this research investigated the influence of poverty along with other control variables on households' healthcare decision reflected in the decision to enroll in the CBHI scheme in the North Shoa Zone, Amhara region, Ethiopia.

THEORETICAL REVIEW

Definition and concept

Health insurance serves as mechanisms by which individuals who are "insured" can safeguard themselves against the financial repercussions of illness, accidents, or disability (Topan, Thiombiano, & Sarambe, 2024). In the same vein, community-based health insurance (CBHI) is one of the health insurance schemes dominantly applied in low and middle-income countries that facilitate access to quality health care, especially in countries where the government and private-based health

insurance is minimal (Mladovsky & Mossialos, 2008).

CBHI is an insurance modality where community members must prepay for health services and have a pledge agreement requiring the health insurer to cover basic health service costs in exchange for premium payments into a collective fund owned. In other words, it is a mechanism whereby households in a community co-finance the current and/or capital costs associated with a given set of health services (Atnafu, Tilahun, & Alemu, 2018; Kebede, 2024). As a voluntary health insurance scheme, CBHI can be viewed as a decision-making that reflects consumers' comprehension of health insurance information (Barnes, Hanoch, & Rice, 2015).

Ethiopia implemented a healthcare financing strategy in 1998 to gather additional resources aimed at ensuring sustainable, equitable, and high-quality healthcare service delivery (Tadesse et al., 2020a). Since 2011, the Ethiopian government has been promoting a community-based health insurance program (CBHI) to facilitate voluntary healthcare financing for vulnerable populations (EHIA, 2020).

The Interplay of Poverty and Healthcare

Poverty affects the households' access to health services that lead to poor health conditions and frailties (Mukangendo, Nzayirambaho, Hitimana, & Yamuragiye, 2018). Families experiencing economic hardship are unlikely to be able to afford medical care, and may subject themselves to chronic health problems and encircled with hardships. Poverty is a major barrier for seeking healthcare services and the deprivation increased the probability of facing new health problems thereby they become more stressed and less productive (Chung, Dong, Wong, Wong, & Chung, 2020). (Ridley, Rao, Schilbach, & Patel, 2020). The problem is more devastating when there is inadequate health insurance coverage and restricted access to preventive healthcare services of low-income households (Mukangendo et al., 2018).

Households having financial difficulties coupled with limited access to preventive care services and lack of health insurance coverage forced them to delay to seek medical attention and their health conditions become severe, leading to more costly and complex treatments which ultimately plunge them deeper into poverty. To this end, the community-based health insurance (CBHI) has emerged as promising strategies for providing financial protection against healthcare-related poverty, particularly in low and middle-income countries (Schleicher, Klöner, Sauerborn, Sié, & Soares-Coutant, 2018).

More specifically, CBHI calls for affordable premiums, comprehensive benefit packages, and efficient administrative processes which are among the key features particularly in developing economies. On top of that, sound and transparent governance, and active community engagement are essential aspects for effective and efficient implementation of CBHI. All in all, the effective implementation of such scheme needs holistic approach as the healthcare service provision and poverty have multifaceted challenges (Hamid, Roberts, & Mosley, 2011).

Case in point, poor households where there is lack of health insurance protection take their own action, which may throw them into deeper poverty. For instances, households may choose to borrow or sell valuable assets to cover immediate medical expenses (Kruk, Goldmann, & Galea, 2009). These coping mechanisms can significantly deplete a household's overall welfare and severely curtail its capacity to make strategic investments in crucial areas such as education, adequate nutrition, and other essential needs hold them to stay in the poverty cycle (Gobir, Adeyemi, Abubakar, Audu, & Joshua, 2016). Particularly, the heightened level of medical debt and selling of valuable assets can be detrimental for low-income households, as it would make it difficult to meet other essential needs (Li et al., 2020). Overall, the utilization of resources towards medical expenses undermines families' ability to escape poverty and the stress and uncertainty associated with financial instability can take a toll on mental health, further compounding the challenges.

Overall, the aforementioned instances in developing countries imply that poor households would be left vulnerable to financial difficulties without adequate health insurance or social safety nets (Atake, 2018; Morudu & Kollamparambil, 2020). As this likely sustain a cycle of poverty and poor health addressing this issue requires a multifaceted approach.

Decision-Making Theories

Under this section, the economic and social theories of decision-making in the realm of health insurance are discussed. This includes expected utility theory, state-dependent utility, endowment effect, prospect theory, status quo bias, social capital, and others.

Expected utility theory states that individual's level of risk aversion and the desire for income certainty influences the demand for insurance (Glenn W Harrison & Ng, 2019; Schoemaker, 1982). However, future health condition is uncertain and hence insurance choices are not solely driven by utility but they are also directed by expectations respective to several factors including health status

(Cameron, Trivedi, Milne, & Piggott, 1988). For instance, experiencing health shocks or devastating medical expenses would make households be more risk averse thereby seeks coverage's like CBHI to reduce their vulnerability.

State-dependent utility theory postulates that individuals' utility level and preferences are driven by their state like health or socio-economic condition. To this end, people exhibit variability in terms of degrees of risk aversion, which can influence their choices regarding insurance and the expected value of payouts. As a result, insurance coverage may not fully compensate for losses if the expected payout from the insurance policy is lower than the actual loss experienced in the event of sickness (Panda *et al.*, 2013; Schneider, 2004; TENAW, 2017)

Prospect theory: propose a consumer's decision to purchase a prospect is influenced by the gain-loss utility. Individuals evaluate a prospect based on a straightforward gain-loss assessment from a reference point, rather than considering its overall impact on final wealth. In this evaluation process, loss aversion plays a crucial role, as the extent of loss aversion affects the perceived disutility of losses relative to equivalent gains. As per this framework, insurance is evaluated excluding the background risks and overall wealth taking the level of wealth without insurance as base line reference. This situation narrows insurance context and makes it to be perceived as a risky gamble where it is considered beneficial benefits if loss occurs and no yields if no accidents' (Hwang, 2016).

Cumulative prospect theory (CPT) is emerged as an appealing behavioral representation of how individuals make choices under risk. It provides a perspective grasp the risk premium in relation to risky prospects (Glenn W. Harrison & Swarthout, 2023). From insurance point of view, CPT posits that the tendency to buy insurance is likely due to people's perception of the relatively low probability of encountering of an adverse outcome like illness as substantial. Surprisingly, people with financial difficulties- who barely afford to let health related issues affecting their daily work down play the probability of illness and stay uninsured (Schneider, 2004).

Considering decision making under uncertainty, health insurance can be viewed from endowment effect perspective where individuals may value more for what they have and less value for they don't possess (Barberis, 2013; Bernstein, 2012; Reb & Connolly, 2007). According to Schneider (2004), endowment effect posits that poor individuals will insure if they perceive the benefits of insurance as higher than the cost related to giving up being uninsured (Schneider, 2004). The

other viable perspective to insurance decision is status quo bias (SQB), which implies that individuals tend to favor their current circumstances due to loss aversion, making them less lean to change (Do Hwang, 2021; Karl, Holle, Schwettmann, Peters, & Laxy, 2019). Moreover, social capital theory views health insurance decisions as elevated levels of social capital enhancing the community's concern for the well-being of its members (Henning, 2014; Mladovsky & Mossialos, 2008). As per this view, communities having sound social capital are more likely to join health coverage schemes to manage financial difficulties (Donfouet & Mahieu, 2012).

EMPIRICAL REVIEW

Several previous similar studies focused on identifying factors that influence households' decisions to purchase health insurance. The existing decision-making theories along with empirical findings from various socio-economic contexts indicate that several factors may explain why low-income households choose to insure or remain uninsured (Pahwa & Gupta, 2019; Schneider, 2004). Similarly, Topan *et al.* (2024) explored that individuals' decision to participate in a mutual health insurance scheme is likely influenced by individual characteristics, economic considerations, and insurance-related factors. Empirical findings do exist from previous studies as to the potential factors across different countries and regions and pertinent ones are summarized below through three-wide categories: demography, socio-economic and CBHI scheme related factors.

Demographic Factors

There are socio-demographic factors that also influence households' healthcare insurance decision-making. This includes age, gender, household size and composition, among others. In this respect, older household heads seek more health care services making them incline to join health insurance due to associated health risk exposures (Adebayo *et al.*, 2015; Adhikari, Wagle, Adhikari, Thapa, & Adhikari, 2018). Similarly, women also have more preference to join health insurance schemes as they have unique health care demands like reproductive health. Likewise, family size is also a pertinent factor contributing for households' health insurance decision making. For instance, larger households are more likely to join health insurance scheme like CBHI as they face more health risk exposure along with possible financial difficulties (Adebayo *et al.*, 2015; Conde *et al.*, 2022; Dror *et al.*, 2016; Gankpe, Gankpe, Baleba, Zinsou, & Mesenge, 2018).

Evidences show that the socio-demographic factors such as gender, family size, age, and marital status have been reported to influence household's health

insurance decisions across various countries. For instance, research conducted by Abdilwohab *et al.* (2021) in the peripheral regions of southern Ethiopia, Adebayo *et al.* (2015) in low- and middle-income countries, Geta *et al.* (2024) in the Kellem Wolega Zone of Oromia, and Tadesse *et al.* (2020a) in northwest Ethiopia highlights these influences. However, a study by Bodhisane and Pongpanich (2019) in Laos found that these factors did not significantly impact health insurance decisions. This suggests that findings with respect to the influence of socio-demographic factors on health insurance decision-making are inconsistent which calls for further investigation.

Socioeconomic Factors

The socioeconomic factors including income, wealth, asset, previous year health expenditure, education, distance to the nearest health institutions and social networks have a paramount influence in shaping households' health insurance decision making behavior. For instance, the higher the previous year health expenditure, the more the likelihood for the households to decide to join community health insurance so as to tackle devastating medical expenses. Similarly, households with higher level of education are more aware and make decision to subscribe to health insurance scheme so as to exploit the potential benefit (Adebayo *et al.*, 2015; Dror *et al.*, 2016).

Empirical evidences also revealed that distance to the nearest health institutions has a potential effect on determining participation to the CBHI scheme. In this respect, households residing in remote rural areas are less likely to join the CBHI scheme (Buzza *et al.*, 2011). Social network, on the other hand, plays a key role for households to decide whether to be a member or not in the scheme (Albrecht & Goldsmith, 2003; Heaney & Israel, 2008).

To summarize the effect of socioeconomic factors with empirical evidences, previous studies identified that household income, occupation, education, family dependency level, and health expenditure have significant influences on households' decisions regarding health insurance. For instance, studies conducted by Minyihun *et al.* (2019) in Bugna District, Northeast Ethiopia; Ebrahim *et al.* (2019) in the West Arsi Zone, Oromia; Negash *et al.* (2019) in Gida Ayna District, Oromia region; and Kibret *et al.* (2019) in the East Gojjam Zone, Northwest Ethiopia highlight this relationship. However, findings from other studies, such as those by Bodhisane and Pongpanich (2019) in Laos and Haile *et al.* (2014) in Benchi Maji Zone, Southwest Ethiopia, suggest that household income and education are less relevant to the health insurance decision-making

processes of these households. Besides, such discrepancy in reported findings respective to the influence of socioeconomic factors on households' health insurance decision making and opening room for further investigation.

CBHI Scheme, Health Institutions and Facilities Related Factors

Affordability of premiums: It influences both enrolment and consistent adherence to the scheme, particularly among households characterized by low-income levels (Umeh & Feeley, 2017). When premiums are set at levels that are within reach for the majority of the target population, it encourages greater participation and sustained engagement (Kaso, Haji, Hareru, & Hailu, 2022). Conversely, when premiums are perceived as excessively burdensome, it can act as a significant deterrent, effectively limiting the scheme's reach and potential impact (Kakama, Namyalo, & Basaza, 2020). Thus, it has a crucial role to household's decision either to participate to the health insurance program or not.

Knowledge and awareness of CBHI benefits: A lack of awareness and a limited understanding of the potential benefits offered by CBHI schemes can significantly impede both enrolment rates and the overall utilization of these valuable healthcare resources (Fadlallah *et al.*, 2018). When individuals are not fully aware about the scope of coverage, the range of services available, and the potential cost savings associated with CBHI, they may be less inclined to participate in the scheme. Lack of knowledge can stem from a variety of factors, including limited access to information, low levels of health literacy, and cultural beliefs that may influence healthcare-seeking behaviour (Bamidele & Adebimpe, 2012). A significant proportion of the population remains largely unaware of the financial protection and enhanced access to healthcare services that are afforded through participation in CBHI schemes (Kusuma, Pal, & Babu, 2018). This lack of awareness can be particularly prevalent in rural and underserved communities, where access to information and healthcare services may be limited. As a result, many individuals may miss the opportunity to benefit from CBHI, leaving them vulnerable to the financial shocks of illness. Hence, it is a critical driver of households to participate to the scheme or not.

Trust and scheme credibility: The trust level that community members place in the CBHI scheme and its overall management plays a pivotal role in sustaining enrolment rates and ensuring adherence to the guidelines and requirements (Dror *et al.*, 2016; Eseta & Sinkie, 2022). Individuals are more likely to remain enrolled and comply with its rules and regulations when they have confidence in the

integrity and effectiveness of the scheme. In the same vein, when trust is eroded by perceived corruption, mismanagement, or lack of transparency, it can lead to the ultimate undermine of the scheme's sustainability. Perceptions of corruption, instances of mismanagement, or a general lack of transparency in the operation of the CBHI scheme can significantly erode public trust, potentially leading to increased dropout rates and a decline in overall community support (Purohit, 2014). When individuals believe that the scheme lacks fair and equitable management manner, they may lose faith in its ability to provide financial protection and access to quality healthcare services. This ultimately can lead to reluctance to pay premiums, a decrease in utilization of services, and ultimately, the collapse of the scheme. Ensuring accountability, promoting transparency, and actively involving community members in the governance and decision-making processes of the scheme are crucial steps in bolstering its overall credibility and fostering a sense of ownership among the beneficiaries (Odeyemi, 2014).

Quality of care and service availability: absence of quality care and the limited availability of essential medical services can be deterrents, discouraging households from actively seeking healthcare even having CBHI coverage (Habte et al., 2022). When healthcare facilities are understaffed, lack essential equipment and supplies, or provide substandard care, households may lose faith in the healthcare system and be less likely to seek medical attention (Abdilwohab et al., 2021). The presence of inadequate staffing levels, frequent shortages of essential drugs and medical supplies, and unacceptably long waiting times can collectively diminish overall satisfaction levels with CBHI schemes (Adhikari et al., 2018). Hence, household's perception towards the service quality, scope and adequacy of health institutions influences their likely to participate on the CBHI scheme

In a nutshell, households' perception of healthcare service quality, scope, and adequacy; knowledge and understanding of the insurance scheme, premium affordability, and trust in scheme are among the identified factors influencing households' healthcare decision-making behaviors (Dror et al., 2016; Robyn, Fink, Sié, & Sauerborn, 2012).

Conceptual Framework

Membership status of the household to the CBHI scheme serves as a dependent variable. Poverty line measured in income, along with several control variables including socio-demographic and CBHI scheme and health institution related factors were used as potential factors for influencing

households' decision-making behaviors. The conceptual framework of the study is summarized in the Figure 1 below.

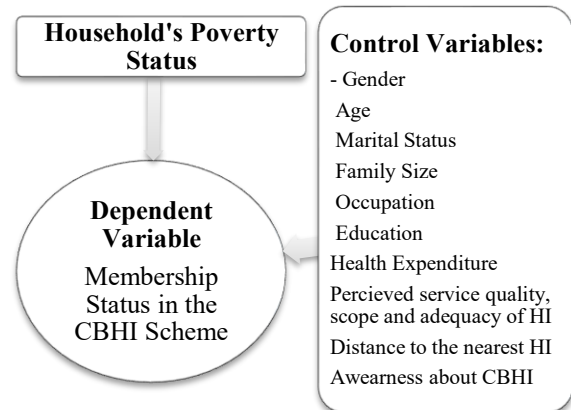


Figure 1: Conceptual Framework of the study. Source: Authors own work (2024)

METHODS AND MATERIALS

Research Avenue

The study is restricted to households in North Shoa zone, Amhara regional state of Ethiopia. With a territorial size of 15,936.13 square kilometres and roughly 3.5 million population, North Shoa zone is the sixth most populous in Amhara region (CSA, 2022). North Shoa zone comprises twenty-two woredas and nine administrative cities, with seven woredas identified as food insecure and the Safety-Net programs has been operating in these woredas. The study area of this research encompasses four selected administrative woredas of North Shoa zone, namely, Ankober, Tarmaber, Menz Mama and Angolela Tera Woredas.

Research Design and Approach

The study employed an explanatory research design and a quantitative research approach, which fit the nature of the investigation, aiming at identifying the impact of poverty along with other control variables that influence household healthcare decision-making behaviors. This study design and approach were also adopted from previous studies (e.g., Bodhisane & Pongpanich, 2019; Haile et al., 2014; Kebede, 2024).

Data Types and Sources

The study relies on primary household-level cross-sectional data for the empirical analysis obtained from representative households through a self-administered questionnaire. The questionnaire comprised both closed-ended and open-ended questions. This approach enabled collection of a comprehensive range of households' information that consisted of household's socio-demographic, household's annual income, perceived quality and scope of healthcare service, awareness of the

scheme benefits, and other essential pertinent variables. Such a wide range of household information allowed the researchers to identify the key factors influencing households' healthcare decision-makings behaviours in the study area.

To triangulate household responses and gain a comprehensive understanding of the current state of community-based health insurance, the study conducted key informant interviews with selected officials from the Ethiopian Health Insurance Agency, as well as zonal and woreda-level healthcare office representatives, utilizing semi-structured formats. This approach facilitated the collection of valuable information, including the officials' opinions, ideas, and experiences concerning community-based health insurance, which in turn shed light on issues related to health insurance and the decision-making processes of households. Moreover, the study used secondary data obtained from federal, regional, zonal and woreda level office documents and reports, and relevant literatures.

Sampling Method and Size

Considering the variation household's enrolment in the CBHI scheme across administrative woredas of the North Shoa zone, the study employed multi-stage sampling techniques. First, using stratified sampling techniques the researchers categorized the administrative woredas into two groups: those that participated in the Safety Net Program and those that did not. Second, within each group, two representative woredas were purposively selected from those having relatively higher and lower CBHI enrolment performance. Consequently, Menz Mama, Angolila Tera, Tarmaber and Ankober administrative woredas were selected.

The researchers further stratified households based on their membership status in the CBHI scheme and a proportional-sampling technique was applied to select representative households from each group. Finally, purposive sampling technique was used to select representatives CBHI member and non-member households.

As per the North Shoa zone office report (2024), in the year 2023, there were 81,505 households across the four selected woredas, with 46,193 households enrolled in the CBHI scheme. Based on this data,

$$\text{Logit}(P) = \text{Log}\left(\frac{P}{1-P}\right) = a_0 + a_1X_1 + a_2X_2 + \dots + a_kX_k \quad \text{-----} \quad (1)$$

$$P\left(y_i = 1 / X_1, X_2, \dots, X_k\right) = F(a_0 + a_1X_1 + a_2X_2 + \dots + a_kX_k) \quad \text{-----} \quad (2)$$

Where, F= cumulative standard logistic distribution function

$$P\left(y_i = 1 / X_1, X_2, \dots, X_k\right) = \frac{e^{(a_0+a_1X_1+a_2X_2+\dots+a_kX_k)}}{1+e^{(a_0+a_1X_1+a_2X_2+\dots+a_kX_k)}} = \frac{1}{1+e^{-(a_0+a_1X_1+a_2X_2+\dots+a_kX_k)}} \quad \text{----} \quad (3)$$

$$y_i = \begin{cases} 1, & \text{if a household is enrolled in CBHI} \\ 0, & \text{if a household is unenrolled in CBHI} \end{cases}$$

the researchers utilized a simplified version of Yemane's (1967) formula to determine the sample size as the population of the woredas was both large and known. The formula is expressed and representative number of households determined as follows:

$$n = \frac{N}{1 + N(e^2)} = \frac{81,505}{1 + 81,505 (0.05)^2} \approx 398$$

Where: n =sample size, N= population size of selected woredas, and e = error margin (5% was considered for this study).

Initially, the survey questionnaire was crafted with input obtained from experts, and a pilot test was conducted to check the clarity and validity of the survey instrument. Besides, the finalized version of the survey instrument was translated into the local language "Amharic", and distributed to sample households.

Ultimately, data were collected from 356 sample households (i.e., 89.45% response rate) including 190 CBHI members and 166 non-members from all selected woredas purposively. This large cross-sectional data and sampling approach facilitated a robust analysis of the targeted population.

Method of Data Analysis

The researchers used both descriptive and binary logistic regression for the empirical analysis. The overall sample profile and characteristics were analyzed using descriptive analysis. On the other hand, a binary logistic regression analysis was employed to investigate whether poverty and other pertinent control variables determined the decision-making behavior of the household or not in the context of the study area.

Model Specification

A binary logistic regression model was applied in which households' membership status in the CBHI scheme was served as a dependent variable, with 1 for member and 0 for non-member households. Using this approach, the study captured major factors that affect households' healthcare decision-making behaviours. Several prior studies also used this model for investigating factors influencing individual decisions in several countries' contexts (see e.g., Bodhisane & Pongpanich, 2019; Haile et al., 2014; Kebede, 2024). The specification of the model is presented as:

The model's parameters were obtained using maximum likelihood estimation, and the overall

equation of the logistic function applied for this study is given as:

$$\text{Predicted logit for HHsDMB}_{CBHI} = a_0 + a_1 \text{Pov_Status}_i + a_2 \text{Control Var}_i + e$$

The **Pov_Status_i** is a dummy variable that captures household's poverty status, taking 1 for above poverty line and 0 otherwise. Whereas, **Control Var_i** represents control variables including the head of the household's age, gender, marital status, occupation, and education, members in the household, and previous year annual health expenditures. Besides, it covers factors related to CBHI and health institution related factors including households' perceptions about health institutions' service quality, scope, and adequacy, distance to the nearest health institutions, and households' awareness about the benefit of the CBHI scheme. Moreover, the error term (e) in the logistic model has a conditional mean and variance of 0 and $\pi/3$, respectively. Since the logistic regression model is a probability model, the results are interpreted through this lens.

Definitions and Measurements of Variables

Household membership status to the Community-Based Health Insurance (CBHI) is the dependent variable for this study. It is constructed as a binary dummy variable where a value of one denotes a member and zero for non-member households in

the CBHI scheme. This allowed to examine to what extent and in which direction household's poverty status and other specified independent variables affect the households' healthcare decision-making behaviour. Similar measurements for variables were applied by previous studies, to mention a few: Abdilwohab *et al.* (2021); Geta *et al.* (2024); Adebayo *et al.* (2015); Bodhisane and Pongpanich (2019); Negash *et al.* (2019); Ebrahim *et al.* (2019)).

To examine the impact of households' poverty status on their healthcare decision, the study constructed a dummy variable taking 1 for households above the absolute poverty line and 0 otherwise. Household's poverty status was determined using a \$1.96 per day income for individuals set by the World Bank (2023). The estimated annual income of the households obtained from the survey was used to level their poverty status. The study variables, along with their definition and measurements, are provided in the Table 1 below.

Table 1: Definition and measurements of study variables

| Variables | Definition of variables | Nature | Measurements' | Expected sign |
|------------------------|---|------------|---|---------------|
| HHsDMB _{CBHI} | Households' healthcare decision-making behavior that captured by membership status to the Community Based Health Insurance (CBHI) scheme | Dummy | 1 if the household is member to the CBHI scheme, 0 otherwise. | |
| Pov_Status | Household's absolute poverty line measured using the minimum income required to cover the basic needs of an individual/ household. A threshold of absolute poverty line is determined using \$1.96 per day set by world bank. | Dummy | 1 if the household is above poverty line, 0 otherwise | - |
| Age | Age of the head of the household | Continuous | Age in years | + |
| Gender | Gender of the head of the household | Dummy | 1 if the head of the household is Female, 0 otherwise | + |
| Family_Size | Number of family members in the household | Continuous | Number of family members in the household | + |
| Marital | Marital Status of the head of the household | Dummy | 1 if the head of the household is married, 0 otherwise. | + |
| Occupation | Types of occupation engaged by the head of the household | Dummy | 1 if the occupation type is farming, 0 otherwise | - |
| Education | Household's head years of schooling in the formal education | Continuous | Number of years attended in the formal education | + |
| Health_exp | Household's annual health care expenditure in the past year | Continuous | In Ethiopian Currency (ETB) | + |
| Distance_HI | Distance to the nearest health institutions in kilo meters | Continuous | Estimated distance in kilo meter | - |
| HH_PQHI | Households perception towards the service quality, scope and adequacy of public health institutions | Dummy | 1 if households perceived "Good" 0 if "Not Good" | + |
| Awareness | Household's awareness about the benefit of CBHI scheme | Dummy | 1 if the household is "Aware about CBHI", 0 otherwise | + |

Source: Authors' compilation of the definition and measurements of variables (2024)

RESULTS AND DISCUSSION

The study’s sample characteristics, pre and post estimation test, and results obtained from binary logistic regression are presented below.

Study Sample Characteristics

The information obtained from 356 sample households are characterized based on

socioeconomic, perceived health service quality and adequacy, and CBHI scheme presented below in the Table 2.

Table 2: Summary of study sample characteristics

| Sample characteristics | | Membership Status (Freq (%)) | | |
|---|--------------|------------------------------|------------|------------|
| | | Yes | No | Total |
| Gender | Male | 115 (32.3) | 143 (40.2) | 258 (72.5) |
| | Female | 75 (21.07) | 23 (6.46) | 98 (27.5) |
| Age | ≤ 30 | 2 (0.6) | 24 (6.7) | 26 (7.3) |
| | [31,60] | 165 (46.3) | 141 (39.6) | 306 (86.0) |
| | >60 | 23 (6.5) | 1 (0.3) | 24 (6.7) |
| Family size | ≤ 3 | 16 (4.5) | 107 (30.1) | 123 (34.6) |
| | [4-6] | 137 (38.5) | 56 (15.7) | 193 (54.2) |
| | >6 | 37 (10.4) | 3 (0.8) | 40 (11.2) |
| Marital Status | Married | 138 (38.8) | 131 (36.8) | 269 (75.6) |
| | Others | 52 (14.6) | 35 (9.8) | 87 (24.4) |
| Years of schooling in the formal education | ≤ 4 | 52 (14.6) | 114 (32.0) | 166 (46.6) |
| | [5,10] | 101 (28.4) | 45 (12.6) | 154 (41.0) |
| | >10 | 37 (10.4) | 7 (2.0) | 44 (12.4) |
| Occupation | Farming | 115 (32.3) | 100 (28.1) | 215 (60.4) |
| | Others | 75 (21.1) | 66 (18.5) | 141 (39.6) |
| Poverty Status | 1 [Above PL] | 32 (9.0) | 128 (36.0) | 160 (44.9) |
| | 0 [Below PL] | 158 (44.4) | 38(10.7) | 196 (55.1) |
| Previous year average annual health expenditure | ≤500 | 17 (4.8) | 147 (41.3) | 164 (46.1) |
| | [501, 1,000] | 32 (9.0) | 12 (3.4) | 44 (12.4) |
| | >1,000 | 141 (39.6) | 7 (2.0) | 148 (41.6) |
| The average distance to the nearest healthcare institutions | ≤ 3 | 146 (41.0) | 16 (4.5) | 162 (45.5) |
| | [4-6] | 43 (12.1) | 74 (20.8) | 117 (32.9) |
| | > 6 | 1 (0.3) | 76 (21.3) | 77 (21.6) |
| Perceived service quality and adequacy of health institutions | Good | 140 (39.3) | 64 (18.0) | 204 (57.3) |
| | Bad | 50 (14.0) | 102 (28.7) | 152 (42.7) |
| Awareness about the CBHI Scheme | Aware | 182 (51.1) | 82 (23.0) | 264 (74.2) |
| | Not aware | 8 (2.2) | 84(23.6) | 92 (25.8) |

Source: Authors’ own computation (2024)

Table 2 clearly displays the summary statistics for a range of variables. Most importantly, about 53.37 % [32.3% male and 21.07% female headed] of sample households are participating in the CBHI scheme. Regarding households poverty status, nearly 55.2% of sample households are below absolute poverty line.

Pre and Post - Test Estimation

Test of Correlation

The researchers conducted a correlation test to check the association between the dependent variable and each specified independent variable using the Pearson chi-square test. The results are presented in Table 3 below.

Table 3: Pearson Chi-Square Test of each independent variable with dependent variable ($HHsDMB_{CBHI}$)

| Variables | Chi2 | P-Value | Df |
|---|--------|----------|----|
| Gender | 29.15 | 0.000*** | 1 |
| Age | 188.60 | 0.000*** | 48 |
| Family Size | 181.89 | 0.000*** | 10 |
| Marital Status | 1.89 | 0.169 | 1 |
| Years of schooling in the formal education | 142.16 | 0.000*** | 9 |
| Occupation | 0.003 | 0.956 | 1 |
| Poverty status | 130.04 | 0.000** | 1 |
| Previous Annual Health Expenditure | 258.87 | 0.000*** | 65 |
| The average distance to the nearest healthcare institutions | 196.59 | 0.000*** | 18 |
| Perceived service quality and adequacy of health institutions | 44.69 | 0.000*** | 1 |
| Awareness about the CBHI Scheme | 99.50 | 0.000*** | 1 |

Source: Authors' own computation (2024)

Nine out of the twelve independent variables specified in the model have been found to have significant association with household's membership status in the CBHI scheme. Exceptionally, the marital status ($\chi^2=1.89$; $P=0.169$) and occupation ($\chi^2=0.003$; $P=0.956$) of the head of the household did not exhibit statistically significant relation with the CBHI enrollment status. The overall result of Pearson Chi-Square indicates a considerable level of association between CBHI membership status and most of the independent variables.

Multi-Collinearity Test

The multi-collinearity within the designated independent variables was tested using Variance Inflation Factor (VIF) and Tolerance Rate test. As per the standard of the test, having $VIF > 10$ or $Tolerance < 0.1$ between the exogenous variables is taken as indication of existence of multi-collinearity; otherwise, it does not have a significant collinearity. Table 4 provides the test result below.

Table 4: Multi-collinearity test using VIF and Tolerance Rate

| Variable | VIF | Tolerance (1/VIF) |
|----------------|------|-------------------|
| Family size | 2.42 | 0.412759 |
| Age | 2.32 | 0.430981 |
| Distance HI | 1.64 | 0.611562 |
| Poverty Status | 1.34 | 0.746598 |
| Awareness | 1.33 | 0.753973 |
| Education | 1.31 | 0.762936 |
| Health_exp | 1.3 | 0.771855 |
| HH_PQHI | 1.14 | 0.880854 |
| Gender | 1.13 | 0.881239 |
| Occupation | 1.1 | 0.909885 |
| Marital status | 1.05 | 0.949217 |
| Mean VIF | 1.46 | |

Source: Authors' own computation (2024)

Table 4 revealed that there is no presence of multi-collinearity problem in the data set as both $VIF < 10$, and $Tolerance > 0.1$ are found for all independent variables.

Hosmer–Lemeshow test

Additionally, goodness of fit of the model was assessed using Hosmer–Lemeshow test at 10

quintiles of estimated probabilities. According to the test, the $\chi^2_{(df)}$ value and P-value are found to be $\chi^2_{(8)} = 2.29$ with $P\text{-value} = 0.971 > 0.05$. Hence, the result of the test revealed that the model demonstrates good fit.

Results of Binary Logistic Regression

The empirical result of the study obtained from

binary logistic regression models is presented in Table 5 below.

Table 5: The Result Obtained from Binary Logistic Regression

| CBHI_MS | Odds Ratio | dy/dx | Std. Err. | z | P>z | [95% Conf. Interval] | X | Sig |
|--------------------|----------------|--------|-----------|-------|-------|----------------------|----------|-----|
| Gender* | 0.487 | -0.064 | 0.433 | -0.81 | 0.419 | 0.085 2.781 | 0.28 | |
| Age | 1.551 | 0.034 | 0.260 | 2.62 | 0.009 | 1.117 2.154 | 42.53 | *** |
| Family_size | 7.996 | 0.161 | 4.407 | 3.77 | 0.000 | 2.715 23.552 | 4.39 | *** |
| Marital_Status* | 1.011 | 0.214 | 0.014 | 3.62 | 0.000 | 1.001 1.127 | 0.76 | *** |
| Occupation* | <i>0.141</i> | -0.139 | 0.146 | -1.9 | 0.057 | 0.019 1.063 | 0.60 | |
| Education | 1.937 | 0.051 | 0.356 | 3.6 | 0.000 | 1.351 2.775 | 5.54 | *** |
| Poverty_Status* | 0.003 | -0.679 | 0.005 | -3.98 | 0.000 | 0.000 0.054 | 0.45 | *** |
| Health_exp | 1.005 | 0.002 | 0.002 | 2.4 | 0.016 | 1.001 1.009 | 1115.37 | *** |
| Distance_HI | 0.421 | -0.067 | 0.120 | -3.04 | 0.002 | 0.241 0.736 | 4.29 | ** |
| HH_PQHI* | 54.820 | 0.462 | 82.717 | 2.65 | 0.008 | 2.848 1055.12 | 0.57 | *** |
| Awareness * | 408.795 | 0.870 | 921.960 | 2.67 | 0.008 | 4.918 33980.58 | 0.74 | *** |
| _cons | 0.000 | | 0.000 | -3.69 | 0.000 | 0.000 0.000 | | *** |
| Mean dependent var | | | 0.533708 | | | S.D. dependent var | 0.499565 | |
| McFadden R-squared | | | 0.945134 | | | Adjusted R-squared | 0.896343 | |
| Log-likelihood | | | -13.49443 | | | Akaike criterion | 50.98886 | |
| Schwarz criterion | | | 97.48803 | | | Hannan-Quinn | 69.48553 | |

*** $p < 0.01$, ** $p < 0.05$ - statistically significant at 1%, and 5%, respectively.
 (*) *dy/dx* is for discrete change of dummy variable from 0 to 1
 Source: Authors' own computation (2024)

The model summary in Table 5 displays that about 94.51% of the variation in CBHI membership status is attributed to the specified variables in the model. Besides, the test statistics from the likelihood ratio test (chi-square=40.09 with P-Value=0.000) suggest a good fit of the model. Moreover, having a value of nearly 0.50 of the standard deviation of the dependent variables indicates its balanced binary outcome with equal distribution of the dependent values. Furthermore, the AIC as well as the BIC suggests the model fit is good. To sum up, the model is robust in ascertaining the influence of poverty and other control variables on households' health insurance decision making in the study area.

As per the adjusted odds ratio, a household above the absolute poverty line is less likely to enroll in the CBHI scheme [AOR=0.003, $p < 0.05$]. In other words, being below the absolute poverty line significantly drives households' participation in the CBHI scheme. To evaluate whether this result is consistent with and without consideration of other pertinent variables, the researchers did an exercise

with alternative models, and the household's poverty status has turned out consistent and statistically significant in determining the health insurance decision-making behaviors of the households (for details see Table A 1 in the appendix).

A higher likelihood of joining the CBHI scheme by the poor households can be associated with the following reasons. The primary reason is that the CBHI scheme is developed and administered by the government, targeting poor households to offer them more accessible healthcare services at a relatively affordable price. Besides, the healthcare expenditure is becoming catastrophic in the country, which is devastating poor households, and the CBHI scheme appears to be a relatively affordable option amid ever-increasing medical expenses. Moreover, most members of CBHI reported that they have relatively higher health risk exposure and health risk anticipation, which led them to join the scheme.

The result implies that the CBHI is a promising strategy to break the vicious circle of poverty and

health situation through providing financial protection against catastrophic health expenditures. Indeed, there are some empirical studies conducted in various other countries that reported inconsistent results which imply that the poor households are less likely to enroll in the CBHI scheme due to low financial capacity to pay contributions (e.g., Conde et al. (2022) for West Africa countries; and Gankpe et al. (2018) for Benin). This could be because households in those countries may have low level of awareness and trust in the scheme administration.

The other control variables including the age of the head of the household [AOR=1.551, $p<0.05$]; family size [AOR=7.996, $p<0.05$]; being married head of the households' [AOR=1.011, $p<0.05$]; year of schooling by the head of the households' [AOR=1.937, $p<0.05$]; previous year estimated healthcare expenditure [AOR=1.005, $p<0.05$]; households' awareness about the scheme management [AOR=408.795, $p<0.05$] and households perception towards health service quality, scope and adequacy [AOR=54.820, $p<0.05$] are found positive and statistically significant for being member of CBHI. On the other hand, distance to the nearest health care institutions is a negative and statistically significant factor to participate in the CBHI scheme [AOR=0.421, $p<0.05$]. These results are consistent with other previous empirical studies (Abdilwohab et al., 2021)

CONCLUSION, RECOMMENDATIONS AND FUTURE RESEARCH DIRECTION

Conclusion and Recommendations

This study aimed at ascertaining the influence of poverty on households' healthcare decision-making observed through membership in affordable CBHI scheme in the study area. In addition, the study also examined the effect of other socioeconomic, demographic and institutional factors on households' decision to enroll in the CBHI scheme. Poverty captured by households' status in terms of being above or below absolute poverty line, has been found pertinent in influencing households' decision making to participate in the CBHI scheme. Other control variables including age and education of the head of the household, marital status, family

size, previous year households' health expenditure, perceived healthcare service quality, scope and adequacy, distance to the nearest health institutions and awareness about the scheme were the key factors that drive households CBHI enrollment in the study area.

The finding of this study has numerous implications for the government, community and other stakeholders. In this respect, various stakeholders should not undermine the influence of poverty on the decision-making behavior of households as it is observed that households below the absolute poverty line tend to enroll to a larger extent in the CBHI scheme. Specifically, the Ethiopian Health Insurance Agency (EHIA) pursues the scale-up of CBHI scheme to reach out urban poor households including government employees. To this end, the EHIA should raise community awareness about the CBHI scheme through campaigns, community meetings, local Medias and other possible means to boost the performance of households' participation to the CBHI scheme. Likewise, the Federal and Regional Health offices need to expand public health institutions and enhance their service scope and quality. By implementing these and other strategies, it is necessary to improve the coverage of CBHI household membership to enable and reach vulnerable community to access better health care services and strengthen the overall efforts to break the chain of poverty.

Limitation and Future Research Directions

The researchers explored the impact of poverty on the decision-making behaviors of households to join CBHI scheme by taking only four selected Woredas of North Shoa Zone, Amhara, Ethiopia. Future researchers can explore the effect of poverty on households' decision-making behavior by expanding the geographical scope and focusing on other types of insurance like life insurances. Besides, they can also apply a qualitative research approach. Most importantly, we would like to recommend that future researchers should conduct a study in a wider geographical scope at a regional or national level.

References

Abdilwohab, M. G., Abebo, Z. H., Godana, W., Ajema, D., Yihune, M., & Hassen, H. (2021). Factors affecting enrollment status of households for community based health insurance in a resource-limited peripheral area in Southern

Ethiopia. Mixed method. *PloS one*, 16(1), e0245952.

Adebayo, E. F., Uthman, O. A., Wiysonge, C. S., Stern, E. A., Lamont, K. T., & Ataguba, J. E. (2015). A systematic review of factors that affect uptake of community-based health insurance in low-income

- and middle-income countries. *BMC health services research*, 15, 1-13.
- Adhikari, N., Wagle, R. R., Adhikari, D. R., Thapa, P., & Adhikari, M. (2018). Factors affecting enrolment in the community based health insurance scheme of Chandranigahapur hospital of Rautahat district.
- Albrecht, T. L., & Goldsmith, D. J. (2003). Social support, social networks, and health *The Routledge handbook of health communication* (pp. 277-298): Routledge.
- Abdilwohab, M. G., Abebo, Z. H., Godana, W., Ajema, D., Yihune, M., & Hassen, H. (2021). Factors affecting enrollment status of households for community based health insurance in a resource-limited peripheral area in Southern Ethiopia. *Mixed method. PloS one*, 16(1), e0245952.
- Adebayo, E. F., Uthman, O. A., Wiysonge, C. S., Stern, E. A., Lamont, K. T., & Ataguba, J. E. (2015). A systematic review of factors that affect uptake of community-based health insurance in low-income and middle-income countries. *BMC health services research*, 15, 1-13.
- Adhikari, N., Wagle, R. R., Adhikari, D. R., Thapa, P., & Adhikari, M. (2018). Factors affecting enrolment in the community based health insurance scheme of Chandranigahapur hospital of Rautahat district.
- Albrecht, T. L., & Goldsmith, D. J. (2003). Social support, social networks, and health *The Routledge handbook of health communication* (pp. 277-298): Routledge.
- Amhara region CBHI report. (2024). Amhara region community-based health insurance annual report. Bahir Dar, Ethiopia.
- Asfaw, D. M., Shifaw, S. M., Belete, A. A., & Aychiluhm, S. B. (2022). The impact of community-based health insurance on household's welfare in Chilga district, Amhara regional state, Ethiopia. *Frontiers in Public Health*, 10, 868274.
- Atake, E.-H. (2018). Health shocks in Sub-Saharan Africa: are the poor and uninsured households more vulnerable? *Health Economics Review*, 8, 1-13.
- Atnafu, D. D., Tilahun, H., & Alemu, Y. M. (2018). Community-based health insurance and healthcare service utilisation, North-West, Ethiopia: a comparative, cross-sectional study. *BMJ open*, 8(8), e019613.
- Bamidele, J., & Adebimpe, W. (2012). Awareness, attitude and willingness of Artisans in Osun State Southwestern Nigeria to participate in community based health insurance. *Journal of Community Medicine and Primary Health Care*, 24(1-2), 1-10.
- Barberis, N. C. (2013). Thirty years of prospect theory in economics: A review and assessment. *Journal of Economic perspectives*, 27(1), 173-196.
- Barnes, A. J., Hanoch, Y., & Rice, T. (2015). Determinants of coverage decisions in health insurance marketplaces: consumers' decision-making abilities and the amount of information in their choice environment. *Health Services Research*, 50(1), 58-80.
- Bernstein, J. L. (2012). Controlling Medicare with lessons from endowment effect experiments. *Cal. WL Rev.*, 49, 169.
- Bodhisane, S., & Pongpanich, S. (2019). Factors affecting the willingness to join community-based health insurance (CBHI) scheme: A case study survey from Savannakhet Province, Lao PDR. *The International journal of health planning and management*, 34(2), 604-618.
- Buzza, C., Ono, S. S., Turvey, C., Wittrock, S., Noble, M., Reddy, G., . . . Reisinger, H. S. (2011). Distance is relative: unpacking a principal barrier in rural healthcare. *Journal of general internal medicine*, 26, 648-654.
- Cameron, A. C., Trivedi, P. K., Milne, F., & Piggott, J. (1988). A microeconomic model of the demand for health care and health insurance in Australia. *The*

- Review of economic studies, 55(1), 85-106.
- Chung, G. K.-K., Dong, D., Wong, S. Y.-S., Wong, H., & Chung, R. Y.-N. (2020). Perceived poverty and health, and their roles in the poverty-health vicious cycle: a qualitative study of major stakeholders in the healthcare setting in Hong Kong. *International journal for equity in health*, 19, 1-13.
- Conde, K. K., Camara, A. M., Jallal, M., Khalis, M., Zbiri, S., & De Brouwere, V. (2022). Factors determining membership in community-based health insurance in West Africa: a scoping review. *Global Health Research and Policy*, 7(1), 46.
- CSA (2022): Central Statistical Authority *Ethiopian Population Projection*, Addis Ababa, Ethiopia.
- Do Hwang, I. (2021). Prospect theory and insurance demand: Empirical evidence on the role of loss aversion. *Journal of Behavioral and Experimental Economics*, 95, 101764.
- Donfouet, H. P. P., & Mahieu, P.-A. (2012). Community-based health insurance and social capital: a review. *Health Economics Review*, 2, 1-5.
- Dror, D. M., Hossain, S. S., Majumdar, A., Pérez Koehlmoos, T. L., John, D., & Panda, P. K. (2016). What factors affect voluntary uptake of community-based health insurance schemes in low-and middle-income countries? A systematic review and meta-analysis. *PloS one*, 11(8), e0160479.
- Ebrahim, K., Yonas, F., & Kaso, M. (2019). Willingness of community to enroll in community based health insurance and associated factors at household Level in Siraro District, West Arsi Zone, Ethiopia. *Journal of Public Health and Epidemiology*, 11(6), 137-144.
- EHIA. (2020). CBHI Trend Bulletin Ethiopian Health Insurance Agency: CBHI members' registration and contribution 2011–2020 G.C.
- EHIA. (2022). Community Based Health Insurance Branch Report. Debre Birhan, North Shoa Zone.
- Eseta, W. A., & Sinkie, S. O. (2022). Factors affecting households' trust in the community based health insurance scheme in Ethiopia. *PLOS Global Public Health*, 2(5), e0000375.
- Fadlallah, R., El-Jardali, F., Hemadi, N., Morsi, R. Z., Abou Samra, C. A., Ahmad, A., . . . Akl, E. A. (2018). Barriers and facilitators to implementation, uptake and sustainability of community-based health insurance schemes in low-and middle-income countries: a systematic review. *International journal for equity in health*, 17, 1-18.
- Fite, M. B., Roba, K. T., Merga, B. T., Tefera, B. N., Beha, G. A., & Gurmessa, T. T. (2021). Factors associated with enrollment for community-based health insurance scheme in Western Ethiopia: Case-control study. *PloS one*, 16(6), e0252303.
- Gankpe, G. F., Gankpe, E. C., Baleba, A. N., Zinsou, L., & Mesenge, C. (2018). Does mutual health insurance reproduce health inequalities in Benin? *Santé Publique*, 30(3), 389-396.
- Geferso, A. T., & Sharo, S. B. (2022). Community-Based Health Insurance Utilization and Its Associated Factors among Rural Households in Akaki District, Oromia, Ethiopia, 2021. *Advances in Public Health*, 2022(1), 9280269.
- Geta, E. T., Lushe, K. A., Desisa, A. E., Terefa, D. R., Cheme, M. C., Shama, A. T., & Lema, M. (2024). Determinants of community-based health insurance membership renewal decision among rural households in Kellem Wollega zone, Oromia regional state, Ethiopia: a community-based cross-sectional study. *Frontiers in Public Health*, 11, 1192991.
- Ghimire, S., Ghimire, S., Khanal, P., Sagtani, R. A., & Paudel, S. (2023). Factors affecting health insurance utilization among insured population: evidence from health insurance program of

- Bhaktapur district of Nepal. *BMC health services research*, 23(1), 159.
- Glazer, S., & Karpati, T. (2014). The role of culture in decision-making. *Cutter IT Journal*, 27(9), 23-29.
- Gobir, A., Adeyemi, A., Abubakar, A., Audu, O., & Joshua, I. (2016). Determinants of willingness to join Community-Based Health Insurance Scheme in a rural community of North-Western Nigeria. *African Journal of Health Economics*, 5, 1-10.
- Habte, A., Tamene, A., Ejajo, T., Dessu, S., Endale, F., Gizachew, A., & Sulamo, D. (2022). Towards universal health coverage: The level and determinants of enrollment in the Community-Based Health Insurance (CBHI) scheme in Ethiopia: A systematic review and meta-analysis. *PloS one*, 17(8), e0272959.
- Haile, M., Ololo, S., & Megersa, B. (2014). Willingness to join community-based health insurance among rural households of Debub Bench District, Bench Maji Zone, Southwest Ethiopia. *BMC public health*, 14, 1-10.
- Hamid, S. A., Roberts, J., & Mosley, P. (2011). Can micro health insurance reduce poverty? Evidence from Bangladesh. *Journal of risk and Insurance*, 78(1), 57-82.
- Harrison, G. W., & Ng, J. M. (2019). Behavioral insurance and economic theory: A literature review. *Risk Management and Insurance Review*, 22(2), 133-182.
- Harrison, G. W., & Swarthout, J. T. (2023). Cumulative Prospect Theory in the Laboratory: A Reconsideration. In G. W. Harrison & D. Ross (Eds.), *Models of Risk Preferences: Descriptive and Normative Challenges* (Vol. 22, pp. 107-192): Emerald Publishing Limited.
- Haughton, J., & Khandker, S. R. (2009). *Handbook on poverty+ inequality*: World Bank Publications.
- Heaney, C. A., & Israel, B. A. (2008). Social networks and social support. *Health behavior and health education: Theory, research, and practice*, 4(1), 189-210.
- Henning, C. (2014). Social Capital, Public Goods, or the Common Good? Social capital, social identities: From ownership to belonging, 197.
- Hwang, I. D. (2016). Prospect theory and insurance demand. Available at SSRN 2586360.
- Kakama, A. A., Namyalo, P. K., & Basaza, R. K. (2020). Feasibility and desirability of scaling up community-based health insurance (CBHI) in rural communities in Uganda: lessons from Kisiizi hospital CBHI scheme. *BMC health services research*, 20, 1-9.
- Karl, F. M., Holle, R., Schwettmann, L., Peters, A., & Laxy, M. (2019). Status quo bias and health behavior: findings from a cross-sectional study. *European Journal of Public Health*, 29(5), 992-997.
- Kaso, A. W., Haji, A., Hareru, H. E., & Hailu, A. (2022). Is Ethiopian community-based health insurance affordable? Willingness to pay analysis among households in South Central, Ethiopia. *PloS one*, 17(10), e0276856.
- Kebede, M. M. (2024). Exploring Factors Influencing Family's Enrollment in Community-Based Health Insurance in the City of Gondar Peri-Urban Community, Northwest Ethiopia: A Health Belief Model Approach. *Risk Management and Healthcare Policy*, 603-622.
- Kibret, G. D., Leshargie, C. T., Wagneu, F., & Alebel, A. (2019). Willingness to join community based health insurance and its determinants in East Gojjam zone, Northwest Ethiopia. *BMC research notes*, 12, 1-5.
- Kruk, M. E., Goldmann, E., & Galea, S. (2009). Borrowing and selling to pay for health care in low-and middle-income countries. *Health affairs*, 28(4), 1056-1066.
- Kusuma, Y. S., Pal, M., & Babu, B. V. (2018). Health insurance: Awareness, utilization, and its determinants among the urban

- poor in Delhi, India. *Journal of epidemiology and global health*, 8(1), 69-76.
- Li, J., Jiao, C., Nicholas, S., Wang, J., Chen, G., & Chang, J. (2020). Impact of medical debt on the financial welfare of middle-and low-income families across China. *International journal of environmental research and public health*, 17(12), 4597.
- Lister, R. (2021). *Poverty*: John Wiley & Sons.
- Löckenhoff, C. E., O'Donoghue, T., & Dunning, D. (2011). Age differences in temporal discounting: The role of dispositional affect and anticipated emotions. *Psychology and aging*, 26(2), 274.
- Mekonen, A. M., Gebregziabher, M. G., & Teferra, A. S. (2018). The effect of community based health insurance on catastrophic health expenditure in Northeast Ethiopia: A cross sectional study. *PloS one*, 13(10), e0205972.
- Minyihun, A., Gebregziabher, M. G., & Gelaw, Y. A. (2019). Willingness to pay for community-based health insurance and associated factors among rural households of Bugna District, Northeast Ethiopia. *BMC research notes*, 12, 1-7.
- Mirach, T. H., Demissie, G. D., & Biks, G. A. (2019). Determinants of community-based health insurance implementation in west Gojjam zone, Northwest Ethiopia: a community based cross sectional study design. *BMC health services research*, 19, 1-8.
- Mladovsky, P., & Mossialos, E. (2008). A conceptual framework for community-based health insurance in low-income countries: social capital and economic development. *World Development*, 36(4), 590-607.
- Morudu, P., & Kollamparambil, U. (2020). Health shocks, medical insurance and household vulnerability: Evidence from South Africa. *PloS one*, 15(2), e0228034.
- Moyehodie, Y. A., Mulugeta, S. S., & Amare Yilema, S. (2022). The effects of individual and community-level factors on community-based health insurance enrollment of households in Ethiopia. *PloS one*, 17(10), e0275896.
- Mukangendo, M., Nzayirambaho, M., Hitimana, R., & Yamuragiye, A. (2018). Factors contributing to low adherence to community-based health insurance in rural Nyanza District, Southern Rwanda. *Journal of environmental and public health*, 2018(1), 2624591.
- Negash, B., Dessie, Y., & Gobena, T. (2019). Community based health insurance utilization and associated factors among informal workers in Gida Ayana District, Oromia Region, West Ethiopia. *East African Journal of Health and Biomedical Sciences*, 3(2), 13-22.
- Noubiap, J. J. N., Joko, W. Y. A., Obama, J. M. N., & Bigna, J. J. R. (2014). Community-based health insurance knowledge, concern, preferences, and financial planning for health care among informal sector workers in a health district of Douala, Cameroon. *Pan African Medical Journal*, 16(1).
- Odeyemi, I. A. (2014). Community-based health insurance programmes and the national health insurance scheme of Nigeria: challenges to uptake and integration. *International journal for equity in health*, 13, 1-13.
- Pahwa, B., & Gupta, M. (2019). A study of factors influencing the purchase decision of health insurance policies using AHP approach. *Compusoft*, 8(7), 3285-3293.
- Panda, P., Dror, I., Perez Koehlmoos, T., Shahed Hossain, S., John, D., Khan, J., & Dror, D. M. (2013). What factors affect take up of voluntary and community-based health insurance programmes in low-and middle-income countries? Protocol. Panda P, Dror I, Koehlmoos T, Hossain S, John D, Khan J, Dror D (2013) What factors affect take up of voluntary and community based health insurance programmes in low-and middle-income countries.
- Peters, D. H., Garg, A., Bloom, G., Walker, D. G., Brieger, W. R., & Hafizur Rahman, M. (2008). Poverty and access to health care

- in developing countries. *Annals of the new York Academy of Sciences*, 1136(1), 161-171.
- Purohit, B. (2014). Community based health Insurance in India: prospects and challenges. *Health*, 2014.
- Reb, J., & Connolly, T. (2007). Possession, feelings of ownership and the endowment effect. *Judgment and Decision making*, 2(2), 107-114.
- Ridley, M., Rao, G., Schilbach, F., & Patel, V. (2020). Poverty, depression, and anxiety: Causal evidence and mechanisms. *Science*, 370(6522), eaay0214.
- Riedijk, L., & Harakeh, Z. (2018). Imitating the risky decision-making of peers: An experimental study among emerging adults. *Emerging adulthood*, 6(4), 255-265.
- Robyn, P. J., Fink, G., Sié, A., & Sauerborn, R. (2012). Health insurance and health-seeking behavior: evidence from a randomized community-based insurance rollout in rural Burkina Faso. *Social science & medicine*, 75(4), 595-603.
- Schleicher, M., Klöner, S., Sauerborn, R., Sié, A., & Soares-Coutant, A. (2018). The demand for health insurance in a poor economy: Evidence from Burkina Faso: Discussion Paper Series.
- Schneider, P. (2004). Why should the poor insure? Theories of decision-making in the context of health insurance. *Health policy and planning*, 19(6), 349-355.
- Schoemaker, P. J. (1982). The expected utility model: Its variants, purposes, evidence and limitations. *Journal of economic literature*, 529-563.
- Sirag, A., & Mohamed Nor, N. (2021). Out-of-pocket health expenditure and poverty: evidence from a dynamic panel threshold analysis. Paper presented at the Healthcare.
- Tadesse, G., Atnafu, D. D., Ketemaw, A., & Alemu, Y. (2020a). Determinants of enrollment decision in the community-based health insurance, North West Ethiopia: a case-control study. *Globalization and health*, 16, 1-9.
- Tadesse, G., Atnafu, D. D., Ketemaw, A., & Alemu, Y. (2020b). Determinants of enrollment decision in the community-based health insurance, North West Ethiopia: a case-control study. *Globalization and Health*, 16(1), 4.
- Tenaw, Y. (2017). Analysis of factors influencing individual's willingness to pay for the compulsory social health insurance scheme: the case of government school teachers in Kolfe Keraniyo subcity. St. Mary's university.
- Topan, G. J., Thiombiano, N., & Sarambe, I. (2024). Determinants of households' willingness to pay for health insurance in Burkina Faso. *Health Economics Review*, 14(1), 93.
- Umeh, C. A., & Feeley, F. G. (2017). Inequitable access to health care by the poor in community-based health insurance programs: a review of studies from low- and middle-income countries. *Global Health: science and practice*, 5(2), 299-314.
- Wagstaff, A. (2002). Poverty and health sector inequalities. *Bulletin of the world health organization*, 80, 97-105.
- WHO, U. (2024). Universal Health Coverage Day: World Health Organization.
- World Bank. (2019). *The World Bank In Ethiopia*.
- World Bank Group. (2024). *Poverty, Prosperity, and planet report: Pathways Out of the Polycrisis*. 1818 H Street NW, Washington, DC 20433.
- World Health Organization; World Bank. (2023). *Tracking Universal Health Coverage: 2023 Global Monitoring Report*. © Washington, DC:: World Bank. <http://hdl.handle.net/10986/40348> License: CC BY-NC-SA 3.0 IGO.
- Worthy, D. A., & Maddox, W. T. (2012). Age-based differences in strategy use in choice tasks. *Frontiers in neuroscience*, 5, 145.

APPENDIX

Table A 1: Logistic regression results on CBHI membership status in the North Shoa Zone, Amhara Region, Ethiopia

| VARIABLES | (1) Model 1 | (2) Model 2 | (3) Model 3 | (4) Model 4 |
|----------------|-----------------------------|-----------------------------|---------------------------------|--------------------------------|
| Poverty_Status | -2.811*** (0.268) | -2.842*** (0.433) | -3.545*** (0.679) | -5.742*** (1.833) |
| Gender | | 0.612 (0.482) | | -0.719 (1.355) |
| Age | | 0.138*** (0.0337) | | 0.439** (0.187) |
| Family size | | 0.990*** (0.201) | | 2.079** (0.940) |
| Marital_Status | | -0.659 (0.455) | | -4.499** (2.268) |
| Occupation | | -0.383 (0.423) | | -1.956 (1.329) |
| Education | | 0.217*** (0.0545) | | 0.661** (0.275) |
| Health_exp | | | 0.00320*** (0.000619) | 0.00502*** (0.00168) |
| Distance_HI | | | -0.931*** (0.193) | -0.865** (0.377) |
| HH_PQHI | | | 2.293*** (0.739) | 4.004** (1.698) |
| Awareness | | | 2.350** (0.943) | 6.013** (2.885) |
| Constant | 1.425*** (0.181) | -9.013*** (1.381) | -0.100 (1.283) | -30.37*** (11.79) |
| Observations | 356 | 356 | 356 | 356 |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1 – statistically significant at 1%, 5%, and 10%, respectively.

Source: Own computation (2024)