SOCIAL INSURANCE POLICY FORMATION ON FINANCIAL PROTECTION AND HEALTH SERVICE UTILIZATION:A STUDY OF COMMUNITY BASED HEALTH INSURANCE (CBHI) IN SAVANNAKHET PROVINCE, LAO P.D.R.

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การสร้างนโยบายเพื่อป้องกันสถานะทางการเงิน และการเข้าถึงการบริการทางสุขภาพ: การศึกษาระบบประกันสุขภาพของชุมชนในจังหวัดสะหวันนะเขต, สาธารณรัฐประชาธิปไตยประชาชนลาว

นายสมเดด โพทิสาน

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สมเดด โพทิสาน : การสร้างนโยบายเพื่อป้องกันสถานะทางการเงินและการเข้าถึงการบริการทางสุขภาพ: การศึกษาระบบประกันสุขภาพของชุมชนในจังหวัดสะหวันนะเขต, สาธารณรัฐประชาธิปไตยประชาชนลาว (SOCIAL INSURANCE POLICY FORMATION ON FINANCIAL PROTECTION AND HEALTH SERVICE UTILIZATION:A STUDY OF COMMUNITY BASED HEALTH INSURANCE (CBHI) IN SAVANNAKHET PROVINCE, LAO P.D.R.) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: รศ. ดร.สถิรกร พงศ์พานิช{, 223 หน้า.

งานวิจัยนี้มีวัตถุประสงค์เพื่อวิเคราะห์ผลการดำเนินงานของโครงการ ประกันสุขภาพชุมชน (Community Based Health Insurance หรือ CBHI) ในแง่ของการปรับปรุงการเข้าถึง และการป้องกันทางการเงินของการใช้บริการด้านสุขภาพที่แขวงสวรรค์ณเขต, สาธารณรัฐประชาธิปไตยประชาชนลาว. นอกจากนี้การศึกษายังมีวัตถุประสงค์เพื่อหาเหตุผลของอัตราการออกจากโครงการประกันสุขภาพชุมชน ในปีที่ผ่านมา.

การศึกษาแบบตัดขวาง (Cross-sectional) ถูกนำมาใช้ในการวิจัยครั้งนี้. งานวิจัยนี้ได้สัมภาษณ์ 252 ครัวเรือน ซึ่งแบ่งเป็นกลุ่มที่มี และไม่มีประกันของโครงการประกันสุขภาพชุมชน. รูปแบบการถดถอยโลจิสติก (Logistic Regression) ถูกนำมาใช้ในการคาดการณ์ และ เปรียบเทียบความน่าจะเป็นของการรักษาในโรงพยาบาล (การเข้าถึง) แล ภัยพิบัติทางการเงิน. นอกเหนือจากนี้ การสนทนากลุ่ม (Focus Group Discussion) และ การสัมภาษณ์เชิงลึก (In-depth Interview) ยังได้ถูกนำมาใช้เพื่อที่จะหาเหตุผลของการออกจากโครงการประกันดังกล่าว.

ผลการของงานวิจัยนี้แสดงให้เห็นว่าสถานะการประกันสุขภาพของ CBHI ไม่ได้มีนัยสำคัญในการปรับปรุงการเข้าถึง แล ะการคุ้มครองทางการเงิน. คุณภาพของการบริการดูแลสุขภาพที่จัดไว้ให้โดยโรงพยาบาลคู่สัญญาชองประกันสุขภาพชุมชนเป็นเหตุผลที่สำคัญสำหรับผู้ที่ค่อนข้างจะมีรายได้สูงออกจากโครงการประกัน ในขณะเดียวกันการจ่ายเบี้ยประกันเป็นปัจจัยที่สำคัญสำหรับผู้ที่ค่อนข้างจะมีรายได้น้อย.

สาขาวิชา สาธารณสุขศาสตร์ ลายมือชื่อนิสิต .....

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SOMDETH BODHISANE: SOCIAL INSURANCE POLICY FORMATION ON FINANCIAL PROTECTION AND HEALTH SERVICE UTILIZATION:A STUDY OF COMMUNITY BASED HEALTH INSURANCE (CBHI) IN SAVANNAKHET PROVINCE, LAO P.D.R.. ADVISOR: ASSOC. PROF.SATHIRAKORN PONGPANICH, Ph.D.{, 223 pp.

This study aims to analyze the performance of the CBHI scheme in term of improving accessibility and financial protection of using health services in Savannakhet province, Laos. In addition, the study also aims to find out the reason of high dropout rate in the recent years.

The cross-sectional study design was applied in this research. The interview process includes 252 households, which equally divided into insured and uninsured households. Logistic regression models were used to predict and compare the probability of hospitalization and financial catastrophe between insured and uninsured households. In addition, Focus Group Discussion (FGD) and in-depth interview were used to analyze the reason of high CBHI dropout rate from households and key informants respectively.

The findings show that the insurance status does not significantly improve accessibility and financial protection. The quality of health care services provided by the CBHI contracted hospital was the most important reason for relatively high-income households to quit the scheme, whereas the unaffordable premium was the important factor for the poor households to dropout from the CBHI scheme. The policy recommendation related to health care facilities and CBHI scheme were proposed with the willingness to improve the quality of the CBHI in general.

Field of Study: Public Health Student's Signature .....

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LIST OF ABBREVIATION KEYS

- CBHI: Community Based Health Insurance
- CSS: Civil Servant Scheme
- DCS: Department of Curative Service
- DHP: Department of Hygiene and Prevention
- DI: Department of Inspection
- DOP: Department of Organization and Personnel
- DPB: Department of Planning and Budgeting
- FDD: Food and drug department
- FGD: Focus Group Discussion
- GDP: Gross Domestic Product
- HEF: Health Equity Fund
- IPD: Inpatient Department
- OPD: Outpatient Department
- PPP: Purchasing Power Parity
- ROP: Rest of Population
- SSO: Social Security Organization
- WHO: World Health Organization

CHAPTER 1: INTRODUCTION

1.1 Background and Rationale

Health expenditure becomes an important issue in the global economy, it is reported that the total expenditure with respected to the GDP has been increased by almost three folds from 3% in 1948 to more than 8% in 2004. Many countries use the form of direct payment or sometimes also known as cost sharing in exchange for health care services. It is even higher proportion in developing countries, for instance: the direct out-of-pocket expenditure made up of more than 50% of total health expenditure of low income countries (WHO, 2004). Direct payment or out-of-pocket expenditure directly limits poor people from accessing health services, since most of them do not have adequate financial resources (Hjortsberg, 2003; Preker, Langenbrunner, & Jakab, 2002). More than a billion people around the world are unable to have accessibility to affordable drugs, and other health care services due to the ineffective health financing system (Carrin, Mathauer, Xu, & Evans, 2008). Besides preventing people from using or accessing health care services, poor households were also forced to pay for health care services by using out-of-pocket expenditure at risk of confronting catastrophic health expenditure and impoverishment (Wagstaff & Doorslaer, 2003; Xu, Evans, Carrin, & Agular-Revera, 2005). The number of household experienced catastrophic health expenditure was up to 13%, in which 6% was pushed down to the poverty line. Out-of-pocket expenditure is not the only factor that identifies the cause of financial catastrophe; another three issues are also needed to take into consideration as known as: poverty, health service access and use, and failure of mechanism to pool financial resources. The combination of those factors spontaneously leads to a huge financial catastrophe (Xu et al., 2007). Nowadays, large of number of people are unable to use affordable and effective health care services, mainly because of inefficient delivery and health financing system (World Bank, 1997). Health financing is considered to be one of the top issues in the international agenda; it is referred as an alternative policy that ensures better accessibility to health care services without

burden of cost or financial difficulties. However, there is a difficulty in developing a right health financial system, especially for low-income or developing countries, where there are inequitably and meager financial and human resources (Gwatkin, 2003).

According to the WHO, Health financing is defined as "Function of a health system concerned with the mobilization, accumulation and allocation of money to cover the health needs of the people, individually and collectively, in the health system" (Islam, 2007). The main objective of developing health financing is to ensure that there is an available fund for health care expenditure. This mechanism also creates the right financial motivation for healthcare suppliers in the system; hence, all patients would be eligible to receive reliable quality health care services regardless to their income level and socioeconomic status (Carrin & James, 2005; WHO, 2000). From this point, it implies that both supply sides and demand sides as known as health providers and patients are receiving direct benefits from health financing system.

The main characteristic of all health-financing systems is risk-pooling mechanism; risk pooling is fundamental to any type of insurance, since huge pools of people with similar risk exhibit measureable and stable characteristics allows actuaries to calculate future costs (Cronin, 2006). It is more complicated to develop a tax funded health financing system as it depends on several factors for instance: institutional capacity to collect taxes, tax paying compliance and tax base. Nowadays health care financing through prepayment (individual needs to contribute regularly to the cost of services through insurance contributions and/or tax payment) becomes more preferable to out-of-pocket expenditure as households do not have to spend lump-sum amount of money for health care services (Preker & Carrin, 2004).

Revenue collection, pooling of resources, and purchasing health services are 3 key functions of health financing. First of all revenue collection involves with payment methods, revenue sources for health services, and revenue collecting agents.

Excluding contributions from donors, funds are collected from the certain groups or general population. Social insurance contributions, private insurance premium taxation, as well as out-pocket-expenditure are all included in collecting mechanism. Public agencies (social security agency) or government, private insurance fund, and health care providers are examples of revenue collection agents. Pooling of resources is the process that revenue collected from individuals or household were accumulated and managed in the ways that the insured party do not bear the full risk of paying the full cost of health care services in the event of illness. Purchasing of health services is managed by either private or public agencies in which health care services are purchased for beneficiaries (premium contributors). The Ministry of Health, district health boards, insurance organizations, social security agencies, and individuals or household are the regular purchasers of health service. There are 2 methods of purchasing: strategic and passive; strategic purchasing refers to a deliberate approach to find a reasonable price and quality services; on the other hand, passive purchasing refers to a simple method that based on predetermined budgets (Islam, 2007). The average amount of US$ 34 per head expenditure was proposed by the Commission on Macroeconomics and health (CMH) of the WHO in order to guarantee the availability of basic health care services (Sachs, 2001). It is such a challenging issue for the low-income country governments to increase their budget in a sustainable, efficient and politically acceptable method. The World Health Assembly in 2005 proposed member states to ensure that a method for prepayment of financial contribution is included in health financing system (WHO, 2005). The goal is to avoid financial catastrophe and impoverishment due to health services expenditure; besides that it is also encourage planning transition to universal coverage, which contributes to achieve sustainability in term of health financing mechanism. An attempt to improve health facility through the introduction of user fees yielded a mixed reception. In addition, previous study also states that user fees give the negative impact to the poor (McPake, Hanson, & Mills, 1992).

There is a strong relationship between relying on out-of-pocket expenditure for health care service and several problems for instance: catastrophic expenditure,

unable to access health facilities, and impoverishments (Carrin et al., 2008). In response to the increasing expenditure in term of health, limited ability of government, and unaffordable for profit insurance to protect the vulnerable sections of society; many countries has developed and introduced their own scales of voluntary community based health insurance scheme in order to cope with the economic problem that prevents millions of poor people from using health care services (Musau, 1999).

It is harder for low-income or developing countries to create effective health financing system due to the constraint in term of tax revenue and ability of management, so that most of their population have to take full responsibility of health expenditure themselves due to immensely inadequate health expenditure per capita. Developing countries' policy makers have increased their attention towards providing good quality health care services in both rural and urban areas (Garrin, Walkens, & Criel, 2005; J P Jutting, 2003). Previously, many developing countries attempted to use cost recovery for health care via use fees. However, number of study revealed that there several negative impact from user fee related to the demand for health care services (McPake, 1993). Insurance is known as a financial instrument that assist low-income household to cope with their financial risks (OIT, 2009). The aim of developing Community Based Health Insurance (CBHI) is therefore to provide financial protection from financial shock due to health care services. The mutual characteristics of CBHI scheme are voluntary membership, not for profit health care package, risk pooling, contracted to local health providers, and relying on mutual understanding and solidarity (Ahuja & Jutting, 2004).

The Lao population primary finances their health care services through straight cash or direct out-of-pocket payment, in which it includes expenditure on medicines and services provided by hospitals (can be either inside or outside country), private clinics, drug stores, and traditional health practitioners. The Lao government has made a huge effort to expand coverage of risk protection scheme as well as health insurance in order to increase utilization of health care services, generate resources

for health providers, lower out-of-pocket expenditure, and improve overall health condition (Ministry of Health, 2010). CBHI is one out of 4 risk protection schemes, which targets population in informal sectors. The scheme was initially introduced in 2001 as a pilot project with the financial and technical supports from the United Nation Human Security Fund and WHO respectively.

At the present time, CBHI has been operated in some urban and semi-urban areas, because of the availability of health care services and affordability to pay monthly premium of the target population. However, the ministry of health is still in the process of expanding coverage of the scheme to be available at remote areas in the near future (World Bank, 2010).

1.2 Statement of the Problem

As mentioned earlier, the Lao population is mostly relying on out-of-pocket expenditure for both outpatient department (OPD) and in patient department (IPD) services. From this point, out-of-pocket expenditure for health care services is considered to be one of the most important issues in the Lao government agenda. It is not only a barrier that deters poor families from seeking health care, but also leads to serious financial problem as known as financial catastrophe. Every single year, it is estimated that 44 million households (more than 150 million people) from all over the world suffer from financial catastrophe due to health care service expenditures (Xu et al., 2005).

For the case of Laos, the out-of-pocket payment made up of 67% of the total health expenditure, the other components of total health expenditure are risk pooling (less than 1%), non-governmental organization (5%), and general government health expenditure (28%) (Thome & Pholsena, 2009). From the tiny risk pooling condition, it is able to conclude that the Lao health financing system is not yet sustainable or effective to protect its target populations from possible financial shock. Beside the overly dependent on out-of-pocket expenditure, the government also faces financial

constraint to support its population in health related issues. The per capita government expenditure on health (PPP int. $) of Laos was 38.4, which is relatively low compared to other ASEAN nations such as: Brunei Darussalam (1101.8), Indonesia (43.3), Malaysia (340.1), Philippines (56.2), Singapore (864.5), Thailand (266.6), and Viet Nam (93.4) (UN Data, 2011). Due to the high health care expenditure, poor households face difficulties of accessing health care services. The households in richer income quintile are often more likely to gain more benefit from public expenditure and subsidy. Several ways have been used to cope with huge burden of cost including using all households' savings, selling assets, borrowing and taking loans. Some of them decide not to use the services, since they don't have adequate financial resources. Last but not least, if there is an expectation from a household that they may encounter the huge health care expenditure, this situation induces them to delay treatment and finding the alternative ways of treatment (cheaper options) such as self-treatment and traditional medicine (Parmar, Reinhold, Souares, Savadogo, & Sauerborn, 2012).

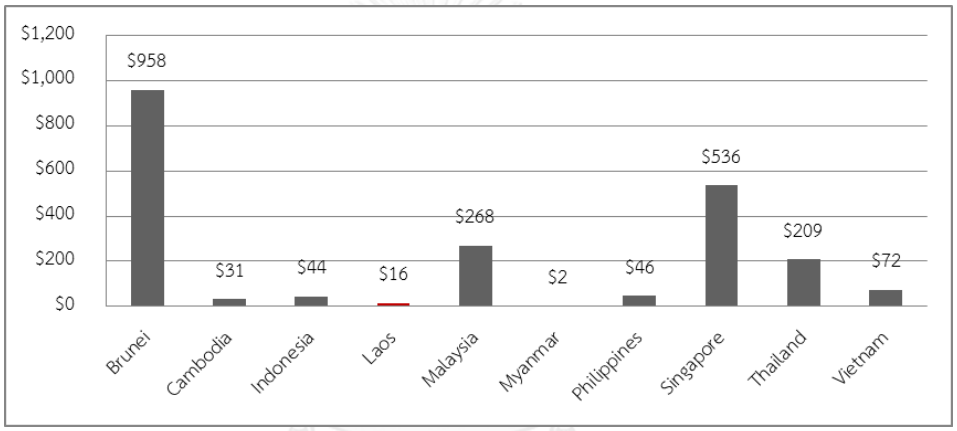
An increase of Lao health care expenditure is mainly due to the consequence of higher user fee, health-related items, medicine as well as transportation cost. According to Pholsena and Thome, the current health care system can be define as: under-funded (low government funding in health care sectors), inequitable or overly dependent on direct expenditure for the curative care, low health care coverage for the population, and inefficient and low productivity (Pholsena & Thome, 2009).

Under-funded (low government funding in health care sector)

Budget provided by the government are not adequate to cover the overall expenditure of the health-care facilities such as Internet, electricity and other basic utilities. The Lao government expenditure in term of health is estimated to be 1% of the total GDP; this includes capital investment, disease control, medical, equipment, salaries and administration of the government health system, and disease control.

According to Figure 1, the per capita government expenditure on health was only $16, which is about 60 times less than the amount provided by the Singaporean government. Regardless of the cost of living and the health care cost in Laos, we could find out that the Lao government is unable to provide a huge amount of fund to subsidy the overall health expenditure within the country. Hence, a suitable health financing system is needed in order to generate fund for health care providers, and reduce out-of-pocket expenditure.

Figure 1: Per capita government expenditure on health

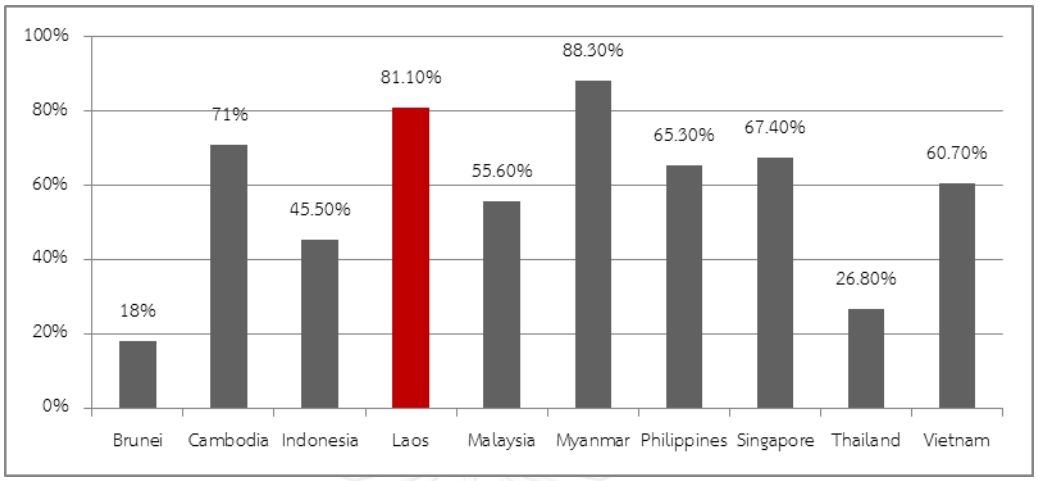


Source: WHO (WHO, 2010)

Inequitable or overly dependent on direct family expenditure for the curative care

From Figure 2, the private health expenditure in Lao was 81.10% in 2007, which is almost three times higher than in Thailand. It implies that the Lao populations are mostly relying on out-of-pocket expenditures in comparison to other method of payments. In conclusion, the Lao populations are prone to suffer from catastrophic expenditure. This situation isn't happened only because of the huge out-of-pocket expenditure, a relative small out-of-pocket expenditure is also able to create financial catastrophe to very low-income households. As a result, low-income households are forced to reduce their consumption of other goods and services such as food, children's education, and other household expenditures.

Figure 2: Private expenditure on health as percentage of total health expenditure



Source: WHO (WHO, 2010)

Low health care coverage for the population

Currently, the social security system of Lao PDR consists of 4 schemes:

1. Civil Servant Scheme (CSS) for civil servants
2. Social Security Organization (SSO) for private employees
3. Community Based Health Insurance (CBHI) for the independent workers
4. Health equity fund (HEF) for very poor population

Table 1: Social health insurance schemes in Laos

Health Care System	System	Contribution	Benefit	Payment Method	Target pop	Coverage
CSS	Mandatory	Employee 2% Employer 2% 2.2% Deduct from SSO Fund	OPD and IPD	Capitation Cost Sharing for High cost Risk Adjust Capi	CS +Dependent	6.30%
SSO					Worker + Dep	1.50%
CBHI	Voluntary	Family size and Area		Capitation	Self-Employed	1.70%
HEF	Ceretified by Local Authority		OPD and IPD Travel and Food	Capitation Fixed Fee	Poor people	2.10%

There are 4 health care schemes for different target groups of population such as civil servant, private sector employees, and informal economy workers. The Civil Servant Scheme (CSS) and the Social Security System (SSO) are operated under the mandatory system with similar contribution method; the contribution rates of the CSS and SSO come from 2 parties i.e. employer for 2 % as well as the employee for the same amount. The CSS and the SSO are considered to be inefficient as they are able to cover only 6.3 % and 1.5 % respectively. In contrast, the CBHI is the voluntary scheme, which insurers need to purchase health care package, the current coverage of this scheme is accounted to be only 1.7% of the total population. Last but not least, the HEF is the health care scheme that targets for the very poor people, this group of people need to be certified by the local authority in order to receive full benefit of the HEF scheme.

Inefficient and low productivity

Based on the information provided in Table 1, it shows that the health care scheme in Laos is still inefficient and low productivity, since all the health care schemes in Laos covers merely 11.6% of the total population. Besides that, based on the empirical studies there are several problems in term of management that may affect efficient and productivity of the schemes such as inefficient use of donor fund to support overall performance, staff performance, and conflict between health personnel and private sector (Pholsena & Thome, 2009).

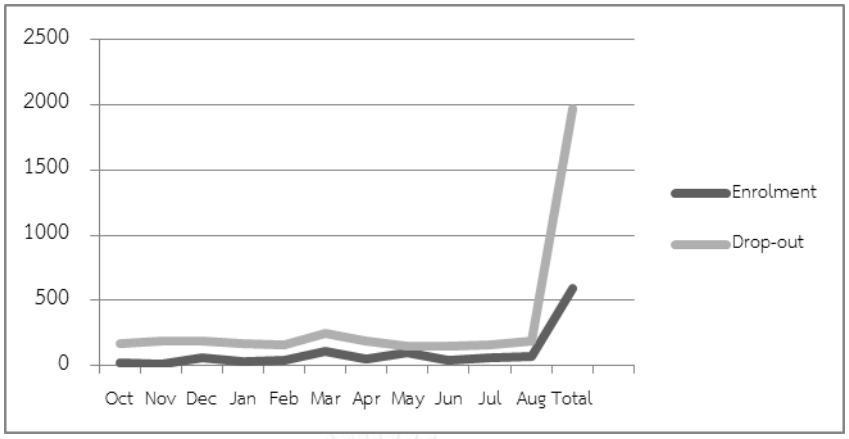
Moreover, a report of the CBHI Savannakhet found that the drop-out rate is relatively high in comparison to the enrollment rate (Bounxou, 2012). The reason was related to affordability of the contribution rate, quality of the health care services, adverse selection, non-cooperative attitudes of health care provider advertising and marketing of the scheme lack of understanding about the risk pooling mechanism, and the trust of the scheme (Dong, Gbangou, DeAlegri, Pokhrel, & Sauerborn, 2006). As a result, the CBHI scheme could suffer from substantial fluctuations in membership and risk pooling condition, which finally leads to the sustainability of the scheme in the long run.

Table 2: Dropout, enrolment and late payment in Kaysone Phomvihane district

	October 2011 - September 2012											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
Enrolment	23	17	61	31	38	109	47	97	40	59	72	594
Drop-out	169	189	187	173	163	247	190	154	153	160	185	1970
Late payment	1,114	1,102	1,144	1,143	1,130	1,095	1,020	1,115	1,128	1,175	1,107	

Source: Bounxou (Bounxou, 2012)

Figure 3: Enrolment and dropout rate in Kaysone Phomvihane district



1.2.1 Research Gap

Using health care services can possibly cause patient's households to pay a huge amount of money that is referred as catastrophic expenditure, which finally push them into poverty. The primary objective of the CBHI scheme is to increase accessibility to health care services as well as minimizing the use of out-of-pocket expenditure for the lower income population, who are unable to purchase private insurance services. There is limited evidence about the role of CBHI in term of accessibility and financial protection among the target populations (Carrin et al., 2008)

According to the review, no known studies conducted in Savannakhet province or Laos on the impact of the CBHI on decision to go to hospital and financial catastrophe among the informal sector population. The evidence that reveals the benefit of CBHI member or insured households compared to uninsured household still unclear and limited. As a result, this study is focusing on the effectiveness of the CBHI scheme operated in Savannakhet province in term of improving health care services accessibility and financial protection.

There is a study about the understanding enrollment and impacts of the CBHI in Laos conducted by the World Bank in 2010. However, the study on the impact of the CBHI scheme relied mainly on descriptive data presentation and qualitative methods(World Bank, 2010). Besides, there is no study about the role of the CBHI scheme in term of reducing probability of facing financial catastrophe. Most of the studies in Laos involved with the effect of health insurance from the perspective of the women and birth attendant, the appropriateness of prescribing for the CBHI members, and the effectiveness of purchasing the CBHI scheme for the poor. Community Based Health Insurance scheme has been introduced in Lao PDR for number of years. However, according to the review no known formal studies were conducted about the effectiveness of the CBHI scheme in term of reducing out-of-pocket payment, catastrophic expenditure related to hospitalization, accessibility to the health services, intention not to renew the membership status, and sustainability of the CBHI scheme in the long run.

1.3 Research Questions

1. Does the availability of the CBHI program offer better accessibility for in-patient service utilization and take up of the CBHI benefit (in comparison with uninsured households)?
2. Does the CBHI effectively provide financial protection against catastrophic expenditure for insured households (in comparison with uninsured households)?
3. What are the reasons that make the CBHI members decide not to renew their memberships?
4. Does the CBHI scheme suitable under constrain, problem, and response from health care provider?

1.4 Objectives of the Study

1. To find out if the CBHI members are having better accessibility for in-patient service utilization (in comparison with uninsured households)
2. To analyze the role of the CBHI in term of financial protection against catastrophic expenditure (in comparison with uninsured households)
3. To clarify the reason why the CBHI members are less likely to renew their memberships in the following years
4. To find out if the CBHI is sustainable in the long-run under constraints, problems, and response from health care providers
5. To come up with the new improved policy recommendation that ensures better accessibility, satisfaction, and lower the out-of-pocket expenditure

1.5 Expected Benefit

The result of this study will be able to provide an alternative policy recommendation for CBHI policy makers in district, provincial and central levels to improve the existing health care package in order to meet the satisfaction of its members. The better services provided by the CBHI scheme also generates higher competition in the insurance market within the country; as a result the private insurance company would invest more time and financial resources on research and development to offer the best and most affordable health care package.

Moreover, the study will create the critical evidence, which clarifies the importance and benefit of enrolling insurance scheme for instance: CBHI scheme is the risk pooling based insurance that effectively protects members from catastrophic expenditure; this will create higher incentive of enrolling CBHI program for the Lao population. In addition, health insurance with higher degree of risk pooling condition will also increase financial resource to local health providers such as provincial hospitals, district hospitals, and local health centers. Last but not least, the result of this study will also pay the crucial role in accomplishing the Millennium

Development Goal through improving the living condition as well as the health status of the Lao population.

1.6 Development of Methodology

Andersen's behavioral model of health service is well known as a classical reference for the health services related literatures. There are 3 editions proposed by Ronald Andersen; the first one was published as his dissertation in 1968, a model of health care comprised of three categories of determinant or in other words, the health care utilization depends on three factors as followings (Andersen, 1968)

- Predisposing characteristics: the predisposing characteristics refer to the proclivity of utilizing health care services. Ronald Andersen states that demand of health service is based on demographic, position within the social structure, and belief of health services benefit. Hence, individuals who believe health services are useful for their health are more likely to use those health care services.
- Enabling characteristics: the enabling characteristics refer to resource available with in the family and community. Family resource includes economic status and location of residence, whereas community resource involves with the accessibility of the health care facilities or availability of people for assistance.
- Needs based characteristics: the last characteristic in Ronald Andersen's dissertation refers to the perception of need for health care services, whether individual, social, or clinically evaluated perception of need

Andersen's was later expanded and refined to include health care system in 1970; this time includes health policy organization, resources, and the changes of these factors over time. Andersen stated that resources comprise of distribution and volume of both capital and labor, including availability of equipment and education level of health care personnel; whereas organization refers to the performance of health care system in term of available resources management.

In the 1980s-90, Andersen's behavioral model was once again revised to form three components with linear relationship as followings (Andersen, 1995):

1. Primary determinants: simply refers to the direct cause of health behavior, which includes characteristics of population (demographics), the external environment (political and economic influences of utilization) and the health care system (resources and organization)
2. Health behaviors: is defined as personal health practice (physical exercise, diet and health service utilization)
3. Health outcomes: includes health status perception, consumer satisfaction and evaluated health status

1.8 Conceptual Framework

Figure 4: Conceptual framework

Figure 5: Phase 1, process of conducting quantitative study

Figure 6: Phase 1, process of conducting qualitative study

Figure 7: Phase 2, Policy recommendation process

Figure 4: Conceptual framework

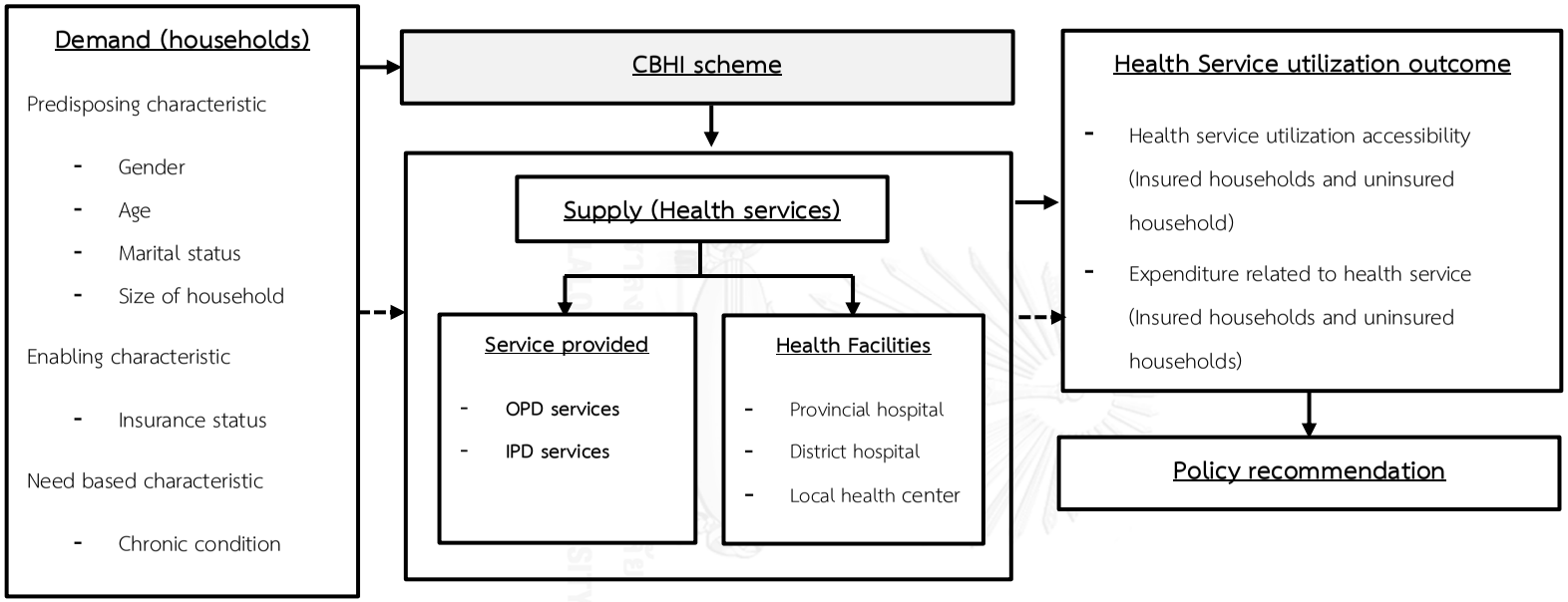


Figure 5: phase 1, process of conducting quantitative study

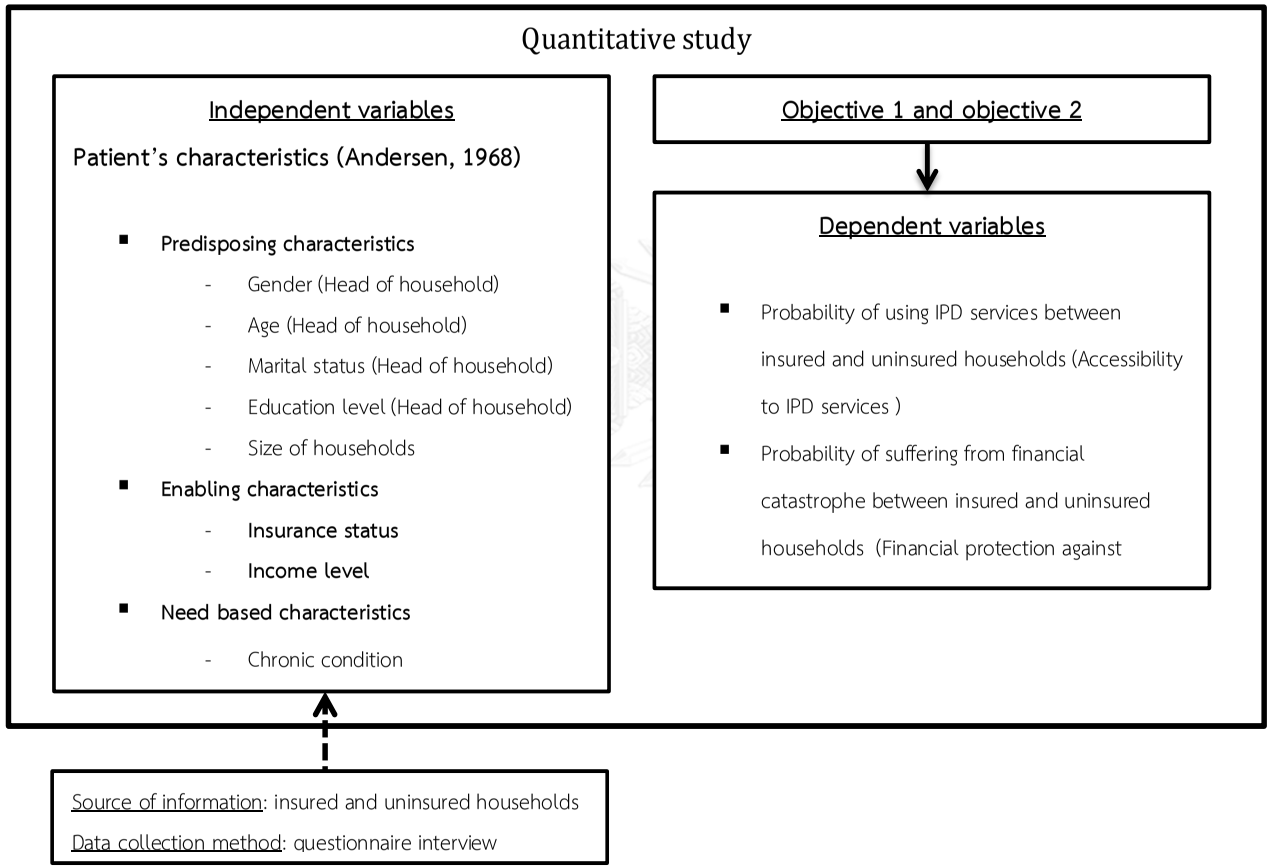


Figure 6: phase 1, process of conducting qualitative study

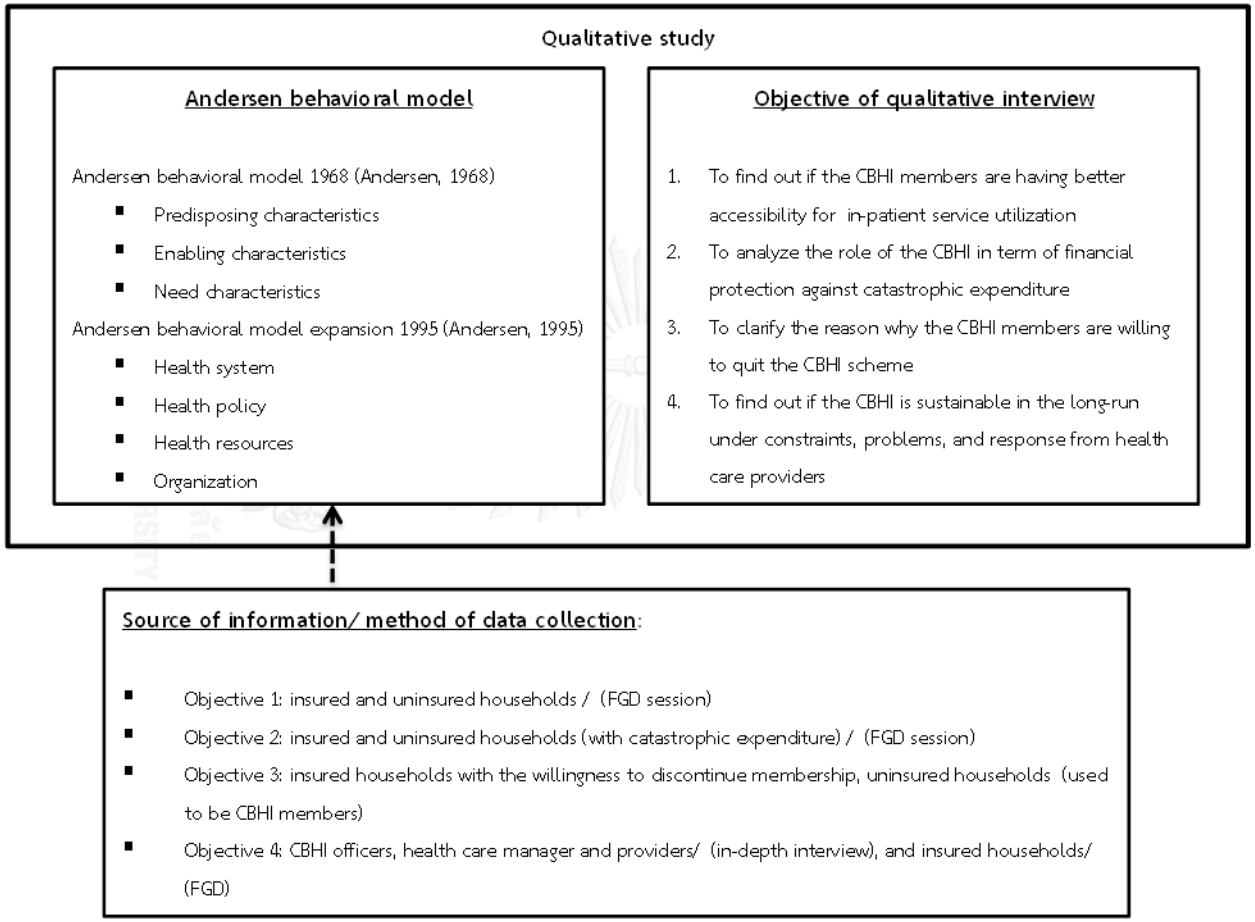
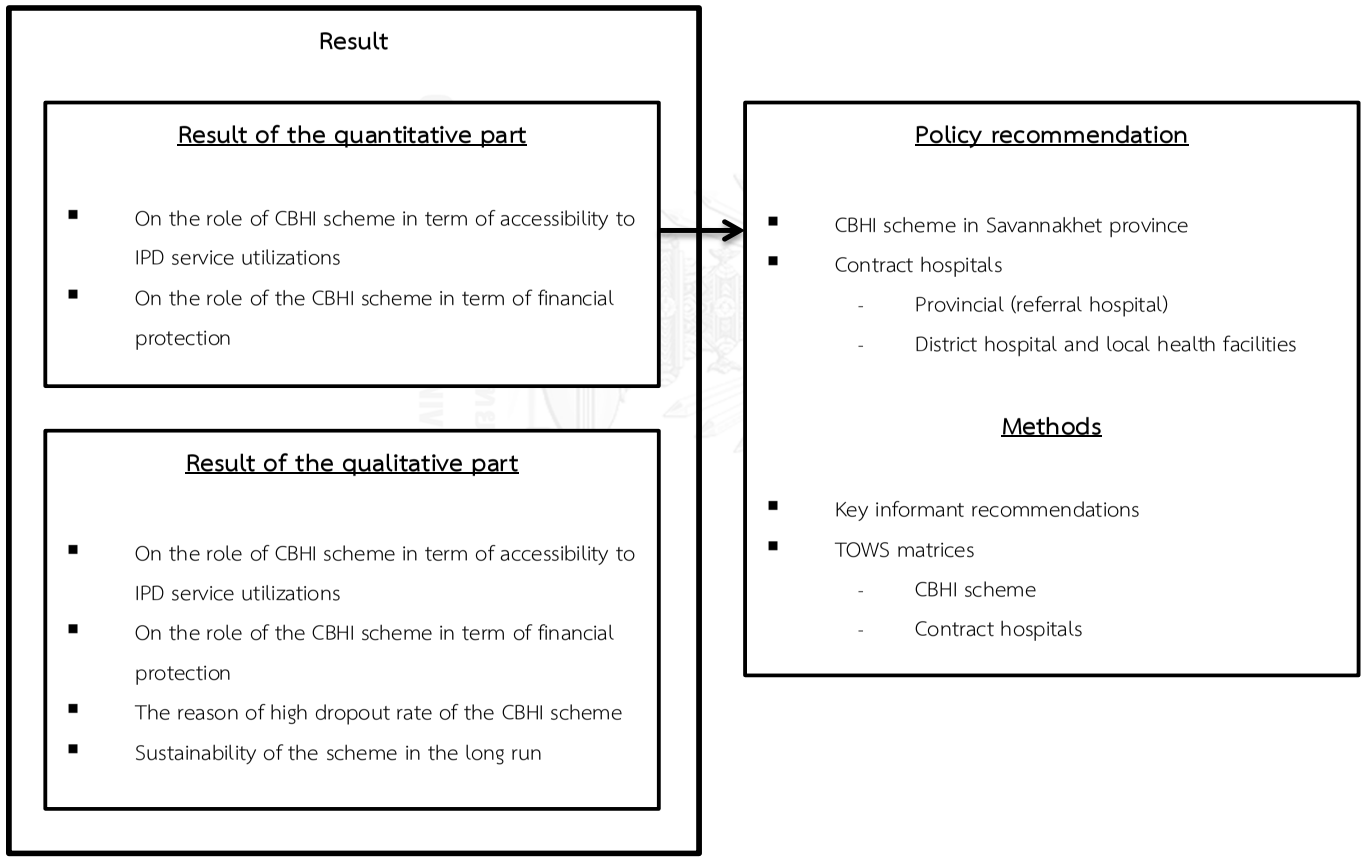


Figure 7: phase 2, policy recommendation process



Based on the information provided in Figure 4, the demand side and the supply side of health service utilization are taken into consideration. The demand side of health care service refers to the households that purchase health care services offered by health providers or the supply side.

In this study, the demand side's characteristics were measure by the Andersen behavioral model (Andersen, 1968). The model includes predisposing characteristic, enabling characteristic, and need based characteristic. On the other hand, the supply side refers to health care facilities and type of health care services available in the study sties. There are 3 types of health care facilities in Savannakhet province: provincial hospital, district hospitals, and local health centers.

Recall that the study's primary objective is to analyze the effectiveness of the current CBHI policy, in which the improvements in term of accessibility and financial protection of health service utilizations have been used as indicators. As illustrated in the conceptual framework, there are 2 directions of the demand side (households) of accessing to health care facilities. The first direction is known as an insured household's direction (solid arrows); in this case the CBHI scheme acts as a linkage/ an intermediary between the demand and supply sides. In contrast, the second direction belongs to an uninsured household (dash arrows), in which a household directly visits hospital without using CBHI services.

In addition, the processes of conducting this research are presented in figure 5, 6, and 7. There are 2 phases as follows:

- Situation analysis
- Policy recommendation

The first phase is known as the situation analysis, which analyzes the current performance of the CBHI scheme. Both quantitative and qualitative studies were included in this phase. In the quantitative section, dependent variables derived from

the first and the second objective; the first objective aims to find out if CBHI members are having better accessibility for in-patient service utilization, whereas the second objective aims to analyze the role of CBHI in term of financial protection against catastrophic expenditure.

The independent variables were adopted from Andersen's behavioral model (Andersen, 1968), the model consists of predisposing characteristics, enabling characteristics, and need-based characteristics. Predisposing characteristics contains 5 factors: gender, age, marital status, education level and household's size. Enabling characteristics contains insurance status and income level. Households' chronic condition is the only factor that is included in the need based characteristics. The source of data analysis for the quantitative study was retrieved from both insured and uninsured households by questionnaire interview.

On the other hand, the qualitative study was use to answer all four objectives of this study as mentioned in Figure 6. Both focus group discussion (FGD) and in-depth interview were taken into account to be able to deliberately analyze the opinion of all stakeholders in detail. The questions used in this session were also adopted from Andersen's behavioral model (Andersen, 1968) and Andersen's behavioral model extension (Andersen, 1995). The extension part contains information related to health system, health policy, health resources, and organization.

The second phase is known as the policy recommendation process, the objective of this phase is to provide the possible policy recommendation that improve accessibility as well as financial protection offered by the CBHI scheme with respected to the results of both quantitative and qualitative parts presented in phase 1. In order to improve the quality of the CBHI services, the CBHI contracted hospitals' quality should be improved in term of services, infrastructure, human resource and so forth. As a result, this research proposes 2 areas of policy recommendation, the first area involves with the CBHI scheme, whereas the second area focus on the contracted heath facilities.

In the policy developing process, the TOWS matrices were used to analyze the strength, weakness, opportunity, and threat of the CBHI as well as the contracted health facilities. From those results, the proactive, develop, re-act, and adapt polices were developed. The results of the logistic regression models were used to select which policies should be prioritized based on the available budget.

CHAPTER 2: LITERATURE REVIEWS

2.1 Health Financing

2.1.1 Health financing in the world

The World Health Organization (WHO) defines health financing as “function of a system with the mobilization, accumulation and allocation of money to cover the health needs of people, individually and collectively, in the health system” (WHO, 2000).

Health financing is one of the most important mechanisms of public health policies. It provides social benefit by generating a huge amount of fund for health care service providers. Besides that, health financing also eliminates the financial barriers for the poor to easily access reliable and good quality health care services (World Bank, 2010). In other words, health financing sets the right financial motivation for the health care facilities.

In order to develop an effective health financing policy, governments need to take three important factors into consideration: revenue collection, pooling resources (risk pooling) and purchasing of intervention (WHO, 2000).

Revenue collection

Revenue collection is the method of collecting financial resources for health care providers as well as health care system. Excluding any form donation revenue collection mechanism includes general taxation, social insurance contribution, private insurance premiums as well as the out-of-pocket payment.

For developing countries, revenue collection can be a challenging problem; despite there are various sources of revenue collection from both public and private sectors. There is a positive relationship between the economic size and revenue collecting capacity due to the better economic formalization, taxation and ability to pay of businesses and individuals. Hence, the percentage of revenue collection is associated with the GDP per capita, for instance: with the GDP per capita $300, a developing country would be able to collect approximately $54 per capita, which is equivalent to 18% of all the public expenditure needs; on the other hand, for the middle and high income countries the percentage of revenue collection can be raised to 23% and 32% respectively.

Pooling resources

Risk pooling is a form of management fund collected from household and individual levels to ensure that they/ the insured parties are able to avoid risk of having paid full amount of health expenditures in the case of illness.

There are various methods for government to manage risk pooling, in order to equally distributed risk among members. The tax-based health financing and health insurance (private insurance, community based insurance scheme and social security organization) are both involve with risk pooling, and the way must be on the basis of efficiency, equity, administrative feasibility, sustainability and affordable administrative cost.

Purchasing services

Purchasing a mechanism and resource allocation determine the demander (customers) and the supplier (health providers) in the health system. Purchasing mechanism refers to number of arrangements used by parties that pay for medical care services. Those arrangements include: social security organizations and national health organization offer services in publicly owned health facilities in which salaries

of the staff are paid by the government; organizations or individuals purchased services by either contracting arrangements or direct payments from both private and public hospitals.

This process ensures that there are benefits in term of cost minimization, satisfaction, quality and accessibility. Efficient use of fund provides better value for financial resource for the developing countries; besides a mean of accomplished additional fund for the health system, it is also ensure the donors that the fund was managed and used efficiently.

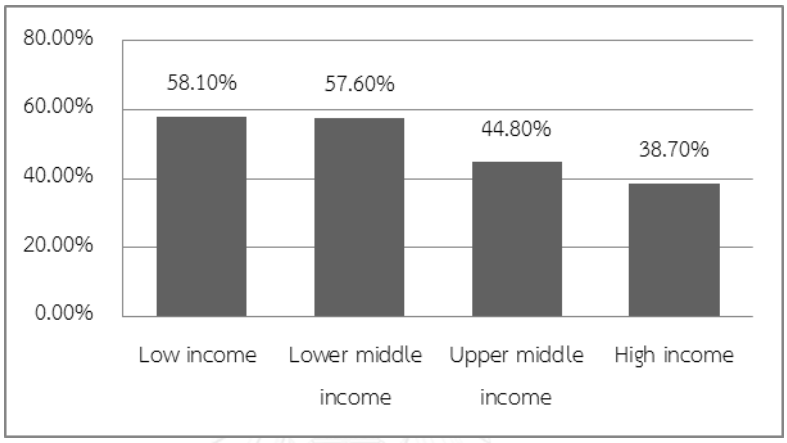
There are number of reasons which shows that health financing mechanism could have a very high impact on reducing out-of pocket expenditure in low and middle income countries (Hsiao & Liu, 2001).

- First of all, a larger proportion of the household in low- and middle income countries relies on direct payment or out-of-pocket expenditures for health care services in comparison with high-income countries, which may lead households into poverty (O'Donnell et al., 2005). From Figure 6, we could find out that the percentage of private expenditure on health as a proxy to the out-of-pocket expenditure has negative relationship with country's level of income. The graph indicates that the private expenditure on health was 58.10% for low-income countries. On the other hand, it was only 38.70% for high-income countries.

- Furthermore, the governments' budgets for health related issues in low-income countries are relative low in comparison to high-income countries. As a result, there is a large gap between health demand and ability to pay/ subsidy of the government due to scarcity in term of financial resource, which requires proper government intervention and good financial resource management (Kutzin, 2000).

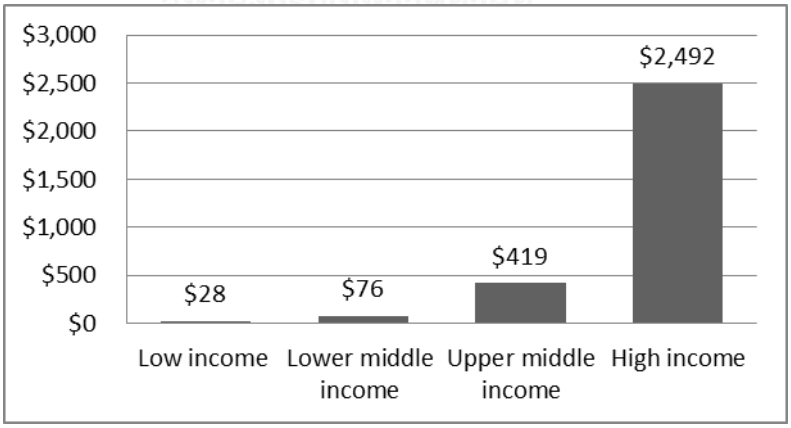
- From the limited financial resources, the government of low and middle-income countries is struggling to adopt the new and advance medical technology. Hence, the health financial policy might be a good option for governments to raise fund for the health providers.

Figure 8: Private expenditure on health compared to total health expenditure



Source: World Bank (World Bank, 2010)

Figure 9: Per capita government expenditure



Source: World Bank (World Bank, 2010)

From Figure 9, there is a positive relationship between ability to provide health care fund by government and level of income. We could find out that the government in the high-income countries able to provide up to $2,492 with respected to the

purchasing power parity condition. On the other hand, the low income and lower middle-income countries are able to provide merely $28 and $76 respectively.

2.1.2 Health Financing in Southeast Asia

According to the WHO, most of the developing countries are greatly relying on out-of-pocket expenditure (World Bank, 2010), and financial assistance and global health initiatives for instance: Global Fund focuses on specific disease or intervention rather than general issue (Tangcharoensathien et al., 2011). Southeast Asia region shares up to 8.7 % of the world's population currently enjoys the huge economic growth in the recent years; as a result, these countries have high potential to achieve the universal coverage of health care services (Chongsuvivatwong et al., 2011). However, the progress of achieving the universal health care is still far behind, especially for the countries with low fiscal capacity and small or absent of social health insurance for employed sectors.

Tangcharoensathien carried out a research in seven countries of Southeast Asia region, which comprises of various economic backgrounds, health care coverage and financial protection system. Two out of seven countries were considered as low-income countries and low health coverage (Laos and Cambodia), and the rest are categorized as middle-income countries i.e.: Thailand, Malaysia, Indonesia, Vietnam and the Philippines. The study reveals some basic knowledge in term of health financing as followings (Tangcharoensathien et al., 2011):

<u>Protecting the poor and vulnerable</u>

In the recent years, countries in Southeast Asia have introduced different policies in order to protect the poor and vulnerable. A common trend is that health services for the poor people and vulnerable are subsidized by the government through general taxation.

A user-fee has been implemented in Cambodia since 1996 with the objective to improve the quality of health-care delivery system, as the higher money inflow could boost the incentive of health workers, and supplement to the inadequate government budget. In reality, user fee policy also creates even higher barrier that effectively deter poor patients from accessing good quality health care services (Akashi, Yamada, Huot, Kanal, & Sugimoto, 2003; Jacobs & Price, 2004).

Four years later, the Health Equity Fund (HEF) was piloted with the financial assistance from international organizations to compensate for medical and travel expenses of the poor people who were unable to pay for the health care services by themselves. This scheme has been gradually expended in the recent years, which covered almost 68% of poor population or 23% of Cambodia's total population. However, there is a question mark on government capacity and financial sustainability to expand using their own resources (Ir, Bigdeli, Meessen, & Van Damme, 2010).

Due to the 1997 economic crisis, the Indonesian government introduced a tax-finance targeted for the poor and near poor, including homeless and orphans, who were severely affected by economic downfall. In 2008, this health care scheme reached almost 35% of the total population. The most significant accomplishment of this policy was the ability to capture most of the target population (Rokx, Schieber, Harimurti, tandon, & Somanathan, 2009).

Similar to Indonesia, after the Asia economic crisis; the Filipino government organized the Philippine Health Insurance Corporation or as known as PhilHealth. PhilHealth has introduced a sponsored program specially designed for poor households that are approved and registered by the local government (Tangcharoensathien et al., 2011).

Protecting the formal employment sector

In order to protect the formal employees from financial risk, the Southeast Asian countries implement mandatory social health insurance for informal sectors. In term of management, the social health insurance is commonly run by a non-profit organization. The source of revenue of the social health insurance organization is a percentage of payrolls, which is deducted from the employees and their employers, and sometimes government in the case of Thailand. There are numbers of strategies of the social health insurance organization in regulating public and private health care providers in order to achieve efficiency, quality and financial protection. Different method of provider payment arrangement can play the significant role in affecting doctors' clinical decision and behavior on resources use (Langenbrunner, Cashin, & O'Dougherty, 2009)

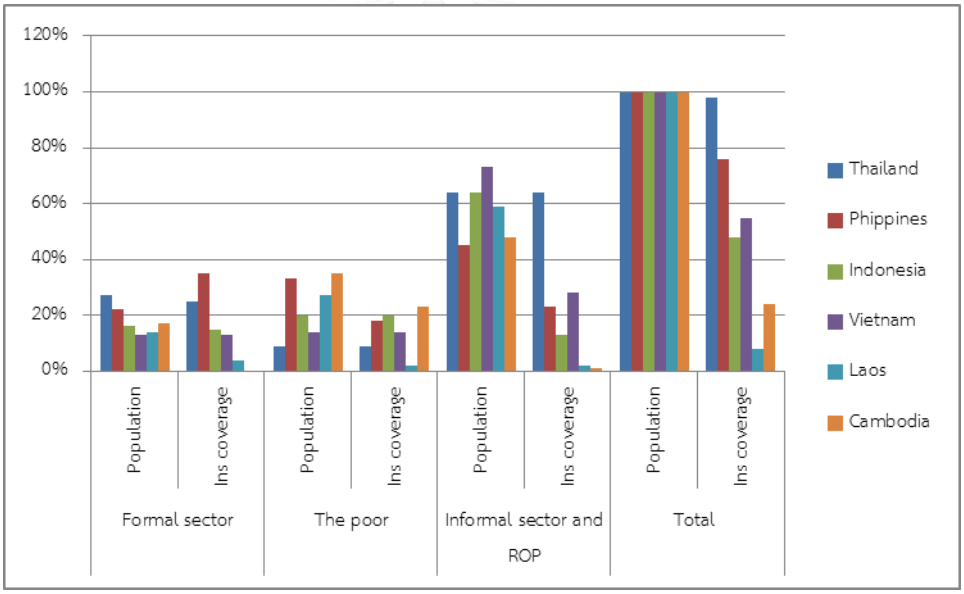
Protecting the informal sector and the rest of population

The informal sector and the rest of population are the most important part of health financing mechanism; this sector is the biggest proportion of the countries in Southeast Asian region (49% in Cambodia, 64% in Indonesia, and 73% in Vietnam). It is immensely more challenging in term of management because of their restricted capacity to pay premiums, the feasibility of enforcing payment, and difficulty increasing geographical coverage of health care scheme (Tangcharoensathien et al., 2011).

Table 3: Insurance coverage for 3 groups of population

Countries	Formal sector		The poor		Informal sector and ROP		Total	
	Population	Ins coverage	Population	Ins coverage	Population	Ins coverage	Population	Ins coverage
Thailand	27%	25%	9%	9%	64%	64%	100%	98%
Philippines	22%	35%	33%	18%	45%	23%	100%	76%
Indonesia	16%	15%	20%	20%	64%	13%	100%	48%
Vietnam	13%	13%	14%	14%	73%	28%	100%	55%
Laos	14%	4%	27%	2%	59%	2%	100%	8%
Cambodia	17%	0%	35%	23%	48%	1%	100%	24%

Figure 10: Insurance coverage fort 3 groups of population



The charts above show the comparison of 6 countries in different health financing sectors: formal sector, the poor and informal sector. Malaysia was excluded from the comparison since they already reached 100% of coverage

2.2 Community Based Health Insurance

2.2.1 Community Based Health Insurance Overview

According to Hsiao and Liu, the health financing in a community level is being recognized by 3 characteristics: community cooperation, pre-payment and self-

reliance (Hsiao & Liu, 2001). In order to receive health care services, members of a community have to pay a contribution in advance; this payment can be monthly or yearly basis. Improving equity and accessibility of the low-income population become the major role of a community-based health financing schemes. The community-based health financing offers a system of risk pooling for community-level in relation to sickness.

For the low and middle-income countries, CBHI financing plays the crucial role in the health financing system. The role of the CBHI scheme is to focus on the population groups not being targeted by any market-based health financing and the local government. From this point, a community-financing program has been attracting attention for its role and effectiveness of providing these groups of people in term of financial protection and accessibility to health care. In term of management, CBHIs can be initiated and owned by one of these sectors i.e.: NGO, health facilities, trade unions, local communities and government (Tabor, 2005). There is more than one reason to develop and organize CBHI schemes, but the most important objective is to mobilize resources, provide financial protection and increase accessibility to health facilities for poor people. Preker et al stated that the ability of CBHI to mobilize resources and provide financial protection for the poor depends on the relationship between the health care suppliers and the insurance schemes (Preker et al., 2002).

As the CBHI aims to provide the benefit to the society as a whole, CBHI schemes are of course not-for-profit scheme that based on solidarity among a small group in the community. As a result, the CBHI schemes are more likely to operate in the rural area and poorer economic condition where it is not being target by the market-based or for profit insurance.

The significant difference between the CBHI schemes and private micro-insurance is that the members also play the important role or govern the schemes. There is the participation of communities in decision-making and organizing health care policy

that could increase the effectiveness of health care services. Hence, we could say that there is a higher level of solidarity between the population with lower and higher risk in term of health. The study of Oxfam in 2008 points out that the performance of the CBHI schemes still below the expectation in generating equitable and effective health system because of limited coverage and small scale enrolment. The enrolment rate can be very low to relatively high ranging from 0.3% to 90.3%, it is also reported that there are very little schemes able to reach most vulnerable groups and the poorest (Oxfam, 2008).

2.2.2 Role of the CBHI scheme

According to the previous studies, it shows that CBHI schemes offer effective financial protection to their members by immensely lowering the level of out-of-pocket expenditure. However, some studies was found that level of protection is still below the expectation (Jowett, Contoyannis, & Vinh, 2003). In addition, a study of Jakab and Krishnan states that most of existing schemes are unable to cover the poor population (Jakab & Krishnan, 2001).

On the national level, community financing provides a positive impact on the health financing especially for developing countries. It provides financial protection for the poor people by improving accessibility and reducing out-of-pocket expenditure (Preker et al., 2002).

However, the evidence related the effect of CBHI schemes on out-of-pocket and utilization is still low (Ekman, 2004; Preker et al., 2002). It is reported that CBHI scheme tend to exclude the poor people in the community due to their inability to pay premiums (Bennette, Cresse, & Monashch, 1998; Johannes Paul Jutting, 2003); and in contrast, according to Ranson et al, CBHI schemes includes poorest (Ranson et al., 2006). Besides that, various studies found that there is no significant association

between households' economic status and health financing schemes' enrollment (Gumber, 2001; Schneider, Diop, & Leighton, 2001)

The non-members of health financing schemes were more likely to seek for health care services more than the CBHI members (Gumber, 2001). There is an evidence, which shows that CBHIs' members tend to have less out-of-pocket expenditure in comparison to non-members (Schneider et al., 2001). However, the impact of the CBHIs on lowering out-of-pocket expenditure remains limited especially in term of catastrophic expenditures. The problem of heavily relying on out-of-pocket exists mostly in developing countries, which finally leaves households exposed to the risk of unpredictable medical payments. As a result, people have to trade-off between diverting resources towards medical care.

Catastrophic condition can be defined as expenditure on health care, which is more than a given share of the household budget. There are associations between the probability of incurring catastrophic expenditure, and household characteristics (Social Economic, household's location). The catastrophic expenditure rate varies by different sources, for instance it is normally defined as catastrophic expenditure if the expenditure more than a substantial proportion of household affordability, which is measured by household expenditure (or income): 15% (Wyszewianski, 1986), 10% (Ranson et al., 2006), and 20% (Liu & Perozek, 1991). However, WHO defines the health expenditure more than or equal to 40% of the capacity to pay; which refers to household incomes or expenditures deducted by food expenditures (Kawabata, Xu, & Carrin, 2002).

On the other hand, accessibility to health care is measured and interpreted by the terms of entering the health care system. The term of "potential access" and "realized access" were proposed by Aday and Andersen. The term "potential access" refers to the presence of enabling resources such as: insurance, income, service available, transportation and more; whereas "realized access" refers to the actual service uses (Aday & Andersen, 1975). However, a study of Mooney, and Le

grand pointed out that the accessibility to health care is difference from access to treatment. The access to treatment simply means opportunities available for individual, which can be considered as the money and time cost for health care services (Mooney, 1983).

Improving access to affordable health facilities can play the significant role of boosting growth and assisting to get rid of the vicious cycle of illness and poverty. Unaffordable health care costs prevent efforts to fight poverty, the reason is illness and unhealthy condition lowers productivity, and financial resources may be invested to meet health related consumption requirements. Moreover, households with health problems are less likely to have better financial condition compared to healthy households (Johannes Paul Jutting, 2003). Family's vulnerability to injury and illness can be a source of poverty, since there is an association between vulnerability to health risk and a source of poverty; the fewer the resources, the greater the vulnerability.

Equality in term of accessibility refers to all individuals require the same financial cost in order to receive the health care services. However, it doesn't mean that all individuals have to receive the same medical care, even their have the same prognosis and diagnosis; this is due to their level of preferences. The cost of accessibility is higher for lower income patients because they have a higher marginal income utility; from this point Le Grand propose that utility should be used to measure costs of accessibility rather than money (Le Grand, 1982). On the other hand, a study of Goddard and Smith shows that accessibility is defined by supply sider factors. They also state that the differences in availability of services, cost, quality of care and information provided to the populations play the important role in variations in access offered by supply side (Goddard & Smith, 2001).

The fairness in financing is measured by a household total expenditure divided by its capacity to spend as a key indicator. In order identify this indicator, the WHO have to systematically compare health expenditure to households' capacity to pay, which

includes the portion of households' paid income tax and sales taxes, health insurance premium, and out-of-pocket expenditures. The WHO identify capacity to pay as total non-food expenditure, the reason is they considered food expenditure as a necessary expenditure (WHO, 2000).

According to the WHO, it is suggested that if the fairness in financing ratio more than 0.5 would be likely to cause the impoverishment, because of the high level of health expenditure in comparison to the capacity to pay. From this point, a study of Kawabata et al suggested that this condition should be identified as catastrophic (if the health expenditure more than 40% of a household's capacity to pay) (Kawabata et al., 2002). The study in low and middle income countries shows that low income households are more likely to have a higher portion of their budgets in comparison with higher income households (Makinen et al., 2000). Hence, health financing become very important; without financial protection individual are prone to suffer from chronic conditions, which consequently cause number of contacts with health care facilities and high out-of-pocket expenditures.

2.3 Laos's Health Care System

The health care system of Laos has made a relative good progress after the revolution in 1975. The health indicators and social welfare have been greatly improved from the last 35 years. However, based on number of health indicators imply that, the country of Laos is still far away from achieving the Millenniums Development Goals in the health sector. For instance, despite the maternal mortality ratio has been diminished from 530 to 405 per 100,000 live births in the period of 2000 to 2005. The number is still about four-fold higher than the Millennium development Goal by 2015 of 108 per 100,000. Besides that the child mortality was negligibly reduced from 107 to 98 per 1,000 live births from 2000 to 2005, which is significantly different from the Millennium Development Goal of 44 per 1,000 live births by 2015. In addition, the research conducted by the United Nation shows that

children under five years of age were underweight up to 39% in 2006, which was only 1 % less than in 1990.

Health care system is one out of four priority sectors for development issued by Sixth National Socio-Economic Plan. The "Health Strategy to the Year 2020" is the 12th Strategic Program of the Sixth National Socio-Economic Plan, the primary objective to improve the health management and health financing structures as well as affordability of health care services for the poor. The "Health Strategy to the Year 2020" comes out with 4 basic broad issues as followings (Schwartz & Viravong, 2006)

1. Full health-care services coverage and equity
2. Development of early integrated health-care services
3. Demand-based health services
4. Self-reliant or financially autonomous health services

The government is in charge of delivering health care services to the population with government owned and operated health centers in central, provincial and district levels (Ron, 2006). The Lao government has divided the public health system into three major areas:

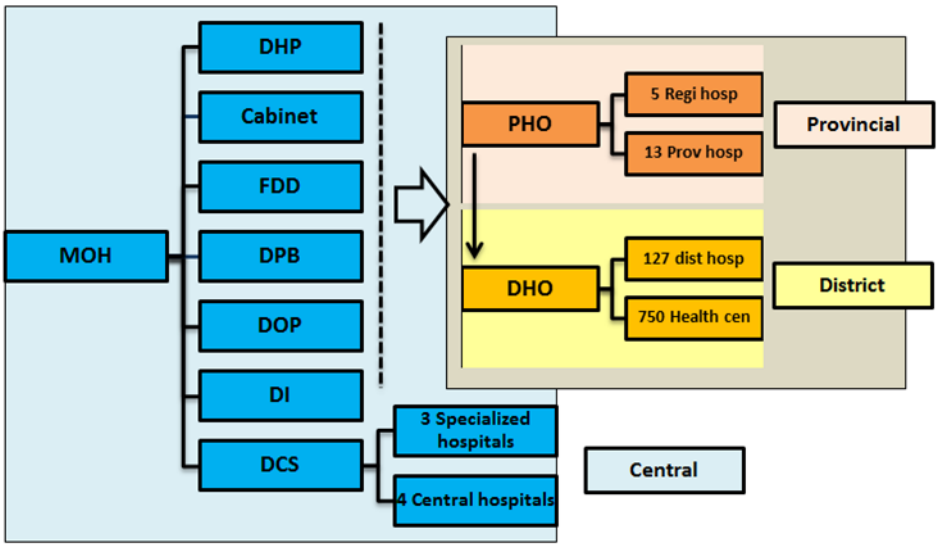
1. Health care
2. Prevention, promotion and disease control
3. Health management and administration with traditionally a strong vertical structure

According to the Department of Organization and Personnel, there are approximately 5,000 hospital beds in Laos (Lao Department of Organization and personel, 2007)); each of them has capacity to cover about 7,000 people. The average travel by feet is approximately 90 minutes to the nearest health facility, which covers 93% of total population. However, the Lao Expenditure and Consumption Survey in 2002/2003 states that there are some gap between urban/rural and rich/poor village; for

example: it takes 108 minutes from the rural resident while it takes only 19 minutes for the urban ones; from the highland areas consume almost 3 hours to reach the nearest health facility but on the other hand it is merely 48 minutes from the lowland areas.

In term of human resources, there are about 18,000 health care personnel throughout the country. Seventy percent of them belong to the Ministry of Health, and another 30% are under Ministry of National Security and Ministry of Defense. The most important problems that prevent the effectiveness in health system are relatively low financial incentive with respect to the cost of living in the country and lacking of basic training and career development opportunity, which subsequently lower motivation in their duties (Antunes, 2008)

Figure 11: Organization charts of the public health system in Laos



Notes:

- DHP: Department of Hygiene and Prevention
- DPB: Department of Planning and Budgeting
- FDD: Food and Drug Department
- DOP: Department of Organization and Personnel
- DCS: Department of Curative Service
- DI: Department of Inspection
- MOH: Ministry of Health
- PHO: Provincial Health Office

According to Figure11, the central level of Ministry of health consist of 7 departments: department of hygiene and prevention, cabinet, food and drug department, department of planning and budgeting, department of organization and personnel, department of inspection, and department of curative service. In which, the department of curative service contains 3 specialized hospitals and 4 central hospitals. At the provincial level, there are 18 hospital in total in which 5 of them are regional hospital and the other 13 hospital are provincial hospitals. Last but not

least, there are 127 district hospitals and 750 local health centers at the district level.

At the present time, there is no private hospital in Laos. Private sectors also play important role in pharmacies and alternative health facilities such as clinics and traditional medicine practitioner. There are over 2,000 private pharmacies, 500 private clines and 600 traditional medicine practitioners currently in service, but most of them operate in urban areas after official working hours by senior health care personnel from the government hospitals (ILO Laos, 2007).

2.4 Health Financing in Laos

From 1975 until 1995, the government offered a universal health care for the entire population, as a result the healthcare treatment service were fully subsidized by the central government. Due to the budget constraint, the Lao government had a hard time in providing free of charge services to every patients using public health care services. There were very low financial resources for the health providers; salary of health workers, shortage of essential drug and medical supplies became increasingly frequent. Government sources of revenue from general taxes were unable to cover all the subsidized expense.

In 1996, the Lao government decided to officially introduced user fees through the decree 52, for specific services and expanded the Revolving Drug Fund (RDF) in 1997, which allowed private pharmacies to operate in order to enhance the availability of drugs. As a result, a start of user fees of health care services has been implemented.

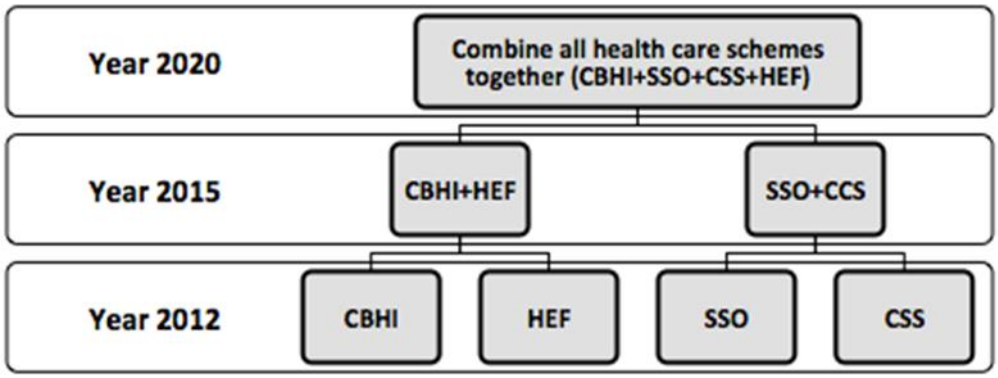
The RDF successfully ensured drug availability as well as a source of income for the hospital. However, it is reported that there was a situation that health providers over prescribed and easily responded to patients' request for unnecessary drugs. As a result, the irrational use of drug expenditures was more than 80 % of the total

expenditure, excluding the health care personnel's salary that is paid by the government. Consequently, the health care cost in Laos can be considered as relatively high in comparison with quality provided as it is often driven by irrational prescription of both diagnostic test and drug. Hence, most of the patients (especially the rich) tend to mistrust the public health care services and prefer to rely on the private clinics or Thai hospital instead (Schwartz & Viravong, 2006).

Table 4: Timeline of the Laos's health financing

Years (Previous Policy)	Description
1975-1995	A universal health care coverage, the government was responsible all the payment related to the health care services
Year (Current Policy)	**Description**
1996-	Government decided to abolish the universal health care service by implementing the user fee for services. However there are numbers of exemption and waivers such as civil servants and their families, monks and student in government schools
1997-	Expanded the Revolving Drug Fund (RDF), the government allowed private pharmacies to develop to ensure the drug availability
2000	Developed the health financing system
2002	The very first CBHI scheme has been pilot in Nam Bak District, Luang Prabang Province

Figure 12: Health financing plan



Source: Bounxou (Bounxou, 2012)

From Figure 12, it shows that the Lao government plans to combine the CBHI and the HEF together in 2015 as well as the SSO and the CSS. In addition, the government also plans to combine all the existing schemes today to be under the National Insurance Scheme in 2020.

2.4.1 Community Based Health Insurance Scheme

In 2000 the Ministry of Health (Laos) has realized the importance of health financing for the informal sectors as well as the non-salaried populations. After receiving the financial support from the Government of Japan through the UNHSF (United Nation Human Security Fund) and technical assistant from the WHO, the CBHI scheme has been piloted in 3 different areas as followings:

1. Sisatanak district, Vientiane Capital (25 villages from Nov, 2002)
2. Nambak district, Luang Prabang Province (23 villages from Jun, 2003)
3. Champasack district, Champasack province (17 villages from Feb, 2004)

Regarding to the result of the pilot projects, the CBHI scheme was able to develop in order to be suitable to the local life styles of the targets populations. As a result, it is reported that the coverage of the CBHI was about 3,500 households or 25,000

persons in 2007 before the expansion in 2008, at this time the CBHI included: Saysetha district (Vientiane Capital), Champhone district (Savannakhet Province), Pakse district (Champasack Province), Luang Prabang and Oudomxay Province (Pholsena & Thome, 2009).

The sources of revenue of CBHI scheme are mostly from premium rate paid by members (the other sources come from the government subsidy and financial assistance from foreign NGOs). In order to increase accessibility to various group of population, the CBHI scheme uses a price discrimination strategy where the premium rates have been set up into 4 different levels based on family size and economic condition of the district (district A refers to a relatively better economic condition). According to the table blow, the CBHI committee has set up the premium rate as followings:

Table 5: Other province's CBHI premium rates

	District A	District B
1 Household member	14,000 kip/household/month	12,000 kip/household/month
2-4 Household members	24,000 kip/household/month	20,000 kip/household/month
5-7 Household members	30,000 kip/household/month	25,000 kip/household/month
8 Households members	33,000 kip/household/month	28,000 kip/household/month

Source: CBHI booklet, Vientiane Capital 13 April 2005 (CBHI, 2004)

As illustrated in Table 5, the premium rates are depended on economic condition of district resided and people within the households. On the other hand, the CBHI premium rates in Vientiane capital were based on choice of insurance package and

people within households. According to Table 6, there are 2 choices of insurance range package as known as package 1 and package 2. Package 1 offers households to directly use referral hospitals without visiting district hospitals, whereas package 2 reserves the right of using referral hospitals directly, so that households purchased package 2 have to use district hospitals before transferring to the referral hospital (with reference note from that district hospital).

Table 6: Vientiane capital's CBHI premium rates

	Package 1	Package 2
1 Household member	300,000 kip/household/year	210,000 kip/household/year
2-4 Household members	500,000 kip/household/year	360,000 kip/household/year
5-7 Household members	650,000 kip/household/year	450,000 kip/household/year
8 Households members	700,000 kip/household/year	500,000 kip/household/year

Another difference is that the CBHI scheme in Vientiane do not offer a payment on a monthly basis, the minimum payment starts from 3 months to 1 year. For the 3-month premium payment, the window period for CBHI card and OPD service is 1 month, which means insured households are eligible to use OPD service in the first day of the second month of enrolment. Insured households are eligible to use IPD service and emergency operation after 3 months of enrolment (the first day of the fourth month). After sixth month of enrolment, insured households are eligible to receive full benefit from the CBHI scheme, which includes pregnancy and delivery, planned operation, and funeral support.

For households paying 6 months, 9 months, and 1 year; there is no waiting period for IPD, emergency operation, and pregnancy and delivery. In addition, there is a 10% reduction for a households that making a one-year payment in advance. The CBHI in other province offers only monthly payment. The window periods for take up of CBHI benefit are 1 month for OPD, 3 months for IPD and emergency operation, 6 months for pregnancy and delivery, and planned operation (identical to paying 3 months in advance in Vientiane capital). The funeral support was not included in this CBHI package.

Table 7: Window period and take up of CBHI benefit

Period of payment	Discount	Waiting period	Take up of Benefit	Waiting period	Take up of CBHI benefit
CBHI in Vientiane Capital					
				CBHI in other province	
3 months	0%	1 month	OPD service	1 month	OPD service
		3 months	IPD service/ emergency operation	3 months	IPD service/ emergency operation
		6 months	Pregnancy and delivery	6 months	Pregnancy and delivery
		6 months	Planned operation	6 months	Planned operation
		6 months	Funeral support		
6 months	0%	1 month	OPD service		
		No waiting period	IPD service/ emergency operation		
		No waiting period	Pregnancy and delivery		
		6 months	Planned operation		
		6 months	Funeral support		
9 months	0%	1 month	OPD service		
		No waiting period	IPD service/ emergency operation		
		No waiting period	Pregnancy and delivery		
		6 months	Planned operation		
		6 months	Funeral support		
12 months	10%	1 month	OPD service		
		No waiting period	IPD service/ emergency operation		
		No waiting period	Pregnancy and delivery		
		6 months	Planned operation		
		6 months	Funeral support		

The target group of the CBHI scheme is non-salary workers and self-employed which does not belong to any other health care schemes. The scheme could play the significant role in the Lao society, since the target group of population is about 52% of the total population. However, the CBHI scheme enrolment rate is still very low, only 13 % of the target villages (which is equivalent to only 1.7 % the total population). This consequently leads to the financial sustainability issue, as this scheme is unable to generate enough revenue to cover all the expenditure related to health care services and drugs provided for the members. The financial management mechanism for the CBHI scheme is quite simple; once premiums are collected from the members, 10 % of which will be deducted for the administration cost and the rest would be transferred to contact hospitals. Salaries of the health care personnel in contacts hospitals are paid by the Ministry of Health, which means that the MOH is paying the fixed rate amount for each insured patients regardless to the actual use of services.

The CBHI scheme also suffers from high drop-out rate, the reason is some patients may decide to quit the scheme after receiving a big operation or other form of expensive treatments (Pholsena & Thome, 2009). Like any type of insurance, it is inevitable that this heath care scheme is also suffering from adverse selection problem, which means that high-risk individual has more incentive to enroll the health insurance scheme, as there is no medical checkup required entering the CBHI scheme.

According to Thome and pholsena, a set of design principles of the CBHI are (Pholsena & Thome, 2009):

- The premium are affordable by the majority of the population
- All family members are covered, family defined as individuals listed in the family book
- Ambulatory, inpatient care with referral mechanism to hospital care are included

- No co-payment or other form of cost sharing the patients
- Day-to-day operation of the scheme is fully responsible by the management committee

There are number of studies related CBHI schemes in Laos as followings:

- Douangvichit, D., Liabsuetrakul, T., and McNeil, E. (2012) conducted a study to assess the effect of health insurance from the perspectives of the women and the skill birth attendants (SBAs) in Lao PDR. The study was carried out in two provincial hospitals by using a cross-sectional study design. In term of data collection, the authors applied the face to face interview for those who gave birth in hospitals and skill birth attendant from both hospitals. The influencing factors on trends of medical and non-medical as well as financial factors were assessed by a linear regression. The result of the study shows that the availability of health care scheme affected the women's decision to use the provincial hospitals' delivery services because they don't have to bear the full amount of health care services (Douangvichit, Libsuetrakul, & McNeil, 2012).

- Syhakhang, L., Soukaloun, D., Tomson, G., Petzold, M., and Rehnberg, C. (2011) conducted a study to find out the appropriateness of prescribing of health care providers and expenditure of patients with and without insurance. The study was carried by using a cross-sectional study design. There were 828 in-patients interviews from twelve provincial and district hospitals on the subject of income and expenditure for health care services, insurance protection, and informal payment. The checklist of treatment guideline (maximum score = 10) was used to evaluate patient's medical records for appropriateness of drug use. The study reveals that the health care providers provide more appropriate prescription for insured patients than uninsured patients with the score of 5.9 and 4.9 respectively. Last but not least, the period of time spending in the hospital was significantly lower for insured patients (Syhakhang, Soukaloun, Tomson, Petzold, & Rehnbeg, 2011)

- Annear, P., Bigdeli, M., and Jacobs, B. (2011) conducted a study to assess the impact on effectiveness of introducing subsidies for the poor into the voluntary community based health insurance program in Lao PDR and Cambodia. In this study, the authors used a functional model which includes financial data to analyze changes and cross-subsidization between poor and better off parties. The data collections were carry out in two places; the first one was at Nambak district of Lao PDR and the other one was at Kampot district, Cambodia. The result of this research shows that a subsidy by purchasing community based health insurance package for the poor is more costly than direct reimbursement to hospitals for the same level of health care services (Annear, 2007).

- World Bank (2010) conducted a study to assess the performance of the CBHI scheme in lowering the out of pocket expenditure. The study was carried out 87 villages across 6 districts from 3 provinces: Vientiane capital, Vientiane Province, and Champasack. There were 1000 CBHI enrolled household and other 2000 uninsured household as a comparison group. In order to measure the impact of insurance, the authors used the propensity score matching (PSM) which is used to evaluate the performance of social program. The result of the study shows that the CBHI scheme plays the important role in increasing service utilization and decreasing out-of-pocket expenditure (World Bank, 2010).

2.4.2 Health Equity Fund (HEF)

The Health Equity Fund (HEF) focuses on poor people who are unable to afford CBHI monthly premium or cost of health services at public facilities. As a result all their expenses are directly covered by the public welfare insurance fund. In other words, HEF is a health care scheme designed to help the poorest households in communities to easily access good quality health care facilities without any cost.

Currently, there are number of HEF schemes being piloted under the supervision of international NGOs for example the Swiss Red Cross supported a health equity fund operation in Nambak District, Luang Prabang Province from 2004 to 2005, then they subsequently transferred the management responsibility to the Lao Red Cross.

In Vientiane province the Belgian Technical Cooperation is currently supporting two districts and other 9 districts were funded by the Luxembourg Development. The Ministry of Health also have plan to expand the coverage of HEF schemes, there are 5 districts in the south being financially support by the MOH and World Bank Health Sector Improvement Projects. In addition, there are more projects in the northern part operated by the Health Sector Development Project with the financial supported from the Asian Development Bank. Most of the current HEF schemes in Laos are in the process of identifying the poorest families who are being eligible to enter the HEF schemes and finally obtained free services, which includes transportation costs, food, medicines, laboratory tests and medical services (Pholsena & Thome, 2009).

According to Annear the main purposes of developing HEF fund is to contribute the poverty reduction in the Lao society by providing protection for the poor to be away from unaffordable catastrophic health expenditure. HEF scheme is not only relieve the out of pocket expenditure but also ease the accessibility to health care service. Moreover, the HEF also enhance the quality of services in public health-care system as well as providing a social safety for the poor and contributing towards the development of a uniform, national, universal health-care system (Annear, 2007).

2.4.3 Civil Servant Scheme (CSS)

The Civil Servant Scheme (CSS) was developed by the Ministry of Labor and Social Welfare under the Decrees 178/PM and 70/PM/2006. The benefit of CCS is different from any other health care schemes; this scheme includes maternity benefits, sickness benefits, employment, injury, survivors' benefit and retirement pension. This

health care scheme is operated under the control of the autonomous agency call State Authority Social Security that currently allocates the capitation payment to government hospital for the members, which includes civil servant themselves as well as their spouse and children.

In tern of contribution, there are two contributors in the CSS, the government as the first contributor pays 2% for each civil servant and other 2% pays by civil servant themselves. Nowadays, there are about 65,000 members under this health care scheme. The members have to use the district hospitals as the first level of treatment with referrals made according to medical needs and proximity (Pholsena & Thome, 2009)

2.4.4 Social Security Organization (SSO)

The Social Security Organization (SSO) has been established in 2001 under the Social Security decree 270. The SSO provides a comprehensive package of health and welfare; the primary objective is to provide the benefits in a broad social security scheme, which targets on the non-government employees. There are two sources funding, which is generated from a combination of employee and employer contribution. In order to reduce the burden of employees and employers; the government also provides the subsidy for curative outpatient and inpatient care, without co-payment or limitation of contracts or services. The contract hospitals or health care providers receive a uniform payment of 80,000 LAK per insured employee.

The SSO is a mandatory scheme, which can be enrolled under as a company. At the beginning of the scheme, the decree covered employees in companies with over 100 workers, and then it was reduced to 10 workers. Nowadays, the Labor Law has been finally amended to require enterprise with only 1 employer to enroll the scheme (Pholsena & Thome, 2009).

The geographical coverage is still limited, the scheme is only available in 4 provinces namely: Vientiane Capital, Vientiane Province, Savannakhet and Khamounne, and besides that it is reported to be lack of enforcement, weak regulatory system, and limited capacity of the social Security Organization. The Social Health Insurance scheme is considered to be one of the most important risk protection schemes in Laos and is expected to play an important role in moving forward to the universal coverage in the health sector. Despite being a mandatory scheme, the enrollment among the target is still far below the par. The possible reasons might be; first of all the decree is a ministerial decree, which is relatively weak compared to a law promulgated by the president and there is no regulation procedure in place to enact penalties for non-compliant firms (WHO, 2010)

2.5 CBHI in Savannakhet Province

As already mentioned above, the CBHI in Savannakhet province was firstly piloted in Champone district, which is about 60 km away from Kaysone Phomvihane district. At the time of conducting this study, the CBHI scheme has been implemented in 5 districts namely:

- Kaysone Phomvihane district
- Champhone district
- Songkone district
- Atsaphangthong district
- Outhoumphone

Moreover, the CBHI Savannakhet is in the process of expanding their scheme to Sepone, Phine, Nong and Thapangthong. According to the CBHI Savannakhet, the expansion process of CBHI scheme to other districts within the province requires a lot of attention and commitment in order to organize the agenda of activities as shown in table 8.

Table 8: Agenda of activities for expending the CBHI

No	Launching Steps	Objective
1	Contact analysis by visiting villagers to assess information of health care services	To confirm functioning, transfer patients and health care service of people in those areas
2	Consultation meetings with district authorities	Present the general plan and functioning of CBHI schemes
3	HCF (Hospital Contribution Fund) seminar to district authorities and district hospital	Ensure both levels to understand on HCF
4	CBHI Rule and regulation training	Ensure both levels to understand on CBHI rules and regulation
5	Sensitization meeting between district governor, head of village	Ensure village authorities understand CBHI objective
6	Training on how to conduct awareness campaign	Educate provincial team to promote the scheme
7	Training the accountants in the district hospital and health center staff in CBHI	To introduce CBHI accounting system
8	Training village collectors	Ensure appropriate collection procedures
9	First round awareness campaign	Mobilization, registration, collection contribution
10	Meeting with hospital regarding contract conditions and capitation split	Discussion of the contract condition and capitation split
11	Official opening ceremony and official signature of contract hospital	Ensure people and local authorities to involve in CBHI set up
12	Awareness campaign second round	Re-mobilization and encourage people to join the scheme
13	Hospital training regarding quality of care, rational use of drug, information reporting for CBHI	Ensure the insured patients to access health care services under CBHI scheme
14	Training hospital and health center how to make a report	To educate personnel in hospital and health center on making report
15	Training the accounting manager on inserting data to the software	Ensure the accounting managers and their assistant are familiar with soft software
16	CBHI office equipment	Setting up the office in the district
17	Stationery for accounting mangers and their assistant	To ensure enough office supplies
18	Stationary for village collectors	To ensure enough office supplies

Table 9: Net income and net loss of the Savannakhet provincial hospital

Districts	Premium paid to the Provincial Hospital	Actual expenditures	Net income/Net loss
Kaysone Phovihane	141,727,500	236,442,000	-94,714,500
Champhone	27,232,380	49,674,000	-22,441,620
Songkhone	16,970,760	6,652,000	10,318,760
Atsapangthong	11,939,940	10,786,000	1,153,940
Utumphone	14,859,675	15,013,000	-153,325
Total	212,730,255	318,567,000	-105,836,745

Notes: Net loss from October 2011 to February 2012 (Source: Bounxou (Bounxou, 2012)

Table 10: Net income and net loss of CBHI Savannakhet

Districts	Paid to contact hospitals (district)	Actual expenditure	Net income/Net loss
Kaysone Phonvihane			
Champhone	108,929,520	109,768,248	-838,728
Songkhone	67,883,040	114,418,500	-46,535,460
Atsapangthong	47,759,760	47,206,050	553,710
Utumphone	44,579,025	37,507,500	7,071,525
Total	269,151,345	308,900,298	-39,748,953

Notes: Net loss from October 2011 to February 2012 (Source: Bounxou (Bounxou, 2012)

CHAPTER 3: METHODOLOGY

The methodology involves with research design, location, group of population, sample size, randomization, tools used in the data collection process, method of data analysis, research procedure, and statistical analysis is presented in this part of the study.

3.1 Study Variable

As indicated in the previous chapter, several factors involved with accessibility to health care services and financial protection against financial catastrophe were taken into account as independent variables. On the other hand, the dependent variables were based on the objectives of the study that use quantitative data analysis. More detail related to both independent and independent variables were clarified as follows:

Independent variables

The independent variables include insurance status, since information from both insured and uninsured respondents were included in the data collection. Moreover, the other independent variables were gender, age group, marital status, level of education, number of children, household size, main occupation, and level of income.

To fulfill the 1st objective, number of time using inpatient health care service utilization were used as an indicator for accessibility to health care service. For the 2nd objective, the ability of financial protection of CBHI scheme was analyzed by adopting WHO's definition of catastrophic expenditure, which states that out-of-pocket payment equal to or greater 40% of household income minus subsistence

needs causes household to suffer from catastrophic expenditure (Carrin et al., 2008). Besides creating catastrophic expenditure, any expenditure more 40% cut point generally forces household to reallocate their basic needs such as food, clothing, children education and so forth.

Objective of the study, data needed and measurement, data collection techniques, and sources of information are summarized in Table 11

The dependent variables in this study measure the impact of CBHI in term two aspects as follows:

- Accessibility to health service utilization (based on the 1st objective)
- Probability of using health service utilization under CBHI scheme (based on the 1st objective)
- Financial protection against catastrophic expenditure, and reducing out-of-pocket expenditure (based on the 2nd objective)

Table 11: Data needed and measurement

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Research objectives	Data needed and measurement	Data collection technique	Sources of information
1. To find out if CBHI members are having better accessibility for in-patient service utilization and take up of CBHI benefit (In comparison with uninsured households)	▪ Reason to enroll ▪ Morbidity ▪ Service utilization ▪ Satisfactory ▪ Household wealth ▪ Household expenditure ▪ Knowledge about the CBHI scheme	▪ Household survey ▪ FGD	▪ Insured and uninsured households
2. To analyze the role of the CBHI in term of financial protection against catastrophic expenditure (in comparison with uninsured households)	▪ Out-of –pocket expenditure ▪ Reason explaining catastrophic payment ▪ Magnitude of catastrophic payment	▪ Household survey ▪ FGD	▪ Insured and uninsured households ▪ Insured and uninsured households (with catastrophic expenditure

Table 11: Data needed and measurement (continued)

Research objectives	Data needed and measurement	Data collection technique	Sources of information
1. To clarify the reason why the CBHI members are less likely to renew their memberships in the following years	▪ General information of the CBHI enrolled households ▪ Factors influencing drop-out ▪ Reasons to drop-out for the CBHI members	▪ Household survey ▪ FDG	▪ Insured and uninsured households ▪ Insured households with the willingness to discontinue membership ▪ Uninsured households (used to be CBHI members
2. To find out if CBHI is sustainable in the long-run under constraints, problems, and response from health care providers	▪ Attitude towards the CBHI ▪ Impact on hospitals ▪ Implication of accessibility and quality	▪ In-depth interview ▪ FGD	▪ CBHI officers ▪ Health care manager and providers ▪ Insured households

For the 1st objective, the analysis on reason to enroll, morbidity, service utilization, satisfaction, household wealth, household expenditure, and knowledge of the CBHI scheme were collected by household survey from both insured and uninsured households. The 2nd objective is based on the analysis of out-of-pocket expenditure; reason explaining catastrophic payment as well as magnitude of catastrophic payment. Structured interview and FGD were used to collect the required information from both insured and uninsured households for the 2nd and 3rd objectives.

A qualitative method was used to fulfill the objective 4 by conducting in-depth interview (on attitude towards the CBHI, and implication on implication on hospital issues), and FGD (on implication of accessibility and quality). There are 3 sources of information namely: CBHI officers, health care managers and providers, and insured households. Last but not least, the policy recommendations based on the result of the 1st, 2nd, 3rd and 4th objectives were also developed to fulfill the 5th objective.

3.2 Research Design

As mentioned in the conceptual framework, this study consists of 2 phases. The first phase follows the objective 1, 2, 3, and 4; which is considered as the evaluation/ situation analysis process of the CBHI's current performance. The second phase involves with developing the new improved CBHI policy with respected to the result of the first phase.

A cross-sectional study design was applied in this study. Two groups of population admitted to hospitals were taken into account, which includes: CBHI member, who were covered by the insurance scheme and uninsured households in the identical study sites. The researcher applies a mixed method in which both qualitative and quantitative data analysis was used in order to fulfill the study's objectives.

3.3 Study Sites

The study was conducted in Savannakhet Province, Lao PDR. Savannakhet province is located in the central part of the country and approximately 470 kilometers away from the Vientiane Capital. The province itself shares boundaries with Saravan Province to the south, Khammuan Province to the north, Moukdahan and Nakhorn Phanom province of Thailand to the west, and Quang Tri province of Vietnam to the east. Savannkhet is the biggest province in Laos with the population of 757,950 people (Savannakhet Governor Office, 2011).

Savannkhet province consists of 15 districts as followings: Atsaphangthong, Aasaphone, Champhone, Kaysone Phomvihane, Nong, Outhoumphone, Phalanxay, Phine, Sepone, Songkorn, Thapangthong, Vilabury, Xayabuly, Xayphouthong, and Xonnabouly.

Savannakhet province was purposively selected by the researcher due to number of reasons. First of all, this province is relatively easy to access and request for the available data, since the local authorities are interested in the study's topic and findings. Besides being the biggest province in Lao PDR, Savannakhet province also enjoys higher than average economic growth in the recent years; as a result a CBHI package would become more affordable for the Savannakhet population in comparison with other provinces with lower economic background.

As already mentioned in the literature review part, the CBHI scheme was available in 5 districts at the time of study. Recall that the CBHI is operated on household level; and there were approximately 5,736 households enrolled the CBHI scheme. Table 3.2 shows the proportion of the total enrollment of all 5 districts in the province.

Table 12: Savannakhet CBHI scheme's enrolment

District	Total	Insured	Proportion
Kaysone Phomvihane	19226	1684	0.0875
Atsaphangthong	6140	634	0.1032
Songkone	17141	1014	0.0591
Champhone	16625	1527	0.0918
Outhoumphone	12572	877	0.0697
Total	71704	5736	

3.4 Sampling

3.4.1 Sampling Procedure

Kaysone Phomvihane and Champhone districts were randomly selected by drawing. The total number of households (population number) in the two districts is 35,851 households (19226 from Kaysone Phomvihane and 16625 from Champhone), of which 3,211 (1684 from Kaysone Phomvihane and 1527 from Champhone) were insured households. After the sample size calculation, the sampling number was divided into 2 groups: insured and uninsured households.

3.4.2 Sample size calculation

The general formula of calculating the difference between two group of population proportion was used to calculate the sample population of both insured and uninsured households (Chaddha, 2006).

$$n = Z^2_{1-\alpha/2}\left\{P_1\left(1-P_1\right) + P_2\left(1-P_2\right)\right\} / d^2$$

- n = sample size required

- P_1 = proportion of membership of CBHI from Kaysone Phomvihane district = 0.0875
- P_2 = proportion of membership of CBHI from Champhone district = 0.0918
- Z = percentage point of the normal distribution corresponding to the (two-sided) significance level at 95 % (Z=1.96)
- d = absolute precision required on either each side of the difference between proportions = 0.05

After substituting all variables into the equation above, the exact number of sample size was:

$$n = 1.96^2 \frac{\{0.0875(1-0.0875)+0.0918(1-0.0918)\}}{0.05^2} = 250.8050 \approx 252$$

The sampling number of 252 was equally divided into 126 for insured and uninsured households from Kaysone Phomvihane and Champhone districts.

3.5 Data Collection Technique

The period of data collection was between July and September 2013. The process was implemented in hospitals to be able to correctly and effectively identify uninsured and insured respondents. All hospital in the study sites was taken into account: Champhone district hospital (Champhone district), and Savannkhet provincial hospitals (Kaysone Phomvihane district). The simple random sampling method was used to select respondents from OPD. The reason of selecting only OPD patients ahead of IPD was to avoid a possible bias related to chronic diseases and health problems.

Questionnaires were separately developed for insured and uninsured respondents for the convenient and better understanding reasons. The insured respondents' questionnaire includes: socio-demographic, up take of CBHI member, morbidity and previous year's hospitalization, socio economic status, health service accessibility,

and satisfaction of health care services. In contrast, the uninsured respondents' questionnaire includes knowledge about the CBHI scheme instead of uptake of CBHI benefit to see if those uninsured people were aware of the insurance scheme. Since this study's data collection was collected from hospitals, all respondents would report to visit hospital at least once. In order to eliminate this bias, the time at hospital during the interview was not counted. Information related to OPD and IPD were retrieved one month and one year prior to the interview respectively. The respondents need to be heads of household to be able to answer all the questions related to health and socio economic status.

3.5.1 Inclusion and exclusion criteria

Inclusion criteria

- CBHI insured and uninsured heads of households are expected to answer the interview

Exclusion criteria

- Household resides in the study sites less than one year prior to the study

3.5.2 Selecting and training interviewers

The interviewers/ research assistants were carefully selected to ensure that they have a necessary social research background and skill. In addition, basic understandings about urban informal settlements were also needed to make sure that they understand about the population dynamics and basic culture of the study sites. After recruiting the interviewers, a one-day training program was organized by the researcher to introduce about the objectives, research methodology, expected benefit, tools and material, and ethical practice of the study.

3.5.3 Research Instrument

Questionnaires

As previously mentioned questionnaire was separately developed for insured and uninsured respondents. In morbidity and previous year's hospitalization section, one-month period was used to retrieve information related to OPD cases, which includes injuries, and illness. On the other hand, longer recalled period up to 1 year was used to retrieve IPD cases' information. The reason we used longer recall period for IPD because one month recall period would be too short to collect information related to IPD, besides that IPD cases were rarely used in general but symptoms are always more severe. Before the real data collection, the questionnaires were test with 60 respondents (30 insured and 30 uninsured households) to see if there was any problem in the data collection process. Moreover, other information related to hospitalization for instance: duration of time admitted, solutions, actions taken and so forth were also retrieved.

Both questionnaires for insured and uninsured respondents contain 6 sections as follows:

Questionnaires for insured respondents

- Part 1: Socio demographic
- Part 2: Uptake of CBHI scheme
- Part 3: Morbidity and previous year's hospitalization
- Part 4: Social economic status
- Part 5: Health service accessibility
- Part 6: Satisfaction of health care services utilization

Questionnaires for uninsured respondents

- Part 1: Socio demographic
- Part 2: knowledge about the CBHI scheme
- Part 3: Morbidity and previous year's hospitalization
- Part 4: Social economic status
- Part 5: Health service accessibility
- Part 6: Satisfaction of health care services utilization

In-depth interview and focus group discussion (FGD)

In-depth interviews and FGD processes were collected from CBHI, local health authorities as well as some group of respondents to find some verbal explanation supporting the previous interviews about rules and regulations, problems, and actions taken from local authorities. Other than using structure questionnaires as in the questionnaire interviews for insured and uninsured respondents, in-depth interview and FGD (qualitative data collection process) are more open ended that uses semi-structured guides. The main purposes of these qualitative data collection were mainly about:

- The problem related to financial catastrophe in term of health, actions taken of patients' households
- The reception about the CBHI's benefit package
- The CBHI's impact on contract hospital
- The reason why some respondents did not enroll the CBHI scheme
- The perception on the CBHI's concept and service received

In-depth interview and FGD involve with several shareholders as follows:

In-depth interview

- Provincial/district hospital officers
- Department of health officers
- CBHI officers

Focus group discussion

- CBHI members
  - Uninsured households used to be the CBHI members
  - Insured households with the willing to quit the scheme

3.6 Data analysis and interpretation

After conducting the interview, the collected information was coded and rechecked by the interviewers/ research assistants and the researcher respectively on a daily basis during the data collection process in order to minimize data entry errors and countercheck for reliability, the obtained data was double entered by two different teams. The SPSS 21 was used in this study with the assistance from a statistician.

- Descriptive statistics: was used to present the respondents' social-demographic composition, burden of household's cost-of-illness, treatment seeking behavior, household's wealth and expenditure, occurrence of illness, and expenditure on health care.

- A dichotomous choice model: ware use to assess probability of hospitalization, hospitalization under CBHI scheme, and probability of catastrophic health expenditure. The researcher assumed that households having catastrophic expenditure were affected by social economic

background, characteristics of their family and patterns of illness and treatment.

In logistic there were 3 groups of explanatory variables:

- Illness and treatment: it was assumed that there is an association between households' illness episodes possibility of having catastrophic expenditure. From this point, the respondents were asked if they have health problem in the previous year and previous month for IPD and OPD services respectively; since health problems were derived from households' disease occurrences. All method of action taken or health seeking behavior was taken into account, which includes self-medication, self-prescription, hospital services and other form of treatments. It was assume that there is a higher expenditure in term of health for household with a chronic illness or disable member.

- Household characteristics: several characteristics of household were also included in this study for instance: education level, gender of household head, and size of households. It was expected there is bigger households are more likely to experience financial catastrophe in term of health.

- Household economic condition: in the regression analysis income level were divided in to 3 income quintiles. There was an assumption that households belonging to lower income quintiles are more likely to experience financial catastrophe due to the health services expenditure.

Table 13: Impact of the CBHI scheme estimation

Variables	Description
▪ CBHI membership	▪ Membership of the CBHI was the primary variable of interest, which hypothesizes that insured respondents are supposed to have better accessibility and lesser financial problem in comparison to uninsured respondents after controlling socio-economic status. As a result, having CBHI insurance is expected to lower financial expenditure and higher demand for health service utilization.
▪ Income level	▪ Household's income also has a significant impact to the demand of health care service utilization and health expenditure. The previous study also found that there is a positive relationship between household's wealth and demand for heath service (Gertler and Van der Gaag, 1990).
▪ Catastrophic expenditure	▪ In order to determine characteristics associated with the possibility of incurring financial catastrophe in term of health, financial catastrophe were defined on a household basis in which household's medical and non-medical expenditures were used to be able to estimate out-of-pocket budget with accuracy. Since, measures of health are not available in the survey. Households' age-sex compositions were used as a proxy for health care service needed.
▪ Household size and catastrophic expenditure	▪ There is a relationship between household sizes and catastrophic expenditures. The probability of the larger households to experience catastrophic expenditures can be higher due to the higher risk in contracting illness. In contrast, larger household size also have better resources of care – givers which considers as a nearly perfect substitution for health service utilizations
▪ Distance to health service utilization	▪ Transportation costs were mostly higher for those who live in rural areas. Hence, the total cost to reach the health service utilization was expected to be higher as well.

3.6.1 Statistical technique

Other than descriptive data presentation as mentioned earlier, inferential data presentation were also used such as: logistic regression and chi-square.

Logistic regression

- Probability of hospitalization (factors explaining hospitalization of both insured and uninsured patients)/ model 1
- Probability of being hospitalized under the CBHI scheme (factors explaining benefit of the CBHI scheme's members)/ model 2
- Probability of experiencing catastrophic expenditure (factors explaining catastrophic expenditures)/ model 3

Chi-square (insured vs. uninsured households)

- Presence of chronic condition
- Presence of illness
- History of hospitalization
- Factors explaining CBHI benefit in term of health services utilization

3.7 Validity

According to Neuman, validity can be referred to the degree of accuracy to which the tools/questionnaire willing measure. In the other word, validity simply means the trustworthiness of the tool we use to measure (Neuman, 2006)

There are 3 different dimension of validity we need to take in to consideration as followings:

- Face validity: to ensure that the questionnaire was easily understood by the study group.
- Construct validity: to ensure that the theoretical foundation supporting a measurement. In addition the solutions for construct validity were proposed by Mugenda and Mugenda as followings (Mugenda & Mugenda, 1999).

    - Have key informants review the report: several key informants were invited to comment on the result.
    - Establish chain of evidence: able to fill the gap between a study and conceptual framework.
    - Use multiple sources of information: there were literature reviews from various sources and primary data from the interviews.

- Content validity: to ensure that the questionnaire covers adequate information. The researcher discussed with the expert from Chulalongkorn University in order to correct items in the questionnaire.

3.8 Ethical consideration

The ethical consideration was submitted and approved by National Ethics Committee for Health Research (NECHR), No 033/2013 NIOPH/NECHR.

3.9 Limitation

The cross-sectional study design could possibly be a limitation of this study; the result of this study is only able to provide the situation analysis or the snapshot of the current situation in term of accessibility to health services utilizations, financial protection and dropout analysis of the CBHI member.

Without any experimental study related to the “new or improved CBHI policy”, it is not yet confirmed that the new policy (objective 5) is able to provide a better condition for CBHI organization and their members as whole. In addition, this study was conducted in Savannakhet province, a relatively better economic background in comparison to other provinces in Laos; hence, the findings of this study may not be generalized in other CBHI areas (especially those areas with lower economic background).

CHAPTER 4: RESULTS

Interpretations of findings as well as results are presented in this chapter. This chapter includes the result of quantitative and qualitative, which follows the study's objectives presented earlier in the chapter 3. The statistical findings of this research were presented in both descriptive and inferential statistics. Frequency tabulations, calculations, and percentage of respondents' characteristics were included in the descriptive statistics. Besides quantitative data analysis and presentation, qualitative interviews were also used to support findings from quantitative data presentation.

4.1 Impact of CBHI on Health Service Utilization

This section aims to find out the accessibility of health care services utilization and take up of CBHI benefit with respected to respondent's/ household's socio-demographic status. Behavioral Model was used to explain health service utilization. Before going over to the detail and result of this section, a brief methodology of data analysis is presented to ensure the understanding about the overall process conducted in this section. The result of this part presents the univariate analysis of service utilization followed by multivariate logistic regression. At the end of this section, discussion and conclusion of the findings are presented.

4.2 Methodology

Andersen Behavioral Model (Andersen, 1995) includes 3 categories of determinants: predisposing characteristics, enabling characteristics, and need based characteristics.

Predisposing characteristics are respondents' attributes that possibly predispose an individual to go for health service utilization. In this study the researcher included respondents' age, gender, marital status, education level, occupation, size of household, and number of children.

According to Andersen, enabling factors include many factors that assists individual to health care services (Andersen, 1968). In this study, economic status measured by household's level of income was used as the indicator that enables household to access health service utilization. A monetary indicator was preferred to other indicators, since it is able to quantify burden of households' expenditure and magnitude of financial catastrophe due to health care services. The researcher opted not to include households' assets that could be translated into monetary values due to the complication of market values and measurements. Household's net income were assessed to represent overall economic condition, since the primary objective is to measure household's ability to afford medical and non-medical expenditure.

In order to identify need factor involve with health service utilization, self-reported chronic health problem was used as the indictor for health services needed. In the questionnaire, several types of chronic conditions were provided in the checklist, besides if there were any other types of self-reported health condition (not in the list) that needed more than 6 months of health care, respondents could further fill-in and provide further explanation in the questionnaire. A one-month recall period was used for outpatient services to capture both acute illness and chronic conditions. On the other hand, one-year recall period was used for in-patient service utilization. Number of admissions, membership status, as well as probability of admission was being used as indicators for health services utilization.

Data analysis methods

Obtained data were collected by using household health interview survey in 2 districts of Savannakhet province, Kaysone Phomvihane district and Champhone district. There are 252 respondents from different households, based on the inclusion criteria respondents are supposed to be heads of family to ensure that they are able to answer all the questions related to household's socio-economic and morbidity. Two-stage cluster sampling technique was used in the survey. Households in both

districts were divided into two groups: insured (under CBHI scheme) and uninsured households. In order to be generalizable, insured and uninsured members were selected from both Champhone and Kaysone Phomvihane hospitals using simple random sampling.

Dependent variable and models for hospitalization

Three logistic regression models were used to analyze the probability of hospitalization of individual (Model 1), probability of hospitalization under the CBHI scheme in the previous year (Model 2), and probability of suffering from financial catastrophe (model 3) based on various socio economic and demographic status. The logistic regression model can be written as follow:

- $\ln p/(1-p)) = \alpha + \beta X + \varepsilon$

Where,

- p = probability hospitalization/ hospitalization under the CBHI scheme)/ probability of suffering from financial catastrophe
- X = set of independent variables

4.3 Results

The total number of respondents was 252 households from Kaysone Phomvihan and Champone districts. As mentioned in the methodology part, insured and uninsured were equally divided into 126 respondents.

4.3.1 Respondents and Households information

Table 14: Socio-demographic of respondents

Social-Demographic Data	Respondents		
	Insured N (%)	Uninsured N (%)	Total N (%)
Insurance Status			
▪ Insured	126 (100)	0 (0.0)	126 (50)
▪ Uninsured	0 (0.0)	126 (100)	126 (50)
Gender			
▪ Male	54 (42.9)	76 (60.3)	130 (51.6)
▪ Female	72 (57.1)	50 (39.7)	122 (48.4)
Age Group			
▪ 18-35	35 (27.8)	23 (18.3)	58 (23)
▪ 36-49	43 (34.1)	52 (41.3)	95 (37.7)
▪ 50 or higher	48 (38.1)	51 (40.5)	99 (39.3)
Marital Status			
▪ Single	18 (14.3)	6 (4.8)	24 (9.5)
▪ Married	97 (77.0)	104 (82.5)	201 (79.8)
▪ Widowed	7 (5.6)	13 (10.3)	20 (7.9)
▪ Divorced	2 (1.6)	3 2.4)	5 (2.0)
▪ Separated	2 (1.6)	0 (0.0)	2 (0.8)
Highest Education Level			
▪ Never attend school	16 (12.7)	22 (17.5)	38 (15.1)
▪ Primary school	38 (30.2)	53 (42.1)	91 (36.1)
▪ Lower secondary school	31(24.6)	36 (28.6)	67 (26.6)
▪ High school	38 (30.2)	12 (9.5)	50 (19.8)
▪ University or higher	3 (2.4)	3 (2.4)	6 (2.4)
Number of Children			
▪ 0-2	49 (38.9)	43 (34.1)	92 (36.5)
▪ 3-5	46 (36.5)	55 (43.7)	101 (40.1)
▪ 6 or higher	31 (24.6)	28 (22.2)	59 (23.4)
Household Size			
▪ Small (1-4 people)	29 (23.0)	37 (29.4)	66 (26.2)
▪ Large (5 or more)	97 (77.0)	89 (70.6)	186 (73.8)
Main Occupation			
▪ Casual worker	9 (7.1)	3 (2.4)	12 (4.8)
▪ Farmer	38 (30.2)	96 (76.2)	134 (53.2)
▪ Street vendor	20 (15.9)	7 (5.6)	27 (10.7)
▪ Laborer	6 (4.8)	4 (3.2)	10 (4.0)
▪ Others	53 (42.1)	16 (12.7)	69 (27.4)
Income Quintiles			
▪ More than 10,000,000 LAK	0 (0.0)	2 (1.6)	2 (0.8)
▪ 5,000,000 – 10,000,000 LAK	4 (3.2)	4 (3.2)	8 (3.2)
▪ 2,500,000 – 5,000,000 LAK	24 (19.0)	12 (9.5)	36 (14.3)
▪ 1,000,000 – 2,500,000 LAK	61 (48.4)	25 (19.8)	86 (34.1)
▪ Less than 1,000,000 LAK	37 (29.4)	83 (65.9)	120 (47.6)

Eight respondents' characteristic were also taken into account i.e. gender, age group, marital status, education status, number of children, household size, occupation, and income level. The demographic data shows that, there are more male respondents of 51.6%. Out of total number of insured households, female respondents were 57.1%, which was higher than insured male respondents. Respondents' ages were categorized into 3 categories: 18-35, 36-49, and 50 or higher. Most of respondents were in 50 years old or higher (39.3%), which was slightly lower than respondents aged between 36 to 49 (37.7%). Besides being the largest group of respondents, the oldest categories were also being the largest group of insured respondents followed by aged between 36-49, and 18-35 years old.

Marital status of respondents was divided into 5 categories: single, married, widowed, divorced, and separated. As expected earlier the largest group of respondents was married (79.8%), because this study retrieved information from heads of household. The rest of respondents were single (9.5%), divorced (2.0%), and separated (0.8%). The uninsured married respondents were bigger of 82.5% compared to the total percentage of insured married respondents of 77%. In term of personal education background, there are 5 levels of education starting from never attended school to university degree or higher. Among 5 levels of education, most of respondents reported to be educated at primary level of education (36.1%), lower secondary school (26.6%), high school (19.8%), never attended school (15.1%), and university or higher (2.4%). The reason behind a low number of university degree or higher respondents is that CBHI scheme targets on independent workers, which requires a relatively low level of education. On the other hand, university degree or higher education background is expected to be higher in other health insurance scheme i.e. State Authority of Social Security for civil servant, and Social Security Office for both private and state enterprises' employees. The number of insured respondents was highest in primary school and high school with the identical amount of 30.2%.

Respondents' number of children was divided into 3 categories: 0-2, 3-5, and 6 or more children. Respondents were mostly reported to have 3-5 children (40.1)

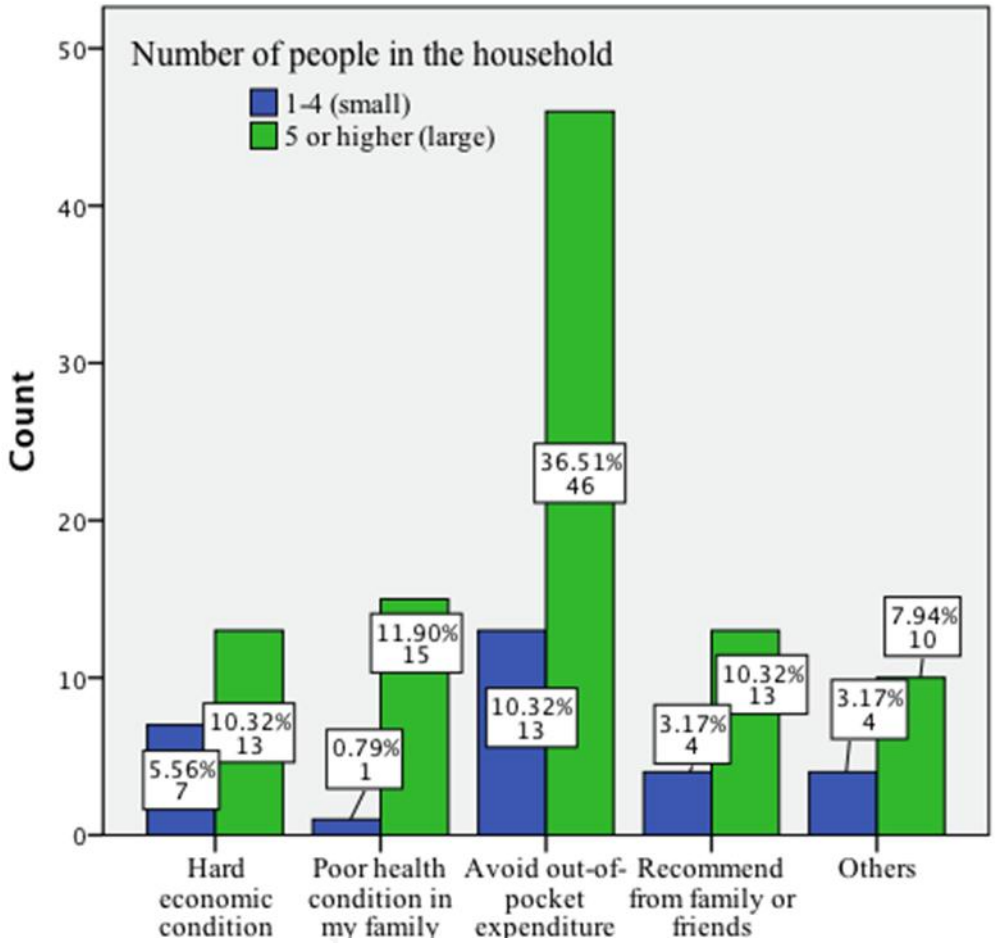
followed by 0-2, and 6 or more children. Most of the insured respondents in this case reported to have 0-2 children of 38.9%, which is negligibly higher than those reported to have 3-5 children of 36.5%. For the simplicity reason, there are 2 categories of household size: 1-4 and more than 5 households, referred as small and large household respectively. Almost 74% of respondents come from big families.

Among 5 categories of main occupations, farmer was the most selected categories in the interview of 53.2%. In contrast, laborer was the least picked categories of 4 % of total respondents. After taking insurance into consideration, most of the insured respondents were others of 42.1% (this catagory includes house keeper, and housewife), followed by farmer (30.2%), street vendor (15.9%), casual worker (7.1%), and laborer (4.8%). Last but not least, there were 5 categories of income quintile to be able to capture households' economic status. The result shows that almost half of total respondents belong to the poorest income quintile (less than 1,000,000 LAK per month); the least reported income quintile was the richest (more than 10,000,000) in which none of them were insured. The reason is most of the wealthy household in Savannkahet or Laos prefer to purchase a private Thai insurance as well as using health care services in Thailand.

4.3.2 Reasons of Enrolling the Scheme

Enrolling the CBHI scheme were grouped and summarized into 4 primary reasons i.e. hard economic condition, poor health condition in my family/household, avoid out-of-pocket expenditure, recommend from family or friends, and others.

Figure 13: Respondents' enrolling the CBHI scheme



The most reported reason for a large household was to avoid out-of-pocket of 46 respondents, the figure was very compared to other 4 reasons that were comparable i.e. hard economic condition was 13 cases, poor health condition was 15 cases, recommend from family or friends was 13 cases and others was 10 cases. On the other hand, for a smaller household (less than 4 people), the most reported reason was exactly the same as stated by large households, which were to avoid out-of-pocket expenditure (13 cases). In this case, the least reported reason was poor health condition (only 1 case).

In addition, Figure 13 also illustrates household's size, it shows bigger households' size have higher possibility of enrolling the scheme to ensure that all households' member are covered for medical treatment.

Qualitative information retrieved from FGD sessions shows that respondents from a large household with many children face an unfavorable experience due to the high out-of-pocket expenditure. This situation forces them to sell their livestock in exchange for multiple health services needed. From those repetitive bad experiences in past, this household enrolled the CBHI scheme to avoid out-of-pocket expenditure and possible financial catastrophe.

> *"... Before joining the CBHI scheme, our household spent a lot of money on out-of-pocket expenditure (mostly for OPD service), because we have a lot of children, who are prone to suffer from fevers. Besides that, my wife had a surgery and she was admitted in the provincial hospital for a week, that situation forced us to sell our motorcycle to pay for it.*
>
> *The head of village recommended us to enroll the CBHI scheme (the head of village mentioned that this scheme is reliable because it is supported and run by the government organization).*

After enrolling the scheme, our medical bill was down to zero, since we don't have to pay anything other than regular premium contribution..."

(Insured respondent)

Knowledge of CBHI among uninsured households

Forty out of the total of 126 uninsured respondents (or 31.7%) reported to have knowledge about the CBHI scheme. It means that not many uninsured people have known that there is a Community Based Insurance available, it is suggested advertising campaign should be organized to create awareness in the target group. Respondents' characteristic's that affect the knowledge about the CBHI scheme were being married (97.5%), bigger household (75%), having chronic diseases (52.3%), and the poorest income quintile (57.5%)

4.3.3 Respondent's morbidities

Two parameters were used to measure morbidity among respondents:

1. OPD services, information related to this issue were retrieved within one month prior to the time of interview
2. IPD services, information related to this issue were retrieved within one year prior to the time of interview

Respondents' chronic condition

Chronic condition were also retrieved to assess respondents' household health condition with respect various socio economic background. It is able to find out that, uninsured respondents had higher percentage of chronic condition of 55.3% of total cases, while there was only 44.7% cases reported in insured group of respondents. In

term of economic condition, it shows that respondents belonged to the lowest income quintile were prone to suffer from chronic condition.

The possible reason supporting this statement are poor people are more likely to skip health care service, receive ineffective self-prescribing, seek for cheaper option such as traditional medicine and other way else that postpone the correct way of treatment. Furthermore, the larger the household size the more cases reported about the chronic condition. The chronic condition was 27.7% in the small households, whereas the rest belonged to the large households (73.8%). From the level income categories, chronic condition was mostly existed in the lowest income quintile (48.9%) followed by 1,000,000-2,500,000 LAK respondents (37.2%), and 2,500,000-5,000,000 respondents (9.7%).

Besides a descriptive statistical analysis, chi-square analysis also used to find out the differences in each set of independent variable in term respondents' household chronic condition (Table 16). The result shows that 4 independent variables were statistically significant at 25% i.e. insurance status, gender, age group, and marital status. Two of which were also statistically significant at 5% (at 95% confident interval or 95% sure).

Table 15: Socio-demographic and chronic condition

Independent Variables	n (%)	Respondents	
		With Chronic Condition	No Chronic Condition
Insurance Status			
▪ Insured	126 (50.0)	42 (44.7)	84 (53.2)
▪ Uninsured	126 (50.0)	52 (55.3)	74 (46.8)
Gender			
▪ Male	130 (51.6)	53 (56.4)	77 (48.7)
▪ Female	122 (48.4)	41 (43.6)	81 (51.3)
Age Group			
▪ 18-35	58 (23.0)	9 (9.6)	49 (31.0)
▪ 36-49	95 (37.7)	34 (36.2)	61 (38.6)
▪ 50 or higher	99 (39.3)	51 (54.3)	48 (30.4)
Marital Status			
▪ Single	24 (9.5)	2 (2.1)	22 (13.9)
▪ Married	201 (79.8)	80 (85.1)	121 (76.6)
▪ Widowed	20 (7.9)	10 (10.6)	10 (6.3)
▪ Divorced	5 (2.0)	2 (2.1)	3 (1.9)
▪ Separate	2 (0.8)	0 (0.0)	2 (1.3)
Highest Education Level			
▪ Never attend school	38 (15.1)	20 (21.3)	18 (11.4)
▪ Primary school	91 (36.1)	34 (36.2)	57 (36.1)
▪ Lower secondary school	67 (26.6)	26 (27.7)	41 (25.9)
▪ High school	50 (19.8)	11 (11.7)	39 (24.7)
▪ University or higher	6 (2.4)	3 (3.2)	3(1.9)
Number of Children			
▪ 0-2	92 (36.5)	27 (28.7)	65 (41.1)
▪ 3-5	101 (40.1)	39 (41.5)	62 (39.2)
▪ 6 or higher	59 (23.4)	28 (29.8)	31 (19.6)
Household Size			
▪ Small (1-4 people)	66 (26.2)	26 (27.7)	40 (25.3)
▪ Large (5 or more)	186 (73.8)	68 (72.3)	118 (74.7)
Main Occupation			
▪ Casual worker	12 (4.8)	6 (6.4)	6 (3.8)
▪ Farmer	134 (53.2)	56 (59.6)	78 (49.4)
▪ Street vendor	27 (10.7)	6 (6.4)	21 (13.3)
▪ Laborer	10 (4.0)	3 (3.2)	7 (4.4)
▪ Others	69 (27.4)	23 (24.5)	46 (29.1)
Income Quintiles			
▪ More than 10,000,000 LAK	2 (0.8)	1 (1.1)	1 (0.6)
▪ 5,000,000 – 10,000,000 LAK	8 (3.2)	3 (3.2)	5 (3.2)
▪ 2,500,000 – 5,000,000 LAK	36 (14.3)	9 (9.6)	27 (17.1)
▪ 1,000,000 – 2,500,000 LAK	86 (34.1)	35 (37.2)	51 (32.3)
▪ Less than 1,000,000 LAK	120 (47.6)	46 (48.9)	74 (46.8)
Total	252 (100.0)	94 (37.3)	158 (62.7)

Exchange rate: 1 USD = 8,048.91 LAK (The Money Converter, 2014)

Table 16: Set of independent variables related to chronic condition

Independent Variables	With Chronic Condition n (%)	Chi-Square	
		X^2	P-Value
Insurance Status			
▪ Insured	42 (44.7)	1.697	0.193*
▪ Uninsured	52 (55.3)		
Gender			
▪ Male	53 (56.4)	1.381	0.240*
▪ Female	41 (43.6)		
Age Group			
▪ 18-35	9 (9.6)	20.414	0.000***
▪ 36-49	34 (36.2)		
▪ 50 or higher	51 (54.3		
Marital Status			
▪ Single	2 (2.1)	11.733	0.019***
▪ Married	80 (85.1)		
▪ Widowed	10 (10.6)		
▪ Divorced	2 (2.1)		
▪ Separate	0 0.0)		
Highest Education Level			
▪ Never attend school			
▪ Primary school	20 (21.3)	9.303	0.54
▪ Lower secondary school	34 (36.2)		
▪ High school	26 (27.7)		
▪ University or higher	11 (11.7)		
Number of Children	3 (3.2)		
▪ 0-2			
▪ 3-5	27 (28.7)	5.165	0.76
▪ 6 or higher	39 (41.5)		
Household Size	28 (29.8)		
▪ Small (1-4 people)			
▪ Large (5 or more)	26 (27.7)	0.167	0.682
Income Quintiles	68 (72.3)		
▪ More than 10,000,000 LAK			
▪ 5,000,000 – 10,000,000 LAK	1 (1.1)	2.946	0.567
▪ 2,500,000 – 5,000,000 LAK	3 (3.2)		
▪ 1,000,000 – 2,500,000 LAK	9 (9.6)		
▪ Less than 1,000,000 LAK	35 (37.2)		
	46 (48.9)		

Notes:

- *Representing 25% significant level (75% confidence interval)
- **Representing 10% significant level (90% confidence interval)
- ***Representing 5% significant level (95% confidence interval)

The reason of using multiple confidence intervals in this study is that it is possible for the policy makers to develop the policy based on the available budget. For instance: if there is no independent variable statistically significant at 95% confidence interval it means that the policy makers do not have to develop the new policy related to that issue. On the other hand, if there is more financial resource available, policy makers can take other independent variables that statistically significant at 90% or 75% confident interval into consideration.

Previous month's illnesses or injuries

Table 17 shows number of respondents' illnesses or injuries in the previous months which includes hospitals' OPD services and private clinic utilization in the previous month with respected to independent variables. The result reveals that majority of uninsured, large household, farmer, income between 5,000,000-10,000,000 LAK, and no chronic households were more likely to have illness or injuries or OPD services in the previous months. However, this result could not provide enough evidence until we conduct a Chi-square analysis to find out if those set of independent variables significantly affected illnesses or injuries in the previous month.

The result from Chi-square analysis (Table 18) shows that 5 independent variables namely insurance status, gender, age group, education, and income quintiles were significantly different at 75% confidence interval. However, only 1 out of 4 independent variables was statistically significant at 95% confident interval, which was gender of household head. Last but not least, respondents' income levels p-value was at 0.054, which is very close to be statistically significant at 95% confidence interval (from the table we noted this independent variable as

statistically significant at 90% confidence interval). In conclusion, it is able to find out that respondent insurance status, gender, age group, level of education, and income level are the factor that possibly creates differences in health service utilization due to illnesses or injuries. On the other hand, other independent variables such as: head of household's age group, marital status, number of children, household size and main occupation were comparable in previous month's illness or injuries, since the Chi-square's p-values are not statistically significant.

Table 17: Previous month's OPD services and independent variables

Independent variables	n (%)	Respondents	
		With illness/injury	Without illness/injury
Insurance Status			
▪ Insured	126 (50.0)	21 (16.7)	105 (83.3)
▪ Uninsured	126 (50.0)	29 (23.0)	97 (77.0)
Gender			
▪ Male	130 (51.6)	36 (27.7)	94 (72.3)
▪ Female	122 (48.4)	14 (11.5)	108 (88.5)
Age Group			
▪ 18-35	58 (23.0)	8 (13.8)	50 (86.2)
▪ 36-49	95 (37.7)	24 (25.3)	71 (74.7)
▪ 50 or higher	99 (39.3)	18 (18.2)	81 (81.8)
Marital Status			
▪ Single	24 (9.5)	2 (8.3)	22 (91.7)
▪ Married	201 (79.8)	44 (21.9)	157 (78.1)
▪ Widowed	20 (7.9)	3 (15.0)	17 (85.0)
▪ Divorced	5 (2.0)	1 (20.0)	4 (80.0)
▪ Separated	2 (0.8)	0 (0.0)	2 (100.0)
Highest Education Level			
▪ Never attend school	38 (15.1)	7 (18.4)	31 (81.6)
▪ Primary school	91 (36.1)	12 (13.2)	79 (86.8)
▪ Lower secondary school	67 (26.6)	20 (29.9)	47 (70.1)
▪ High school	50 (19.8)	11 (22.0)	39 (78.0)
▪ University or higher	6 (2.4)	0 (0.0)	6 (100.0)
Number of Children			
▪ 0-2	92 (36.5)	15 (16.3)	77 (83.7)
▪ 3-5	101 (40.1)	19 (18.8)	82 (81.2)
▪ 6 or higher	59 (23.4)	16 (27.1)	43 (72.9)
Household Size			
▪ Small (1-4 people)	66 (26.2)	14 (21.2)	52 (78.8)
▪ Large (5 or more)	186 (73.8)	36 (19.4)	150 (80.6)
Main Occupation			
▪ Casual worker	12 (4.8)	3 (25.0)	9 (75.0)
▪ Farmer	134 (53.2)	32 (23.9)	102 (76.1)
▪ Street vendor	27 (10.7)	6 (22.2)	21 (77.8)
▪ Laborer	10 (4.0)	1 (10.0)	9 (90.0)
▪ Others	69 (27.4)	8 (11.6)	61 (88.4)
Income Quintiles			
▪ More than 10,000,000 LAK	2 (0.8)	0 (0.0)	2 (100.0)
▪ 5,000,000 – 10,000,000 LAK	8 (3.2)	4 (50.0)	4 (50.0)
▪ 2,500,000 – 5,000,000 LAK	36 (14.3)	3 (8.3)	33 (91.7)
▪ 1,000,000 – 2,500,000 LAK	86 (34.1)	15 (17.4)	71 (82.6)
▪ Less than 1,000,000 LAK	120 (47.6)	28 (23.3)	92 (76.7)
Chronic Condition			
▪ No	94 (37.3)	31 (33.0)	63 (67.0)
▪ Yes	158 (62.7)	19 (12.0)	139 (88.0)

Table 18: Set of independent variables related to illnesses or injuries

Independent Variables	With Illness/ Injury n (%)	Chi-Square	
		X^2	P-Value
Insurance Status			
▪ Insured	21 (16.7)	1.597	0.206*
▪ Uninsured	29 (23.0)		
Gender			
▪ Male	36 (27.7)	10.407	0.001***
▪ Female	14 (11.5)		
Age Group			
▪ 18-35	8 (13.8)	3.261	0.196*
▪ 36-49	24 (25.3)		
▪ 50 or higher	18 (18.2)		
Marital Status			
▪ Single	2 (8.3)	3.319	0.506
▪ Married	44 (21.9)		
▪ Widowed	3 (15.0)		
▪ Divorced	1 (20.0)		
▪ Separated	0 (0.0)		
Highest Education Level			
▪ Never attend school	7 (18.4)	8.343	0.077**
▪ Primary school	12 (13.2)		
▪ Lower secondary school	20 (29.9)		
▪ High school	11 (22.0)		
▪ University or higher	0 (0.0)		
Number of Children			
▪ 0-2	15 (16.3)	2.756	0.252
▪ 3-5	19 (18.8)		
▪ 6 or higher	16 (27.1)		
Household Size			
▪ Small (1-4 people)	14 (21.2)	0.106	0.745
▪ Large (5 or more)	36 (19.4)		
Main Occupation			
▪ Casual worker	3 (25.0)	5.231	0.264
▪ Farmer	32 (23.9)		
▪ Street vendor	6 (22.2)		
▪ Laborer	1 (10.0)		
▪ Others	8 (11.6)		
Income Quintiles			
▪ More than 10,000,000 LAK	0 (0.0)	9.299	0.054**
▪ 5,000,000 – 10,000,000 LAK	4 (50.0)		
▪ 2,500,000 – 5,000,000 LAK	3 (8.3)		
▪ 1,000,000 – 2,500,000 LAK	15 (17.4)		
▪ Less than 1,000,000 LAK	28 (23.3)		

Previous month's most reported illness or injury

Total number of illness or injury reported in the previous month was 59 cases, 50 of which belonged to the episode 1 (the respondents reported to have illness or injury

only 1 time). Episode 1 includes both insured and uninsured respondents; most of them (29 cases) were uninsured and the rest (21 cases) were insured. The most reported illness or injury was cold fever related symptoms (11), followed by others (10), headaches (9) and more. There were fewer cases reported for episode 2 (8 cases), which includes chronic related illness, dizzy, fever and others. The insured and uninsured respondents were equally divided to 4 households. Last but not least, there was only one case reported in episode 3 (the respondents reported to have illness or injury only once) the only cases reported were due to body and back pain, which belonged insured respondents.

Table 19: Previous month's illness or injury

Episode 1

Episode 1 Case for illness or injury (OPD) in the prev month	Insurance status		Total
	Yes	No	
▪ Chronic related illnesses	0	2	2
▪ Stomachache	3	4	7
▪ Dizzy	1	2	3
▪ Cold fever related symptoms	5	6	11
▪ Body and back pain	0	4	4
▪ Fever	2	2	4
▪ Headache	6	3	9
▪ Others	4	6	10
Total	21	29	50

Episode 2

Episode 2 Case for illness or injury (OPD) in the prev month	Insurance status		Total
	Yes	No	
▪ Chronic related illnesses	1	2	3
▪ Dizzy	0	1	1
▪ Fever	1	1	2
▪ Others	2	0	2
Total	4	4	8

Episode 3

Episode 3 Case for illness or injury (OPD) in the prev month	Insurance status		Total
	Yes	No	
▪ Body and back pain	1	0	1
Total	1	0	1

Besides descriptive information presented above, qualitative information related to this issue was gathered by FGD to be able to understand respondents' verbal information.

Since "others" category was one of most reported case for uninsured respondents for episode 1, this category included any kinds of small accidents. One of the uninsured respondents stated that there was a little road accident happened in their family.

> *"... Couple weeks ago our son involved in the motorcycle accident, he got a pretty big cut on his knee. For the convenient reason, we decided to take him to a closest private clinic in order to clean the wounded area ..."*
>
> *(Uninsured respondent)*

For the insured respondents, most of them reported to have headaches and cold related symptoms in episode 1

“ … My husband got a cold fever last week, since we were covered by the CBHI package. Other than doing self-prescription we went to OPD service in provincial hospital …”

(Insured respondent)

“ … After school it was a hot day, my daughter told me that she got a headache, I took her to the hospital, because it was not that far from her school …”

(Insured respondent)

Days absent from regular daily routine due to illness or injury

Table 20: Number of days absent from regular daily routine

Episode 1

Number of days unable to work due to illnesses or injuries	Insurance status	
	Yes (%)	No (%)
▪ Less than 1 week (1-7 days)	20 (40.0)	27 (54.0)
▪ Less than 2 weeks (8-14 days)	1 (2.0)	1 (2.0)
▪ Less than 3 weeks (15-21 days)	0	1 (2.0)
Total	21 (42.0)	29 (58.0)

Episode 2

Number of days unable to work due to illnesses or injuries	Insurance status	
	Yes (%)	No (%)
▪ Less than 1 week (1-7 days)	4 (50.0)	4 (50.0)
▪ Less than 2 weeks (8-14 days)	0	0
▪ Less than 3 weeks (15-21 days)	0	0
Total	4 (50.0)	4 (50.0)

Episode 3

Number of days unable to work due to illnesses or injuries	Insurance status	
	Yes (%)	No (%)
▪ Less than 1 week (1-7 days)	4 (50.0)	4 (50.0)
▪ Less than 2 weeks (8-14 days)	0	0
▪ Less than 3 weeks (15-21 days)	0	0
Total	4 (50.0)	4 (50.0)

In all 3 episodes, self-reported days absent from regular daily routine due to illnesses or injuries were mostly less than one week. Out of 59 cases from all episodes, only 1 case reported to be unable to perform regular daily regular daily routine for 2 and 3 weeks.

4.3.4 Health Facilities Visited by Respondents for Illnesses or injuries

Due to the fact that there is no private health hospital in Savannakhet province at the time of conducting this research, hence there were only 4 available options for illness or injury i.e. provincial hospital, district hospital, private clinic, and local health center, which is mostly located in the village level. In the episode 1 of illness or injury, insured respondents mostly visited provincial hospitals, whereas uninsured respondents preferred to go to private clinic. This sounds reasonable because the CBHI scheme covers all the expenditure of illness or injury (OPD services) but under the condition that patients visit public hospital.

In the case that the respondents do not have any type of insurance covered, they prefer to use private clinics operated by senior health professionals from public hospitals for convenient reasons.

Table 21: Health facilities visited by households

Episode 1

Episode 1 Health facility for OPD (in the previous month)	Insurance status		Total
	Yes	No	
▪ Provincial hospital	13 (26.0)	3 (6.0)	16 (32.0)
▪ District hospital	6 (12.0)	8 (16.0)	14 (28.0)
▪ Private clinic	2 (4.0)	15 (30.0)	17 (34.0)
▪ Local health center	0	3 (6.0)	3 (6.0)
Total	21 (42.0)	29 (58.0)	50 (100.0)

Episode 2

Episode 2 Health facility for OPD (in the previous month)	Insurance status		Total
	Yes	No	
▪ Provincial hospital	4 (50.0)	1 (12.5)	5 (62.5)
▪ District hospital	0	0	0
▪ Private clinic	0	3 (37.5)	3 (37.5)
▪ Local health center	0	0	0
Total	4 (50.0)	4 (50.0)	8 (100.0)

Episode 3

Episode 2 Health facility for OPD (in the previous month)	Insurance status		Total
	Yes	No	
▪ Provincial hospital	1 (100.0)	0	1 (100.0)
Total	1 (100.0)	0	1 (100.0)

4.3.5 Satisfaction from Health Service Received

The result shows that most of the respondents satisfied with the serviced received. Regardless to the insurance status, more than 51% of respondents in episode 1

reported to be satisfied followed by very satisfied (30.8%), average (16.7%), and strongly dissatisfied (1.3%).

Respondents covered by the CBHI scheme were more likely to have higher level of satisfaction in comparison to uninsured respondents. In episode 2, most of respondents reported to be satisfied (50.0%), followed by average (37.5%), and very satisfied (12.5%). None of them reported to be dissatisfied and strongly dissatisfied in episode 2, and episode 3.

Table 22: OPD Services' satisfaction

Episode 1

Episode 1 Satisfaction for OPD (in the previous month)	Insurance status		Total
	Yes	No	
▪ Very satisfied	13 (16.7)	11 (14.1)	24 (30.8)
▪ Satisfied	25 (32.1)	15 (19.2)	40 (51.3)
▪ Average	5 (6.4)	8 (10.3)	13 (16.7)
▪ Dissatisfied	0	0	0
▪ Strongly dissatisfied	0	1 (1.3)	1 (1.3)
Total	43 (55.1)	35 (44.9)	78 (100.0)

Episode 2

Episode 2 Satisfaction for OPD (in the previous month)	Insurance status		Total
	Yes	No	
▪ Very satisfied	0	1 (12.5)	1 (12.5)
▪ Satisfied	2 (25.0)	2 (25.0)	4 (50.0)
▪ Average	1 (12.5)	2 (25.0)	3 (37.5)
▪ Dissatisfied	0	0	0
▪ Strongly dissatisfied	0	0	0
Total	3 (37.5)	5 (62.5)	8 (100.0)

Episode 3

Episode 3 Satisfaction for OPD (in the previous month)	Insurance status		Total
	Yes	No	
▪ Very satisfied	0	0	0
▪ Satisfied	1 (100.0)	0	1 (100.0)
▪ Average	0	0	0
▪ Dissatisfied	0	0	0
▪ Strongly dissatisfied	0	0	0
Total			(100.0)

The result of FGD shows further explanation about patients' satisfaction of health service received as well as CBHI insurance package.

> *"... In the first week of this month I went to hospital for the stomachache, the pharmacist quickly provided me medicines. Since, it was covered by the insurance scheme; we didn't have to pay anything in exchange for this service. All in all, I'm satisfied with this OPD services..."*
>
> *(Insured respondent)*

4.3.6 Previous year's hospitalization

Table 23: Previous year's hospitalization and independent variables

Independent variables	n (%)	Respondents	
		With at least 1 admission	Without any admission
Insurance Status			
▪ Insured	126 (50.0)	43 (34.1)	83 (65.9)
▪ Uninsured	126 (50.0)	35 (27.8)	91 (72.2)
Gender			
▪ Male	130 (51.6)	36 (27.7)	94 (72.3)
▪ Female	122 (48.4)	42 (34.4)	80 (65.6)
Age Group			
▪ 18-35	58 (23.0)	21 (36.2)	37 (63.8)
▪ 36-49	95 (37.7)	25 (26.3)	70 (73.7)
▪ 50 or higher	99 (39.3)	32 (32.3)	67 (67.7)
Marital Status			
▪ Single	24 (9.5)	9 (37.5)	15 (62.5)
▪ Married	201 (79.8)	61 (30.3)	140 (69.7)
▪ Widowed	20 (7.9)	7 (35.0)	13 (65.0)
▪ Divorced	5 (2.0)	1 (20.0)	4 (80.0)
▪ Separated	2 (0.8)	0 (0.0)	2 (100.0)
Highest Education Level			
▪ Never attend school	38 (15.1)	14 (36.8)	24 (63.2)
▪ Primary school	91 (36.1)	22 (24.2)	69 (75.8)
▪ Lower secondary school	67 (26.6)	24 (35.8)	43 64.2)
▪ High school	50 (19.8)	17 (34.0)	33 (66.0)
▪ University or higher	6 (2.4)	1 (16.7)	5 (83.3)
Number of Children			
▪ 0-2	92 (36.5)	33 (35.9)	59 (64.1)
▪ 3-5	101 (40.1)	30 (29.7)	71 (70.3)
▪ 6 or higher	59 (23.4)	15 (25.4)	44 (74.6)
Household Size			
▪ Small (1-4 people)	66 (26.2)	22 (33.3)	44 (66.7)
▪ Large (5 or more)	186 (73.8)	56 (30.1)	130 (69.9)
Main Occupation			
▪ Casual worker	12 (4.8)	4 (33.3)	8 (66.7)
▪ Farmer	134 (53.2)	40 (29.9)	94 (70.1)
▪ Street vendor	27 (10.7)	11 (40.7)	16 (59.3)
▪ Laborer	10 (4.0)	1 (10.0)	9 (90.0)
▪ Others	69 (27.4)	22 (31.9)	47 (68.1)
Income Quintiles			
▪ More than 10,000,000 LAK	2 (0.8)	1 (50.0)	1 (50.0)
▪ 5,000,000 – 10,000,000 LAK	8 (3.2)	1 (12.5)	7 (85.7)
▪ 2,500,000 – 5,000,000 LAK	36 (14.3)	9 (25.0)	27 (75.0)
▪ 1,000,000 – 2,500,000 LAK	86 (34.1)	26 (30.2)	60 (69.8)
▪ Less than 1,000,000 LAK	120 (47.6)	41 (34.2)	79 (65.8)
Chronic Condition			
▪ No	94 (37.3)	35 (37.2)	59 (62.8)
▪ Yes	158 (62.7)	43 (27.2)	115 (72.8)

Table 23 shows the descriptive information that includes several independent variables. In total there were 78 cases of both insured and uninsured respondents hospitalized in the previous year. The result shows that most of admitted respondents at least once were insured, large household size, poorest income quintile, and with chronic condition reported household. Furthermore households with female, more than 50 years old, married, lower secondary school, 0-2 children, and farmer household heads also reported to have more hospital admission in the previous year. On the other hand, the majority of respondents reported no hospital admission in the previous was mostly uninsured, large household, poorest income quintile, and with chronic condition.

Other than the descriptive statistics as shown in table 23, Chi-square analysis was also used to provide stronger evidence related to the difference within the independent variables (Table 24). The result of Chi-square analysis shows that none of them were statistically significant at 5%. However, two independent variables i.e. gender of household head, and chronic condition were statistically different at 75% confident interval, which means that both gender and chronic condition significantly affect the probability of being hospitalized. From this point, we can briefly conclude that people with chronic condition were more likely to enroll the insurance scheme. Once they are covered by the scheme health policy, they are not reluctant to use health care services, since they don't have to take full responsibility on health services expenditure (adverse selection problem).

Information retrieved from FGD showed that most of patients were not hesitated to use health services, as they were convinced that CBHI was going to pay for health services.

> *" ...Couple month ago my son got a stomachache. We rushed to the district hospital (which is not that far from our house). We realized that the cause of pain was his appendix; doctor stated that he had to have an*

appendectomy as soon as possible. I was not sure if this operation is covered by the scheme until the guy at the CBHI office convinced me. From that point, I'm not hesitating to use hospital service…"

(Insured respondent)

Table 24: Set of independent variables related to hospitalization

Independent Variables	With at Least 1 Admission (%)	Chi-Square	
		X^2	P-Value
Insurance Status			
▪ Insured	43 (34.1)	1.188	0.276
▪ Uninsured	35 (27.8)		
Gender			
▪ Male	36 (27.7)	1.335	0.248*
▪ Female	42 (34.4)		
Age Group			
▪ 18-35	21 (36.2)	1.792	0.408
▪ 36-49	25 (26.3)		
▪ 50 or higher	32 (32.3)		
Marital Status			
▪ Single	9 (37.5)	1.846	0.764
▪ Married	61 (30.3)		
▪ Widowed	7 (35.0)		
▪ Divorced	1 (20.0)		
▪ Separated	0 (0.0)		
Highest Education Level			
▪ Never attend school	14 (36.8)	0.4105	0.392
▪ Primary school	22 (24.2)		
▪ Lower secondary school	24 (35.8)		
▪ High school	17 (34.0)		
▪ University or higher	1 (16.7)		
Number of Children			
▪ 0-2	33 (35.9)	1.958	0.376
▪ 3-5	30 (29.7)		
▪ 6 or higher	15 (25.4)		
Household Size			
▪ Small (1-4 people)	22 (33.3)	0.237	0.626
▪ Large (5 or more)	56 (30.1)		
Main Occupation			
▪ Casual worker	4 (33.3)	3.400	0.493
▪ Farmer	40 (29.9)		
▪ Street vendor	11 (40.7)		
▪ Laborer	1 (10.0)		
▪ Others	22 (31.9)		
Income Quintiles			
▪ More than 10,000,000 LAK	1 (50.0)	2.812	0.590
▪ 5,000,000 – 10,000,000 LAK	1 (12.5)		
▪ 2,500,000 – 5,000,000 LAK	9 (25.0)		
▪ 1,000,000 – 2,500,000 LAK	26 (30.2)		
▪ Less than 1,000,000 LAK	41 (34.2)		
Chronic Condition			
▪ No	35 (37.2)	2.768	0.096**
▪ Yes	43 (27.2)		

Table 25: Number of hospitalization in the previous year

Independent Variables	Number of time admitted (Previous year)		Total
	One	Two	
Insurance Status			
▪ Insured	39	4	43
▪ Uninsured	29	6	35
Gender			
▪ Male	32	6	36
▪ Female	36	4	42
Age Group			
▪ 18-35	20	1	21
▪ 36-49	20	5	25
▪ 50 or higher	28	4	32
Marital Status			
▪ Single	8	1	9
▪ Married	54	7	61
▪ Widowed	6	1	7
▪ Divorced	0	1	1
▪ Separated	0	0	0
Highest Education Level			
▪ Never attend school	13	1	14
▪ Primary school	18	4	22
▪ Lower secondary school	19	5	24
▪ High school	17	0	17
▪ University or higher	1	0	1
Number of Children			
▪ 0-2	29	4	33
▪ 3-5	27	3	30
▪ 6 or higher	12	3	15
Household Size			
▪ Small (1-4 people)	19	3	22
▪ Large (5 or more)	49	7	56
Income Quintiles			
▪ More than 10,000,000 LAK	1	0	1
▪ 5,000,000 – 10,000,000 LAK	1	0	1
▪ 2,500,000 – 5,000,000 LAK	7	2	9
▪ 1,000,000 – 2,500,000 LAK	22	4	26
▪ Less than 1,000,000 LAK	37	4	41
Chronic Condition			
▪ No	27	8	35
▪ Yes	41	2	43

In case hospitalization in the previous year, most of them reported to be admitted only once. In the first episode, the insured households were slightly more than the counter party. Female, married, lower secondary school and aged more than 50 head of household were more likely to be hospitalized at least once. Besides that household with other characteristics such as income less than 1,000,000 LAK, large household (5 members), having 0-2 children were also more likely to be admitted in

the previous year. In total there was only 8 respondents reported to use IPD services twice. Those households were mostly uninsured, having 0-2 children, big household with more than 5 people, low-income quintiles and without chronic condition.

Table 26: Days spent in the hospital for IPD services

Episode 1

Days admitted in hospital	Insurance status	
	Yes (%)	No (%)
▪ Less than 1 week (1-7 days)	37 (47.4)	31 (39.7)
▪ Less than 2 weeks (8-14 days)	5 (6.4)	3 (3.8)
▪ Less than 3 weeks (15-21 days)	0 (0)	0 (0)
▪ More than 3 weeks (22 days -	1 (1.2)	1 (1.2)
Total	43 (55.1)	35 (44.9)

Episode 2

Days admitted in hospital	Insurance status	
	Yes (%)	No (%)
▪ Less than 1 week (1-7 days)	2 (25)	4 (50)
▪ Less than 2 weeks (8-14 days)	0 (0)	1 (12.5)
▪ Less than 3 weeks (15-21 days)	0 (0)	0 (0)
▪ More than 3 weeks (22 days -	0 (0)	1 (12.5)
Total	2 (25)	6 (75)

According to the table 26, it is able to find out that most of the respondents reported to spend less than 1 week in the hospital and most of them were insured. For those who spend less than 2 weeks of hospitalization, there are 9 cases in total from both episode 1 and episode 2. Five out of nice cases were insured respondents.

The result from FGD shows that, majority insured respondents were satisfied with the time stayed in the hospital, because CBHI covered all medical expenditure at the time of hospitalization. Further information on this issue is as followed.

"... About 3 weeks ago my daughter was sick, we thought she was under the weather but in reality it was dengue fever. She was in the hospital for more than a week, we were lucky because the scheme covered all the medical expenditure in the hospital."

(Insured respondent)

Table 27: CBHI take-up benefit of both OPD and IPD

Independent Variables	Total respondents	Taking-up benefit (CBHI)	
		OPD (Previous month) N (%)	IPD (Previous year) N (%)
Insurance status			
▪ Insured	126 (50.0)	21 (16.7)	43 (34.1)
▪ Uninsured	126 (50.0)	-	
Gender			
▪ Male	122 (48.4)	12 (9.8)	15 (12.2)
▪ Female	130 (51.6)	9 (6.9)	28 (21.5)
Age group			
▪ 18-35	58 (23.0)	4 (6.8)	15 (25.8)
▪ 36-49	95 (37.7)	8 (8.4)	14 (14.7)
▪ 50 or higher	99 (39.3)	9 (9.0)	14 (14.1)
Marital status			
▪ Single	24 (9.5)	1 (4.1)	8 (33.3)
▪ Married	201 (79.8)	18 (8.9)	33 (16.4)
▪ Widowed	20 (7.9)	1 (5.0)	2 (10.0)
▪ Divorced	5 (2.0)	1 (0.2)	0 (0.0)
▪ Separated	2 (0.8)	0 (0.0)	0 (0.0)
Highest education level			
▪ Never attend school	38 (15.1)	1 (2.6)	7 (18.4)
▪ Primary school	91 (36.1)	3 (3.2)	8 (8.7)
▪ Lower secondary school	67 (26.6)	11 (16.4)	14 (20.8)
▪ High school	50 (19.8)	6 (1.2)	14 (28.0)
▪ University or higher	6 (2.4)	0 (0.0)	0 (0.0)
Number of Children			
▪ 0-2	92 (36.5)	8 (8.6)	20 (21.7)
▪ 3-5	101 (40.1)	7 (6.9)	16 (15.8)
▪ 6 or higher	59 (23.4)	6 (10.1)	7 (11.8)
Household Size			
▪ Small (1-4 people)	66 (26.2)	5 (7.5)	7 (10.6)
▪ Large (5 or more)	186 (73.8)	16 (8.6)	36 (19.3)
Income Quintiles			
▪ 1	2 (0.8)	0 (0.0)	0 (0.0)
▪ 2	8 (3.2)	2 (25.0)	1 (12.5)
▪ 3	36 (14.3)	1 (2.7)	7 (19.4)
▪ 4	86 (34.1)	12 (13.9)	20 (23.2)
▪ 5	120 (47.6)	6 (5.0)	15 (12.5)
Chronic Condition			
▪ No	94 (37.3)	6 (6.3)	29 (30.8)
▪ Yes	158 (62.7)	15 (9.4)	14 (8.8)
Total	**252 (100.0)**		

According to the interview, it is reported that all insured respondents were covered by the CBHI scheme. From descriptive data shown in Table 27, almost 17% and 35% of OPD and IPD respectively were financially supported/ covered by the CBHI scheme. Based on income level of income, it is able to find out that none of respondents from the richest income quintile used or received benefit. The possible reason is this scheme is not initially designed for upper income households, because in practice those upper income households prefer to use Thai medical services in Mukdahan, KhoneKaen, and other Thailand's northeastern provinces. In term of chronic condition, respondents with chronic condition reported to use more OPD, but less IPD services. Respondents' household size could be another important factor that affects health service utilization. The result shows that larger household size has higher take-up benefit from CBHI scheme in comparison to smaller households (less than 4 people).

4.3.7 Independent variables affecting hospitalization

Logistic regression model 1

Logistic regression 1 was used to find out the probability of hospitalization. As already mentioned in the methodology part, the researcher used Andersen's behavioral model as a guideline to develop the sets of independent variables. As present logistic regression model 1, there are 3 sets of independent variable; first of all, predisposing factors consist of gender, age, marital status, education level, and household size. Secondly, enabling factors consist of two factors i.e. insurance status, and household's income level. Lastly, need factors consists of having chronic condition as the only independent variable.

According to the previous descriptive statistic, there were 5 choices for marital status (single, married, widowed, divorced, and separated), education level (never attended school, primary school, lower secondary school, high school, and university or higher)

and income quintile (more than 10,000,000 LAK, between 5000,000 – 10,000,000 LAK, between 2,500,000 – 5,000,000 LAK, and less than 1,000,000 LAK).

In the logistic regression process, those choices were lowered into 2 or 3 choices to avoid possible bias; the reason is those choices of independent variables were rarely selected by respondents. As a result, there are only 2 choices for marital status (single, and married), 3 choices for education level (never attended school, primary school, and lower secondary school or higher), and 3 choices for income quintile (more than 2,500,000 LAK, between 1,000,000 – 2,500,000 LAK, and less than 1,000,000 LAK).

The result of logistic model 1 reveals that 5 independent variables were statistically significant at 25% significant level i.e. female head of household, insured, income between 1,000,000 – 2,500,000 LAK, more than 2,500,000 LAK, and with chronic condition households. The odd ratio were used to evaluated the probability hospitalization in previous year, it shows that female head of household and insured respondents were approximately 1.472 and 1.455 times more likely to be admitted in comparison to household with male head of household and uninsured respondents respectively. In term of income level, the “2,500,000 LAK and more” income quintile were the group that has the lowest probability of hospitalization at 10% significant level compared to lower income level groups such as income between 1,000,000-2,500,000 LAK. Last but not least, chronic condition’s odd ratio was 1.786; this means that households with chronic disease were 1.786 higher chance of being at 90% confident interval.

Table 28: Probability of hospitalization

Independent Variables Andersen's Behavioral Model	X^2 P-Value	Binary Logistic Regression Model 1 Hospital Admissions (any)		
		OR	95 % CI	P-value
Predisposing Factors				
Gender				
▪ Male	0.248*			
▪ Female		1.472	0.815-2.661	0.200*
Age				
▪ 18-35	0.408			
▪ 36-49		0.660	0.294-1.478	0.312
▪ 50 or higher		0.835	0.361-1.929	0.673
Marital status				
▪ Single	0.466			
▪ Married		0.913	0.325-2.567	0.863
Education level				
▪ Never attended school	0.206*			
▪ Primary school		0.643	0.274-1.508	0.310
▪ Lower secondary school or higher		1.181	0.498-2.804	0.705
Size of household				
▪ 1- 4 people (small)	0.626			
▪ 5 people or higher (large)		0.907	0.485-1.697	0.761
Enabling Factors				
Insurance status				
▪ No - uninsured	0.276			
▪ Yes – insured		1.455	0.788-2.685	0.231*
Income level				
▪ Less than 1,000,000 LAK	0.434			
▪ 1,000,000 - 2,500,000 LAK		0.612	0.313-1.195	0.150*
▪ 2,500,000 LAK or more		0.483	0.210-1.115	0.088**
Need Factors				
Chronic condition				
▪ No	0.096*			
▪ Yes		1.786	0.983-3.246	0.057**

Logistic regression model 2

Similar to model 1 presented earlier, the model 2 several set of independent variables: gender, age, marital status, level of education of household heads, size of household, income level, and existence of chronic condition. The main objective is to find out the probability of admission covered by the CBHI scheme with respected

to the total case reported. As a result, insurance status was not used or included to predict the probability of insured respondents' admission.

The results of model 2 show that gender and chronic condition were statistically significant at 75% confidence interval. It means that household with female head of households were 1.536 times more likely to be covered by the CBHI scheme in comparison to household with male head of households. The chronic condition also statistically significant at 90% confidence interval, in which it shows that households with chronic condition are 1.751 times more likely to be hospitalized under the CBHI scheme compared to the healthy households. The ORs from the regression model 2 shows that household with household head aged between 36-49 years old, married, completed primary school, income more than 2,500,000 LAK, without chronic condition had the least probability of hospitalization under the CBHI scheme. However those variables were not statistically significant.

Table 29: Hospitalization under the CBHI scheme

Independent Variables Andersen's Behavioral Model	X^2 P-Value	Binary Logistic Regression Model 2 Hospital Admission Covered by CBHI		
		OR	95 % CI	P-value
Predisposing Factors				
Gender				
▪ Male	0.016***			
▪ Female		1.536	0.855-2.760	0.151*
Age				
▪ 18-35	0.127*			
▪ 36-49		0.651	0.291-1.457	0.296
▪ 50 or higher		0.843	0.364-1.951	0.689
Marital status				
▪ Single	0.026***			
▪ Married		0.858	0.308-2.391	0.769
Education status				
▪ Never attended school	0.026***			
▪ Primary school		0.644	0.275-1.510	0.312
▪ Lower secondary school or higher		1.231	0.520-2.911	0.636
Size of household				
▪ 1- 4 people (small)	0.105*			
▪ 5 people or higher (large)		0.937	0.502-1.749	0.838
Enabling Factors				
Income level				
▪ Less than 1,000,000 LAK				
▪ 1,000,000 - 2,500,000 LAK	0.129*	0.700	0.373-1.313	0.266
▪ 2,500,000 or more		0.524	0.230-1.194	0.124
Need Factors				
Chronic condition				
▪ No				
▪ Yes	0.480	1.751	0.966-3.173	0.065*

According to the information from FGD, we find out that household with CBHI insured package prefer to go to the closest contracted hospital for various causes of hospitalizations rather than using private hospital in Mukdahan Thailand (which is not that far away from Savannakhet province)

" ... About 3 weeks ago my daughter was sick, we thought she was under the weather but in reality it was dengue fever. She was in the hospital for

more than a week, we were lucky because the scheme covered all the medical expenditure in the hospital …"

(Insured respondent)

"… Last September, my son was born. I decided to go to district hospital for a deliver service, since it's very close to my home (so that my relative can come and visit me at the time of admission). I was very impressed by the service provided by hospital and CBHI…"

(Insured respondent)

On the other hand, uninsured respondents preferred to use health service somewhere else (including private hospital in Thailand)

" … My wife delivered my daughter about 8 months ago; I took her to the International Hospital in Mukdanhan, Thailand. We decided to go there because the Thai hospitals' services are better …"

(Uninsured respondent)

Recall that the first objective of this research is to find out if the CBHI members are able to have better accessibility for in-patient health service utilization and take up of the CBHI benefit. As a result, the null hypothesis 1 is as follows:

Null hypothesis 1: CBHI member do not have better accessibility for in-patient health service utilization and take-up of the CBHI benefit

According to the model 1, number of independent variable suggested by Andersen i.e. predisposing factors (gender, age, marital status, education level, and household size), enabling factors (insurance status), and need factors (existence of chronic

condition). The most influential variable or the variable of interest is the insurance status of enabling factors. The findings show that insurance status did make a significant impact on households' admission (based on 95% confidence interval).

Regarding to both chi-square and logistic regression analysis, it is able to conclude that the null hypothesis was accepted, which states that there is no difference in term of accessibility for inpatient service utilization and take up benefit. In other words, so that the insurance did not significantly assists in term of accessibility to IPD health care services.

4.4 Role of the CBHI scheme in term of financial protection

4.4.1 Background

This section goes over households 'relationship between out-of-pocket payment and household per capita income of respondents (both insured and uninsured). Other findings related to reasons leaded to catastrophic payment, coping strategies, and catastrophic expenditure's implication and magnitude was explained as well.

4.4.2 Methodology

As mentioned earlier in the chapter 3, the out-of-pocket expenditure on health service utilization (from both medical and non-medical expenditure in relation to household's) affordability was assessed in this section. Medical expenditure refers to the payment for operation, diagnostic, and medicines. On the other hand, non-medical expenditures can be any expenditure not being paid to hospitals; in other words, it refers to the cost of food for patients themselves and their relatives (in case the hospital does not bundle patients' food in the health service expense), transportation, accommodation, and more.

As a medium of exchange in term of goods and services, level of household's income and expenditure were used as the main indicators for health service

utilization's affordability. The level income and expenditure were divided into 5 income quintiles ranging from less than 1,000,000 LAK to more than 10,000,000 LAK for convenient reason. One month and one year retrospective data collection were used to collect the information related to the outpatient and inpatient data collection respectively. In order to be standardized, previous year's total health is the sum of outpatient health service expenditure multiplied by 12 (number of months in 1 year) and inpatient health service expenditure.

Household survey was used as a method to collect all the related information. Similar to the previous section of this research, respondents were equally divided into two groups: insured and uninsured respondents. The information retrieved from the interviews were total income and expenditure, people in the household, and outpatient and inpatient service utilizations

4.4.3 OPD and IPD services in different income quintile

According to the CBHI policy, members are financially protected from out-of-pocket expenditure for both outpatient and inpatient service utilization at contracted hospitals. Those services include diagnosis, medicine, surgery, delivery, and more; however numbers of services are not yet covered by the CBHI scheme for instance: road accidents, plastic surgeries, sex reassignment surgery, HIV aids medicine, leukemia, sterilization, kidney dialysis, glasses, dentures, self-harm, and brain surgery. Besides, patients and family are required to pay for themselves for non-medical service as mentioned earlier.

This section evaluates expenditure related to outpatient and inpatient service utilization retrieved from previous month and year respectively. For the understandable reason, the expenditure analysis of both health expenditures was separately analyzed. All the expenditure in the related items was summed at a household level to yield the total payment on ambulatory compare to their level of income.

4.4.4 Expenditure on outpatient service utilization

The information retrieved from the questionnaire shows that all expenditure of insured respondents incurred from outpatient health care services in the previous month were all covered by the CBHI scheme. In contrast, all medical expenditure belonged to uninsured respondents for outpatient health care services were paid by out-of-pocket. Due to fact that the CBHI policy do not designed to cover non-medical expenditure, as a result both insured and uninsured needed to responsible for all existing non-medical expenditures themselves

Table 30: OPD's expenditure in the previous months

	Cases	OPD medical exp (Previous month)			OPD non-medical exp (Previous month)			OPD total exp (Previous month)		
		N	Mean	Median	N	Mean	Median	N	Mean	Median
Ep.1										
Q1										
Q2	4	4	128125	123250	4	175000	100000	4	303125	243250
Q3	3	3	90000	80000	3	43333.33	50000	3	133333.33	130000
Q4	15	15	130933	70000	15	69066.66	10000	15	200000	75000
Q5	28	28	134321.4	70000	28	59642.85	22500	28	193964.28	135000
Total	50	50	130150	70000	50	70720	22500	50	200870	110000
Ep.2										
Q1										
Q2										
Q3										
Q4	5	5	62300	70000						
Q5	3	3	176666.66	200000						
Total	8	8	105187.50	81476.52						
Ep.3										
Q1										
Q2										
Q3	1		72000	72000						
Q4										
Q5										
Total	1		72000	72000						

As mentioned in the methodology part, income levels are categorized into 5 quintiles ranking from 1st (the richest) to 5th (the poorest). Recall that episode 1 refers to the first visit to health facility for OPD service in the previous month (respondents who reported to have only episode 1 means that they used health services only once). The result shows that there are 50 cases of illness or injury in episode 1, ten of which reported to have zero non-medical cost. Two out of 8 cases in episode 2 also reported also reported to have zero non-medical some. From this point, the non-medical expenditures for OPD services were mostly low in all income quintiles.

Table 30 shows the mean and median of medical, non-medical as well as total expenditure of OPD patients in the previous month. The mean of OPD total

expenditure of the poorest income quintile (5th quintile, lower than 1,000,000 LAK/ month) was the highest of 193964.28 LAK followed by the second income quintile (2nd quintile, 1,000,000 to 2,500,000 LAK/ month) of 133333.33 LAK.

According to the questionnaire interview, it found that most of non-medical expenditures were transportation cost. As the health facilities for OPD services were not far away from their home; hence the non-medical expenditure can be minimal. As mentioned earlier, ten respondents reported to have zero non-medical expenditure (mostly they don't have to pay for the transportation cost). This would lower the mean of non-medical expenditure.

Table 31: Insurance status and OPD medical expenditure

Quintile	Total case	Insured respondents' medical expenditure for OPD			Uninsured respondents' medical expenditure for OPD		
		n	Mean	Median	n	Mean	Median
▪ First episode = 50 (19.8 % of all respondents)							
1	0						
2	4	2	36250	36250	2	220000	220000
3	3	1	120000	120000	2	75000	75000
4	15	12	139500	67500	3	96666.66	70000
5	28	6	72333.33	42500	22	151227.27	125000
Total	50	21	109547.61	58000	29	145068.96	100000
	Total mean = 130150; Total median = 70000						
▪ Second episode = 8 (3.2% of all respondents)							
1	0						
2	0						
3	0						
4	5	3	50500	52000	2	80000	80000
5	3	1	260000	260000	2	135000	135000
Total	8	4	102875	66000	4	107500	80000
	Total mean = 105187.50; Total median = 75000						
▪ Third episode = 1(0.4 of all respondents)							
1	0						
2	0						
3	0						
4	1	1	72000	72000	0		
5	0						
Total	11	1	72000	72000	0		
	Total mean = 72000; Total median = 72000						

Four choices of health service providers are available in Laos, i.e. provincial hospital, district hospitals, private clinics, and local health centers. It is found that the uninsured respondent preferred to use private clinics for illnesses or injuries in the previous month (OPD services). In episode 1, it was only about 9.5% of insured respondents reported to use private clinic in the previous month; on the other hand, there was up to 52% of uninsured respondents. Similar to the situation in episode 1, most of insured respondents preferred to go for OPD services in publicly owned health facilities, whereas those respondents without insurance preferred to use

private clinics in episode 2. The reason was that all the medical expenditures were covered by the CBHI and all contracted health facilities are belonged to the public.

Table 31 shows the comparison between uninsured and insured respondents, the findings show that the mean and median of uninsured respondents' medical expenditure were higher than the insured respondents' in both episode 1 and 2. It is because insured people did not hesitate to visit health services, whereas most of the uninsured chose to wait and did self-prescription, and finally went to privately clinics as a last resort when their health worsen.

4.4.5 IPD expenditure in the previous year

In this study, there were 78 and 9 admissions in episode 1 and episode 2 respectively. In episode 1 (respondents reported to be hospitalized once), about 58% were insured respondents. It means that these people were covered by the CBHI scheme in term of medical payments. However, like the OPD cases, both insured and uninsured respondents have to responsible for non-medical expenditures themselves. Recall that the non-medical expenditure refers to transportation, food expenditure, and other miscellaneous cost during their period of hospitalization. The reason why insured respondents were more likely to have higher number of admission compared to uninsured is simple, because insured patients did not have to worry about medical expenditure. As a result, uninsured people always preferred to wait, doing self-prescription as well as going to private clinic before deciding to be hospitalized.

Table 32: Expenditures on IPD

Quintile	Cases	IPD medical exp (Previous year)			IPD non-medical exp (Previous year)			IPD total exp (Previous year)		
		N	Mean	Median	N	Mean	Median	N	Mean	Median
Ep.1										
1	1	1	700000	700000	1	1000000	1000000	1	1700000	1700000
2	1	1	295000	295000	1	120000	120000	1	415000	415000
3	9	9	1538555.5	513000	9	361111.1	280000	9	1899666.6	978000
4	26	26	852346.1	370000	26	397115.3	300000	26	1249461.5	807500
5	41	41	785890.2	495000	41	380853.6	300000	41	1166743.9	800000
Total	78	78	887493.5	476000	78	388589.7	300000	78	1276083.3	842500
Ep.2										
1	0	0			0			0		
2	0	0			0			0		
3	2	2	2350000	2350000	2	75000	75000	2	2425000	2425000
4	4	4	8296250	1455000	4	425000	400000	4	8721250	1855000
5	3	3	583333.3	500000	3	180000	210000	3	763333.3	710000
Total	9	9	4403888.8	500000	9	265555.5	210000	9	4669444.4	710000

In episode 1, most of the respondents were from 3 lower income quintiles i.e. 3rd, 4th, and 5th (Table 32). Regardless to quintile 1 and 2 (only 2 respondents in total), the findings show that there is a positive relationship between mean and median of IPD medical expenditure, and income level. In other word, the higher income households tend to spend more on medical expenditure. According to the health care officers, it revealed that most of the higher income patients usually request for a better brand of medicines rather than consuming generic medicines. Hence, they medical cost would be significant higher compared to those in the lower quintiles.

Table 33: Insurance status and IPD medical expenditure

Quintile	Total case	Insured respondents' medical expenditure for IPD			Uninsured respondents' medical expenditure for IPD		
		n	Mean	Median	n	Mean	Median
▪ First episode = 78 (31.0 % of all respondents)							
1	1	0			1	700000	700000
2	1	1	295000	295000	0		
3	9	7	1903857.1	920000	2	260000	260000
4	26	20	677050	334000	6	1436666.6	1250000
5	41	15	725433.3	558000	26	820769.2	420000
Total	78	43	884755.8	513000	35	890857.1	440000
	Total mean = 887493.59;Total median = 476000						
▪ Second episode = 9 (3.6 % of all respondents)							
1	0						
2	0						
3	2	1	4500000	4500000	1	200000	200000
4	4	2	342500	342500	2	16250000	16250000
5	3	0			3		
Total	9	3	1728333.3	410000	6	5741666.6	625000
	Total mean = 4403888.89; Total median = 500000						

The FGD shows that respondents were better off after enrolling the scheme, some household reported that they didn't want to use hospital service even they were sick, after enrolling the scheme they didn't hesitate to do so.

" ... More than 3 years ago, before joining the scheme, I was afraid to go to the hospital because of the unpredictable health expenditure. I tried to avoid going to hospital as much as possible, by doing self-prescription and using a Lao traditional medicine. If those methods didn't work out we finally go to private clinic or nearby hospital for conventional health services.

A close friend of my husband suggested us to join the CBHI scheme by paying the premium fee on a monthly basis. After enrolling the, all of us in the household do not at all reluctant to use health care services because

they are covered by the insurance scheme… it is worth purchasing the CBHI insurance package…"

(Insured respondent)

Uninsured respondents explained about their financial difficulties related to inpatient health care service. They stated that they do not want to use hospital service, because they don't have money for health service utilization.

"…Honestly, I don't remember the last time (we use the hospital IPD) service. This doesn't mean that we don't have any health issue. Every time we have health problems; we prefer to go to a pharmacy for medicines. We don't want to use hospital service because we are not used to it and it is expensive for a poor household like us. If we spend a lot of money for health service, we may end up with no food for our family members (Uninsured) …"

(Uninsured respondent)

Furthermore, the result of FGD shows that the CBHI health package had a huge impact on improving the CBHI member's financial condition. The reason is the CBHI health package covers all the medical expenditure in contracted hospital nearby, so that the CBHI members do not have to use their savings in exchange for health care services. From this point, they could use their own savings on other purposes such as their kids' education, and more.

"... In my opinion, CBHI scheme offer a very good health care coverage. We don't have to pay, a big bulk of money in exchange for health services. In other words, the scheme allows us to pay for health service on a monthly basis (as an installment). Besides that it also helps us in term of financial management, so that we can keep our savings for children's education ..."

(Insured respondent)

As already mentioned, some respondents revealed that the CBHI scheme immensely lower their financial burden related to health service payment. However, some CBHI services were not impressed by numbers of insured respondents. For instance, an insured respondent stated that he had a bad time of getter medicines covered by the CBHI. Further information can be found as follows

"... The last time my wife admitted to the hospital was about 6 month ago; all the expenditure for medical service was covered by the scheme. However, the process of getting medicine covered by the scheme at the hospital drug store was not that convenient because of its complicated and time consuming process. In contrast, the process was very fast and convenient if we offer to pay out-of-pocket ..."

(Insured respondent)

4.4.6 Income level and health expenditure burden

In this section, the burden of total health expenditure related to both illnesses and injuries in the previous month (OPD), and hospitalization in the previous year were compared to the respondents' income and expenditure to reveal the catastrophic payment of both insured and uninsured patients.

Illnesses or injuries' burden of expenditure (previous month's OPD)

Information related to the households' incomes and expenditures were collected from the questionnaire to find out if the health expenditures were significant compared to respondents' net income. Since there was only 9 cases in total for episode 2 and 3, the information about those episode was not include in table 34 for simplicity reason. Table 34 shows the catastrophic expenditure related to medical, non-medical and total expenditure of illness or injury in the previous month. In this case, it shows that 35.7% of poorest quintiles had catastrophic condition due to the medical expenditure. In addition, 13.3% of households in the 4th income quintile also suffer from catastrophic condition, but none of them were in the upper income quintiles.

Similar to the medical expenditure, about 35.7% of the poorest income quintile had catastrophic condition due to non-medical expenditure; besides that 13.3% of respondents in the 4th income quintile also suffer from catastrophic condition. For the total OPD expenditure in the previous month, the percentage of respondents who had financial catastrophe was even higher in the poorest group (almost 43%). This means that the poorest group of people was vulnerable to have financial catastrophic due to the OPD service.

Table 34: Burden of expenditure in the previous months

Income quintile	Total OPD cases	Number of respondents in each income quintile with more or equal to 40 % of non-food expenditure for OPD					
		Medical exp		Non-medical exp		Total OPD exp	
		< 40%	≥ 40%	< 40%	≥ 40%	< 40%	≥ 40%
1	0	-	-	-	-	-	-
2	4	4 (100.0)	0 (0.0)	4 (100.0)	0 (0.0)	4 (100.0)	0 (0.0)
3	3	3 (100.0)	0 (0.0)	3 (100.0)	0 (0.0)	3 (100.0)	0 (0.0)
4	15	15 (100.0)	0 (0.0)	13 (86.7)	2 (13.3)	13 (86.7)	2 (13.3)
5	28	18 (64.3)	10 (35.7)	18 (64.3)	10 (35.7)	16 (57.1)	12 (42.9)
Total	50	40	10	38	12	36	14

Furthermore, insurance status also was also used to evaluate financial catastrophe regarding to medical, non-medical, and total expenditure (the sum of medical and non-medical expenditure). The finding from table 35 shows that all CBHI members did not have any problem related to medical expenditure, as all of them were covered by the scheme. On the other hand about 14.3% of insured respondent reported to have financial catastrophe due to the non-medical and total expenditure, which was less uninsured respondents. From this point, it is able to conclude that the only reason for insured respondents to have catastrophic condition was because of non-medical expenditure, whereas uninsured respondents' financial catastrophe could be happened by both medical and non-medical expenditures.

Table 35: Burden of expenditure on OPD and insurance status

Insurance status	Total OPD cases	Number of respondents in each income quintile with more or equal to 40 % of non-food expenditure for OPD					
		Medical exp		Non-medical exp		Total OPD exp	
		< 40%	≥ 40%	< 40%	≥ 40%	< 40%	≥ 40%
Yes	21	21 (100.0)	0 (0.0)	18 (85.7)	3 (14.3)	18 (85.7)	3 (14.3)
No	29	19 (65.5)	10 (34.5)	20 (69.0)	9 (31.0)	18 (62.1)	11 (37.9)
Total	50	40	10	38	12	36	14

Hospitalizations' burden of expenditure (previous year's IPD)

About 78 cases or 31% of total respondents reported to have hospital admission at least once in the previous year. Table 36 shows the relationship between income level and catastrophic condition related to medical, non-medical, and total expenditure in episode 1. The findings show that about 36.6% and 43.9% of the poorest respondents (who reported to be hospitalized at least once) experienced financial catastrophe due to the medical and non-medical expenditure respectively. The percentage of catastrophic condition in the poorest quintile was even higher in the total IPD expenditure of 70.7%. In the 4^{th} quintile, lower percentage of catastrophic condition had been found in medical, non-medial and total expenditure

compared to the 5th quintile. The most interesting point in table 36 is that in the poorest income quintile, the percentage of patients reported to have financial catastrophe due to the non-medical expenditure was more than medical expenditure's. From FGD, it is able to find that the distance and accommodation fee were the most important factors that increase non-medical expenditures.

> *" ... Our family just moved to Sepon district, but registered as Kaysone district. About 5 months ago, I had to have a small operation. All of us in the family had to travel to Savannakhet district hospital and stayed there for about 1 week. The non-medical expenditures were more than medical expenditure ..."*
>
> *(Uninsured respondent)*

Table 36: Burden of expenditure on IPD and income quintile

Income quintile	Total IPD cases	Number of respondents in each income quintile with more or equal to 40 % of non-food expenditure for IPD					
		Medical exp		Non-medical exp		Total IPD exp	
		< 40%	≥ 40%	< 40%	≥ 40%	< 40%	≥ 40%
1	1	1 (100.0)	0 (0.0)	1 (100.0)	0 (0.0)	1 (100.0)	0 (0.0)
2	1	1 (100.0)	0 (0.0)	1 (100.0)	0 (0.0)	1 (100.0)	0 (0.0)
3	9	9 (100.0)	0 (0.0)	8 (88.9)	1 (11.1)	8 (88.9)	1 (11.1)
4	26	24 (92.3)	2 (7.7)	24 (92.3	2 (7.7)	22 (84.6)	4 (15.4)
5	41	26 (63.4)	15 (36.6)	23 56.1)	18 (43.9)	12 (29.3)	29 (70.7)
Total	78	61	17	57	21	44	34

According to the interview, it shows that all insured respondents reported to have no medical expenditures as they were covered by the CBHI scheme. Hence, they only have to pay for non-medical related expenditure at the time of admission. From this point, only uninsured households can be suffered from financial catastrophe due to the medical expenditures. According to the result, almost haft of uninsured respondents encountered with financial catastrophe because of medical expenditure. In non-medical expenditure case, both insured and uninsured respondents suffered

from spending more than 40% of their non-food expenditure up to 27.9% and 28.6% (of each category) respectively. The financial catastrophe condition was even worse in total expenditure for uninsured respondents, in which 65.7% of uninsured patients suffered from catastrophic health expenditure (Table 37).

Table 37: Burden of expenditure on IPD and insurance status

Insurance status	Total IPD cases	Number of respondents in each income quintile with more or equal to 40 % of non-food expenditure for IPD					
		Medical exp		Non-medical exp		Total IPD exp	
		< 40%	≥ 40%	< 40%	≥ 40%	< 40%	≥ 40%
Yes	43	43 (100.0)	0 (0.0)	31 (72.1)	12 (27.9)	31 (72.1)	12 (27.9)
No	35	18 (51.4)	17 (48.6)	25 (71.4)	10 (28.6)	12 (34.3)	23 (65.7)
Total	78	61	17	56	22	43	35

4.5 Health expenditure's financial catastrophe

4.5.1 Introduction

Recall that financial catastrophe refers to a situation that a household spends more than 40% of their non-food expenditure on health services. A relatively high health care expenditure has a huge possibility of threatening a household's financial capacity to maintain its standard of living as well as subsistence needs. Due to inefficient coverage of insurance structure in many developing countries, out-of-pocket is considered as the most important method of payment.

The problem is out-of-pocket payment mechanism could lead to high health expenditure and finally financial catastrophe (O'Donnel et al. 2005; O'Donnell 2008; Leive et al. 2008; Jogelkar 2008). The finding of this study shows that expenditure related to health care occupied a huge proportion of household's monthly income; hence, a household is in a difficult condition to recuperate from the huge health related expenditures. The availability of social health insurance package is able to

relieve a degree of high out-of-pocket expenditure, but numbers of population still suffer from this issue to due to several reasons. It is such a challenging problem for a developing country like Laos to offer a better scheme that is able to effectively lower out-of-pocket expenditure.

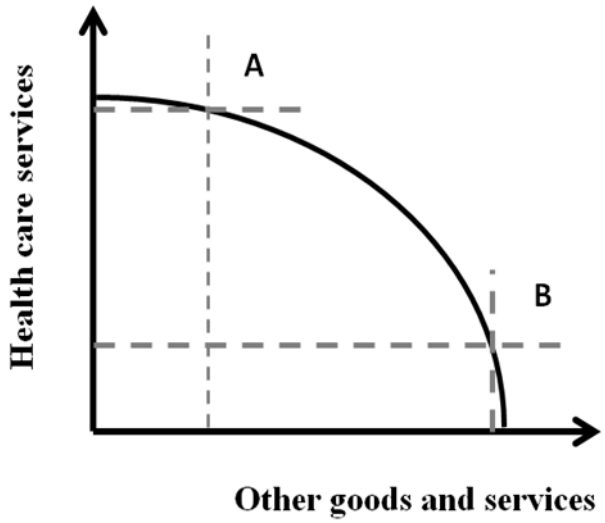
The previous findings show that lower income quintiles suffered a lot more from burden of out-of-pocket expenditure in comparison with upper income quintiles. In this section, the study will find out the answer related to the high total health expenditure among insured respondents. This part further identifies the problem related to catastrophic condition, reason of catastrophic expenditure, and also the coping mechanism of relatively poor patients' households in response to the huge health expenditure. In other words, this section aim to present 3 aspects of financial catastrophe namely: coping strategy of a poor household towards the huge expenditure, explaining variables, and magnitude of problem related to catastrophic expenditure.

4.5.2. Methodology

A major proportion of a household's monthly income from health related expenditure creates financial difficulties and finally forces them to lower other basic expenditure over a period of time to be able to afford for a huge amount of health service expenditure (Kawabata et al., 2002). First of all, burden of expenditure with respected to capability and ability to pay of household was analyzed in term of quantity, in addition the latter issue finds out households' health service cost and coping strategies. In this case, it is a best way to analyze through income and expenditure of each income quintile to realize their affordability in term of health service used. As previously mentioned, the benchmark of catastrophic expenditure is 40% non-subsistence income and expenditure (Kawabata et al., 2002)

There are many definitions from various sources related to catastrophic expenditure from health service utilization; essentially the details of each definition were similar. Most of the authors state that health service utilization's catastrophic payment immensely lowers household's stand of living, because they have to do some trade of between their subsistence expenditure and health service utilization. According to the Production Possibility Frontier (PPF) curve, it shows that people are facing tradeoff between using health care services. Point A is a situation where a household decides to use much of their money on health care services; hence they would finally have less money for other goods and services. In contrast, point B shows that a household prefers to use much of their money on other goods and services, which consequently cause them to have less money for health care services when they are needed (Mankiw, 2004).

Figure 14: Production Possibility Frontier



According to the previous research, there is no clear threshold on household's financial catastrophic health service expenditure; for instance some authors state that threshold are supposed to be around 5% - 20% of total income. Some author used a higher threshold of 40% of a household capacity to pay. A household

capacity to pay refers to effective income deducted by basic subsistence expenditure.

Besides that, several authors proposed that financial catastrophe refers to a situation that health expenditure is 10 % higher than annual income (Xu, 2003). This research used a 40% of a household capacity to pay, because this method takes basic subsistence expenditure into account rather than household's income alone.

The relationship between probability of financial catastrophe due to health service utilization and total health expenditure was determined by Multivariate analysis. Household's non-food expenditure (total income deducted by subsistence expenditure) refers as a household's capacity to pay. The household health expenditure in capacity to pay (non-food expenditure) was calculated as follows:

$$HH_{\text{Health expenditure in Capacity to pay}} = HH_{\text{Health expenditure}} / HH_{\text{Capacity to pay}} \times 100$$

The cut-off level was set to be greater than or equal to 40%. As a result, if the number of $HH_{\text{Health expenditure in Capacity to pay}}$ was greater than 40 %; it simply means that that household was suffered from financial catastrophe due to health service utilization.

Logistic regression model 3 was used to predict the probability of financial catastrophe incurred due to health services utilization. Regarding to patient household's characteristics, the researcher assumes that household with by 3 groups of explanatory variables based on Andersen behavioral model as follows:

- Predisposing factors include head of household and household characteristics i.e. gender, age, marital status, level of education, size of household. Assumption was made that there is a positive relationship between households' size and probability of incurring financial catastrophe.

- Enabling factors include two explanatory variables, which are insurance status and income level. The researcher expected that household covered by a CBHI insurance package would have lesser probability of incurring catastrophic expenditure, because the medical expenditure was paid by the CBHI. In other words, we could say that there is a negative relationship between covering by insurance packaged and possibility of experience catastrophic expenditure due to health service utilization. However, those with insurance have to support themselves for non-medical expenditure (recall that CBHI doesn't cover any non-medical expenditure). Besides that it is also assumed that households with higher income level would have lesser chance of getting financial catastrophe because they have higher capacity to pay.

- Need factors solely include chronic condition as an explanatory variable. There is an expectation that household with at least one member suffered from chronic disease is more likely to have higher chance incurring catastrophic condition

Several ways were used to cope with out-of-pocket expenditure, some households had a successful method of coping strategies to deal with this issue without negative impact to household's financial condition; some household failed to do so and thus they suffered from financial catastrophe. Financial difficulties due to health service utilization can be varied from loss of household savings, which is relatively minor compared to loss of properties in exchange for better health condition. As already mentioned, some households make a trade of between subsistence expenditure and health service; this practice is not considered as catastrophic as long as this practice do not last long that lowers their quality of lives.

Both medical and non-medical expenditure were summed up to yield to the total hospitalization in the previous year. Similar to the previous section in this study, this

section includes logistic regression model 3 as a quantitative analysis and besides that qualitative approaches were also used to capture further explanation related to household expenses and financial catastrophe issue. In term of data collection, structure questionnaire was used for the quantitative part, whereas in-depth interview related to catastrophic cases and FGD were used for the qualitative part. The qualitative part aims to find out the reason why and how the problem related financial catastrophe still exist regardless to the availability of the CBHI package, reason of joining the CBHI scheme and so forth.

4.5.3 Results

Financial catastrophe's magnitude

As already mentioned in the methodology part of this chapter, all 3-regression models were adopted from Andersen Behavioral Model. The model 1 and model 2 includes all respondents of 252 cases, whereas the model 3 includes only respondents who reported to be hospitalized within the previous year. As a result, this model includes 78 cases other than 252 cases, because the main objective is to find out the probability of catastrophic expenditure with respected to total cases reported. The odd ratio shows some characteristics of household head such as female, aged 18-35 years old, married, never attended school and household's character i.e. large size of household, having insurance, income level and chronic condition are more likely to suffer from catastrophic expenditure.

Table 38: Probability of financial catastrophe

Independent Variables Andersen's Behavioral Model	X^2 P-Value	Binary Logistic Regression Model 3 Catastrophic expenditure (of IPD)		
		OR	95 % CI	P-value
Predisposing Factors				
Gender				
▪ Male	0.399			
▪ Female		1.990	0.444-8.917	0.368
Age				
▪ 18-35	0.692			
▪ 36-49		0.314	0.036-2.827	0.304
▪ 50 or higher		0.140	0.015-1.348	0.089**
Marital status				
▪ Single	0.459			
▪ Married		1.648	0.145-18.789	0.687
Education level				
▪ Never attended school	0.006			
▪ Primary school		0.779	0.094-6.494	0.818
▪ Lower secondary school or higher		0.114	0.014-0.948	0.045***
Size of household	0.282			
▪ 1- 4 people (small)		1.978	0.453-8.632	0.364
▪ 5 people or higher (large)				
Enabling Factors				
Insurance status	0.001			
▪ No - uninsured		0.426	0.092-1.981	0.277
▪ Yes – insured				
Income level	0.000			
▪ Less than 1,000,000 LAK		0.049	0.009-0.269	0.001***
▪ 1,000,000 - 2,500,000 LAK		0.034	0.002-0.575	0.019***
▪ 2,500,000 or more				
Need Factors				
Chronic condition	0.015			
▪ No		4.306	0.095-20.494	0.067**
▪ Yes				

However, only 3 variables are statistically significant at 95% confident interval i.e.: education level (lower secondary school or higher), income level from 1,000,000-2,500,000LAK, and income level more than 2,500,000 LAK. The odd ratios from those variables shows that a household with no education head of household is more likely to suffer from catastrophic expenditure, whereas household with a relatively high education head of households have lesser probability of experiencing catastrophic expenditure. In term of income, those households with higher income have lesser chance of getting financial catastrophe in comparison to the lowest income level of Less than 1,000,000 LAK. Besides that it is able to find out that chronic condition is the most important factor that lead to financial; the result shows that households with chronic condition are 4.306 times higher probability of incurring financial catastrophe.

Recall that the second objective is to analyze the role of the CBHI in term of financial protection against catastrophic expenditure for insured households. The null hypothesis 2 is as follows:

Null hypothesis 2: CBHI scheme do not offer the financial protection against catastrophic expenditure

In order to be able to answer this objective, household level financial catastrophe was used to analyze. There are 5 significant independent variables at 90% confidence level. The variable of interest is once again the insurance status, the result shows that insured household have lesser probability in comparison to uninsured household; however, the insurance status's p-value is not statistically significant. From this point, the null hypothesis was accepted. It is concluded that the CBHI insurance package is unable to provide an effect financial protection against catastrophic expenditure.

Catastrophic expenditure's explanation

The findings show that respondents reported to use hospital service experienced relatively high burden of both medical and non-medical expenditure. This section explored the reason explaining financial catastrophe occurred from both OPD and IPD service by using information retrieved from both insured and uninsured households using FGD.

A. Previous month illness or injury or OPD services

According to the descriptive statistics, both insured and uninsured households experiences a relatively high out-of-pocket expenditure related to illness or injury within the previous month, some households even faced financial catastrophe because of both medical and non-medical expenditures. The result shows that 10 out of 50 and 12 out of 50 respondents in episode 1 experienced financial catastrophe from medical and non-medical expenditure respectively. The combination of medical and non-medical expenditure even creates higher households experienced catastrophic expenditure (14 households out of 50 households).

The factor that increases the cost of OPD medical service could be the choice of health care facilities, distance to health care services. Regardless to the insurance status, using private clinic was more likely to have higher medical expenditure but lower non-medical expenditure, as private clinics were not far away from their places. In contrast, respondents reported to use public hospital's medical bills were lower, but some of them have relatively high non-medical expenditure due to the transportation cost.

According to the FGD session, several households reported that they spent a huge amount of financial resource (compared to their income) for transportation and medical cost. However, some of them absolutely had zero transportation cost.

"... Two weeks ago my little child was sick, since there is private clinic in our village, we decided to go the Champhone district hospital. To go there it was not that easy, we have to hire the Tuktuk to the hospital. The transportation cost was as high as the medical cost in district hospital..."

(Uninsured respondent)

"... My 14 years old daughter was sick, since we reside in Kaysone Phomvihane district, we don't have to spend any kip for the transportation cost. However, for the convenient reason, we decided to go private clinic rather than admitted to the provincial hospitals...."

(Uninsured respondent)

"... We are very poor famers without a consistent income. Medicines and transportation cost means a lot for us. We have to lower our food expenditure to be able to afford that..."

(Uninsured respondent)

Recall that the CBHI health care package covers both OPD and IPD services. However, some households still encountered financial catastrophe related to OPD service. The most reported reason was due to the transportation cost, since some households resided far away from the closest contract hospital.

"...When my son was sick, we took him to the Champhone district hospital, which is about 20 away from our village. The transportation cost was almost 100,000 LAK. However, since we enrolled the CBHI scheme years ago, all medical expenditures were free..."

(Insured respondent)

Some insured respondents in Champhone district stated that transportation cost to the district hospital might be comparable or even more than the medical cost spent

at a nearby private clinic. However, they also mentioned that it is worth to go the district hospital, because of the reliable quality of health care services offered.

> *"... We are living about 25 away from the Champhone district hospital, travelling for OPD service costs us more than using private clinic within the village. However, it is worth pay for it because we are covered by the CBHI scheme, so we don't have to think about the medical cost. Besides that there are more health care personnel and medicine available at the CBHI contract hospital..."*
>
> *(Insured respondent)*

More opinions from FGD by both insured and uninsured respondents on government health facilities (which includes provincial hospital, district hospital and local health center), and private clinics are express as follows

> *" ... There more health care personnel and medical equipment in the government hospital compared to privately clinic. It is ok to wait if there are a lot of people in there. In addition, the price is cheaper..."*
>
> *(Insured respondent)*

> *"... I think it's better to go to government hospital for OPD service, the quality of medicine is better and also cheaper because of the government subsidy ... "*
>
> *(Uninsured respondent)*

“ … The service provided by private clinic is better, but to me health services provided by provincial hospital are more reliable. The reason is they have qualified health personnel …”

(Uninsured respondent)

It is able to find out that most of the respondents realized that health services provided by government are more reliable, but the service is not good compared to private clinic operated by senior health doctors (from the public hospitals). Besides, financial issue is also being an important factor of choosing health facilities. Some of them reported that they went Mudahan province, Thailand for the OPD service.

“… Private clinic sometimes are very expenditure but the services are better and faster …”

(Uninsured respondent)

“… We usually go to the Mukdahan International Hospital, Mukdahan province for medical checkup on a regular basis, because it is not at all far away from our home in Savannkhet. It is very expensive compared to any other health services in Laos; but for a reliable reason, we simply prefer to go there …”

(Uninsured respondent)

“…Those who are able to afford expensive health care services always prefer to go to Thailand for health services …”

(Insurance respondent)

It seems that most of the insured respondents preferred to use public hospital services, this possibility because they don’t have to pay out-of-pocket expenditure.

“ … In comparison to private health facilities, provincial hospital has larger variety of service offered with more medical equipment and health personnel … for me I prefer to sue the government owned health facilities…”

(Insured respondent)

In contrast, uninsured respondents were more likely to use privately clinic at the time they have illness or injury, because of several reasons for instance: ease of accessibility better services, and more.

“… I think private clinic is a better choice for non-office hours, the reason is most of the doctors are available at their own clinics. Besides there are a lot of patients in the government hospitals, which lowers the quality of service provided…”

(Uninsured respondent)

“… After enrolling the scheme, I’m no longer hesitated to go to hospital anymore regardless uncomfortable factors for instance: longer waiting time for OPD services, long list of patients, and bad environment compared to private clinics…”

(Insured respondent)

“ … Since I have to work in the office hour, whenever my kids sick I mostly took them to the closest clinic in the non-office hours. It’s more convenient and not time consuming as using government hospitals…”

(Uninsured respondent)

B. Previous year hospitalization or IPD services

Recall that there were 78 respondents admitted at least once in the previous year. Regardless to the insurance status, both medical and non-medical occurred from IPD services created financial catastrophe to health services users. The result reveals that 17 out of 78 and 22 out of 78 households suffered from both medical and non-medical expenditure respectively. Similar to the OPD case, the number was increased to 35 cases due to the combination of medical and non-medical expenditures.

> *" ... My husband was sick because of cirrhosis; he was admitted in the provincial for 1 week. Since we don't have to any insurance, we have to pay all the expenditure from my own savings ..."*
>
> *(Uninsured respondent)*

> *" ... Our household is not insured, we don't want to pay the insurance premium on a regular basis, because our household members rarely use hospitals. May be I will enroll later when I get older..."*
>
> *(Uninsured respondent)*

Another important factor that immensely impacts the probability of incurring catastrophic expenditure of uninsured patient was patient's chronic condition. Besides that number of sick household member was another factor that creates higher burden of health service expenditure, which finally leads to catastrophic condition.

> *"... My dad had diabetes, he need to go to the hospital on a regular basis. It costs a lot for us ... "*
>
> *(Uninsured respondent)*

“ … Our family/household is relatively small with 4 people in total, all my children and my wife had a dengue fever last month. It was like a disaster …”

(Uninsured respondent)

Some insured respondents did not be willing to use the contracted hospital service even they were covered by the insurance scheme. Since there is no private hospital in Savannakhet, they preferred to go to private hospital in Mukdahan, or Khonekaen province of Thailand, because they realized the health care services offered are a lot better there.

“ … Honestly, I don’t want to be admitted in Provincial hospital, even I’m covered by the CBHI scheme. The reason is public hospitals are very dirty and inconvenient for patients. I can say a health person can be sick after staying a night at the hospital because of the very dirty environment of patient’s room. As result 3 months ago, I preferred to go to the Mukdahan International Hospital instead for a small operation instead. However, I think its ok to use public hospitals for OPD services … “

(Insured respondent)

"... I preferred Thai's hospitals because their services are very good; the patient rooms are like in the hotel. In Lao hospitals, relatives have to take care of the patient themselves for instance: cleaning, cooking, feeding, getting medicine from the drug store, and so forth. In contrast, all the services mentioned earlier are provided by the health personnel in Thai private hospitals... "

(Insured respondent)

In addition, the findings from FGD also found that some insured patients do not really understand the rule and regulations of the CBHI's policy. More information can be found as follows

"... Our family/household resides in Champhone district; about 10 months ago my wife was sick in Kaysone District and needed to be admitted. The CBHI officer at the provincial hospital stated that we couldn't use the CBHI package, since we didn't have the paper work from Champhone district hospital as a reference. To be covered by the CBHI, we have to go back to Champhone Hospaital (which is 2 hours away). For the convenient reason, I had to pay for the health care service from my own savings ..."

(Insured respondent)

"... I was in another province when I was sick, I couldn't use the CBHI package because they need the paper from the local hospital as a reference..."

(Insured respondent)

"...when my daughter had a dengue fever; she was in Vientiane for her study. She was taken to Mahosot hospital in Vientiane; the officer asked if we have the CBHI card. We showed the card and they told us they we have to go back to Savannakhet Provincial hospital if we want to be covered. After 1 day staying at Mahosot hospital, I tried to contract the CBHI in Savannaket and they agree to reimburse from the second day of hospitalization. This means that we have to pay out-pocket-in the first day... "

(Insured respondent)

According to the CBHI's policy, premium rates are based on the socio-economic background of districts. In addition, it is also based on the number of household members. Recall that the CBHI categorized number of people in household into 4 levels starting from 1 to more than 8 members. The higher the number of people the more they have to pay for the CBHI's monthly premium. For the uninsured, the probability of incurring financial catastrophe due to health service utilization is higher if there are more people in the household. The FGD shows benefit of enrolling the CBHI scheme, even most of their household members were sick at the same time.

"... Couple months ago my husband, and our children suffer from food poisoning. We were in luck because the CBHI took care of our medical bill ..."

(Insured respondent)

C. Financial catastrophe from non-medical expenditure

Recall that non-medical expenditure refers to all expenditure at the time of hospitalization excluding medical service charged by hospital. As a result, non-medical expenditure may include food expenditure, transportation, and accommodations for both patients and relatives. For the low income insured households relatively high non-medical expenditure could also leads to financial catastrophe as well as uninsured households

> *"...We live about 20 km away from Savannakhet Provincial hospital. Couple months ago, my daughter was admitted for almost 3 weeks. Almost all of us (household members) members travelled to the provincial hospital to take care her at the hospital (for example: Cooking, taking a bath, cleaning and more). We spent a lot of money food, accommodation, and transportation for patient and other family members ..."*
>
> *(Insured respondent)*

> *" ...We recently moved to Phine district from Kaysone Phomvihane district, which is about 3 away. Our household still registered as Kaysone Phomvihane resident. Not so long ago, I need an operation; all of us in the households travelled to Kaysone Phomvihane district for IPD services. It is true that the CBHI covered all the medical expenditure, but it was still cost a lot for us, because we have to pay for accommodation, food and transportation ourselves ..."*
>
> *(Insured respondent)*

<u>How household responsible for high cost of health services</u>

Based on the information found in the previous part, the researcher realizes health service expenditure may lead to financial catastrophe regardless to the insurance

status. This section will go over the patient households' coping mechanism for the inevitable health care cost.

In order to understand the coping mechanism in detail, the FGD sessions were carried out and the result shows that the solution implemented by both insured and uninsured respondents were very similar. The most reported ways to raise financial resource includes: using all available savings, liquidate their assets, and borrowing from relatives or friends.

Information retrieved from FGD shows households without any insurance covered were forced use their accumulated savings for health service

> *"... My father was sick and passed away 5 months ago, we used most of our savings to save his life but it was not work out ..."*
>
> *(Uninsured respondent)*

Insured respondents may have to sell their livestock in exchange for non-medical expenditure at the time of hospitalization. Besides selling their livestock some households raised their financial resources by selling their vehicles or other assets.

> *"...Two month ago there was a dengue fever outbreak, my wife admitted in the hospital for a week. We were in luck, because we didn't have to pay for health services. However, the non-medical expenditures were a lot, which forced us to sell some of our livestock in exchange for transportation, food and accommodation at the time of hospitalization..."*
>
> *(Insured respondent)*

> *"... My son was involved in the road accident; he had to stay in the hospital for about many days. I don't have money for health for his*

medical expenditure, so I decided to sell my motorcycle and TV to raise financial resource …"

(Uninsured respondent)

Other than raising financial sources by liquidating their assets, some households may try to borrow some money from family or friends.

"… I borrow a lot of money from my friends for my mum treatment for my wife treatment …"

(Insured respondent)

Regardless to the insurance status of respondents, high health service expenditure creates financial burden to any households. The financial problem becomes more serious for uninsured and poorest income quintile households with less than 1,000,000 LAK. Those households have lesser assets and savings available for inevitable health services expenditures. Due to the fact that they don't have enough savings, they finally borrow from friends and neighbors and pay them by installments. In order to be able to pay the installments patients households have to lower their subsistence expenditure such as: children food, school, electricity, and water expenditure.

"…Before my mum's death (9 months ago), I borrowed a lot of money from our neighbors. Now I'm trying to pay them back by installments. It was a crisis; we have to lower our expenditure in term of food, electricity and everything to pay them back as soon as possible…"

(Insured respondent)

Some households were unable to afford for the conventional health care method, they subsequently moved to the cheaper option i.e. Lao traditional method as follows:

"...My husband had a liver problem for years, we talked to the doctor in charge of his treatment. She told us that the treatment cost could be significant, we could not afford the cost. A friend of mine suggested me to go for the Lao traditional health practitioners. We didn't have a lot of choice so we have to take that option instead..'

(Uninsured respondent)

"... The health expenditure is so expensive for us, so we decided to go for the traditional medicine ..."

(Uninsured respondent)

4.6 CBHI Savannakhet Dropout Analysis

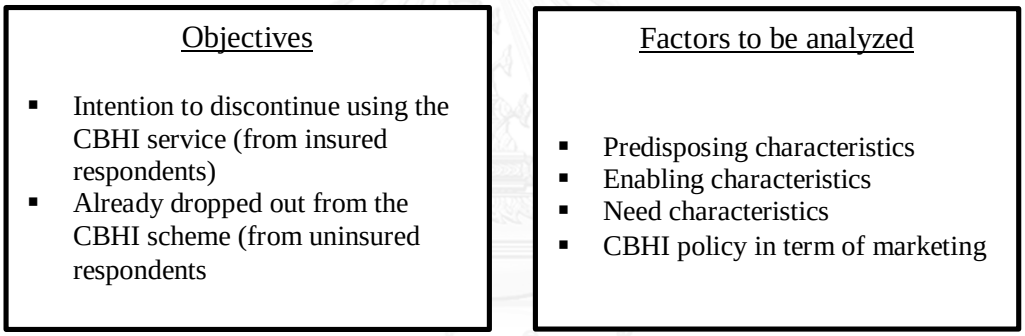
4.6.1 Background

CBHI scheme is being well known as a tool used to improve health system in many developing countries throughout the world (Asenso-Okyere, Osei-Akoto, Anum, & Appiah, 1997; Creese & Bennett, 1997) by pooling community members' financial resource to avoid financial catastrophe at the time of using health care services. The major difference from private for profit insurance is that insurance premium is based on community rated rather individual risk assessments. The ability to dissociate the time of service use and payment is considered as the strength of the CBHI scheme. However, most of the existing CBHI schemes are suffered from the lower than expected enrollment rates (Arhin, 1995; De Allegri, Sauerborn, Kouyate, & Flessa, 2009). In spite of the relatively high enrolment rates, some CBHI schemes reported to be immensely fluctuated in the amount of membership (La Concertation, 2004; Waelkens & Criel, 2004); in other words, those schemes are also having significant amount of membership dropout rate.

As mentioned earlier in the Chapter 1, it is reported that the dropout rate in Savannakhet province was significant at the time of conducting this research. As a result, this section will go over the reason why household members are more likely to drop out from the CBHI scheme in order to provide a critical evidence for the CBHI policy makers to improve the CBHI service in general. The lower dropout rate would consequently enhance CBHI financial stability and overall sustainability of the scheme.

4.6.2 Methodology

Figure 15: Dropout analysis framework



Once again the Andersen Behavioral model was used as a guideline to analyze the attitude towards the idea of dropping out or discontinuing their membership status. Recall that Andersen Behavioral Model consists of predisposing, enabling, and need characteristics as follows:

- Predisposing characteristic in this section includes knowledge and understandings the concept of risk pooling, basic information, as well as rule and regulation of the scheme in general.
- Enabling characteristic includes household's wealth or income as a proxy to the ability to afford for the CBHI premiums

- Need characteristics, the researcher used household member's health status as a factor that clarifies the issue related to adverse selection.

Besides that, CBHI policy organization, resources and the change of this factors overtime are also taken into consideration (Andersen, 1995), which includes marketing, advertising strategy, price discrimination and so forth.

In the qualitative data analysis process, the triangulation method and contents analysis were used to analyze the collected in formation. In addition, the analytical procedure also categorizing and reviewing the collected information based on interested theme. The meaningful and interested commenced were translated, categorized and reported in this research.

General information related to the CBHI membership status was retrieved from the structure questionnaire. In the questionnaire, insured respondents were asked if they are willing to continue their CBHI membership in the future, whereas uninsured respondents were asked if they used to be the CBHI members.

Table 39: Group of respondents on CBHI high dropout rate

	Description
Group 1	■ CBHI officer: 10 persons - Director of the CBHI Savannakhet: 1 person - Administration officers: 7 persons (4 persons from Kaysone Phomvihane district and 3 persons from Champhone district) - Hospital CBHI officers: 2 persons
Group 2	■ Uninsured respondents used to enroll in the CBHI scheme: 15 persons
Group 3	■ Insured respondents willing to discontinue their membership: 10 persons
Group 4	■ Insured respondents willing to continue their membership: 15 persons

Further explanation on the reason why insured household do not wish continue their membership status and the reason why some uninsured households ever be the CBHI members decided to quit the scheme were further analyzed in the FGD sessions.

Based on the information provided in Table 39, information related to the reason of dropping out from the CBHI scheme were retrieved from key informants (CBHI officers), and households. The key informants include director of CBHI, administration staff, and hospital CBHI officer were invited to participate the in-depth interview session, whereas the uninsured respondents used to be the CBHI members and insured respondent with the willingness to quit the scheme were invited to join the FGD session to find out the reason of discontinuing the scheme.

From the questionnaire, it is able to find out that there were 10 insured households willing to quit the scheme soon, in which all of them were invited to participate the FGD session. On the other hand, it shows that 116 insured households satisfy with the CBHI scheme and willing to continue paying the CBHI premiums. In this case, nine insured respondents (from 9 households) were systematically selected from the lists, due to the fact that more number of respondents in a single FGD session is considered to be difficult to control. There were 15 uninsured households reported that they used to enroll the CBHI scheme. The FGD for uninsured households were divided into 2 sessions, the first session consists of 7 respondents whilst there are 8 respondents in the second session.

The appointments with all the respondents were made by telephone (the phone numbers of respondents were available at the hospitals' OPD), the researcher lead the FGD session himself with the assistance from 2 nurses, who used to have qualitative data collection experiences. Before starting the FGD session, brief information related to the objective as well as the information consent were verbally given. Similar to other FGD session, the moderator have to create a nurturing and permissive environment to avoid pressuring respondent to plan, vote and reach consensus agreement (Krueger, 1988)

4.6.3 Results

Predisposing characteristics

Some information related to advertising and promoting was retrieved from CBHI officers by the in depth interview, to find out if the CBHI provide sufficient information about the rule and regulation to the target group. It is able to find out that, the scheme organized the CBHI promoting campaign in both urban and rural area within the Savannakhet province on a regular basis to ensure the understanding about the CBHI concept, rules and regulations to the possible CBHI enrollers.

> *"... We try our best to educate them as much as possible about the benefit, as well as rule and regulation of the scheme in general by organizing the CBHI promoting campaign in both urban and rural areas ..."*
>
> *(Administration office, CBHI))*

> *"...The promoting campaigns increase the incentive of enrolling the scheme, as they have more information about the scheme..."*
>
> *(Director, CBHI)*

Due to the target population's education level especially the group of population residing in rural areas, the promoting campaigns' processes have to be very slow and simple in an understandable way.

"... Because of their education background, the promoting campaigns are a bit difficult. We have to use very simple and informal words about the risk pooling concept, by telling them that if they purchase CBHI package without using any health care service they will gain merit as their money will enable other people to go use health care service as well..."

(Administration officer, CBHI)

"... We tell them that they would get merit from helping other CBHI members to be able to use health care service; in the case that they do not have a chance to take the CBHI benefit ..."

(Administration officer, CBHI)

According to the CBHI officers, several people didn't hesitate to enroll the scheme after the promoting campaign. The explained CBHI rules and regulation were fully understood by the target population. However, some of them opted not to enroll the scheme, cited that the scheme is unaffordable due to their households' burden and relatively high monthly premium rate.

" ... CBHI promoting campaign seems to be an effective method of increasing risk pooling condition. Lots of people simple enrolled the scheme at the time we promoted the scheme...."

(Director, CBHI)

"... Some stated they don't have enough financial resource to pay for the CBHI scheme on a regular basis..."

(Hospital CBHI officer)

The result from the structured questionnaire interview shows that several insured respondents stated that they might not continue their CBHI membership status. This group of respondents was asked to join the FGD and in-depth interview to assess their knowledge related to CBHI policy, risk pooling, and benefit of the scheme. From the FGD and in-depth interview, most of them do not really understand the risk-pooling concept. It seems that most of them care about the instant benefit rather than future benefit provided by the CBHI as they mentioned that they did not have any advantage of being CBHI members.

> *"... To be honest, we didn't get any advantage from being a CBHI member. We have been a member since 2010, but haven't used it at all. I think we may quit in the near future..."*
>
> *(Insured respondent)*

However, some of them do know about the risk-pooling concept, but for convenient reason they prefer to use private clinics. Some households prefer to use IPD services somewhere else in Thailand, because they believe the services provided are better and more reliable.

> *"... Actually we do know about the risk pooling concept and mechanism of the scheme. Paying a premium on a monthly premium is like paying an installment for a big operation. In reality, when my children were sick and needed for health care service, we mostly go to Mukdahan or private clinics. As a result, the scheme may not necessary for us..."*
>
> *(Insured respondent)*

“ … Paying a monthly premium is like saving financial resource for an unpredictable health. However, about 7 months ago when my wife had a stomach ulcer, I decided to take her to a private hospital in Mukdahan instead. The qualities of services provided are better. I think the provincial hospital is too dirty for patient. I don’t think we need the CBHI…”

(Insured respondent)

“… My daughter moved to Vientiane Capital for her study, 2 months ago she suffered from dengue fever. We took her to the Mahosot hospital (we thought that CBHI scheme covers all public hospitals), but in reality the CBHI scheme do not cover the health service utilization in other provinces. Since my daughter was the one who used health care service the most, the scheme may not necessary for us any more…”

(Insured respondent)

Other than insured respondents who have willingness to quit the scheme, the insured respondents who satisfied with the CBHI scheme also participated in the FGD and in-depth interviews to compare their altitude toward CBHI ‘s rule and regulation with those who have willingness to quit the scheme. It seems that insured respondents who satisfied with the CBHI scheme understand the rule and regulation very well, as they do not hesitate to pay CBHI premium in exchange for the health care service in the future.

"....After learning about the CBHI's rules and regulations. The premium rates set by the CBHI are reasonable compared to other costs in the market. As we don't expect the instant benefit of the scheme, we just consider a CBHI premium as an installment payment for future health service utilization ..."

(Insured respondent)

Household size could be another factor that affects willingness of continuing CBHI membership. An insured respondent mentioned that he and his family wish to continue a membership status as long as possible due to a large household size.

"... It is better for us to stick with the CBHI scheme; the reason is that we have a lot of household members. The larger household has higher probability of using health care service ..."

(Insured respondent)

Enabling characteristics

From the previous chapters, enabling characteristics of Andersen's behavioral model include insurance status, and household income level. This section aims to find out the willingness to discontinued membership status of the CBHI members (who are already insured). As a result, it is mostly focus on income level with respected to the willingness of dropping out from the scheme.

Information retrieved from FGD and in-depth interview shows that most of households do not wish to continued their membership status because unaffordable CBHI's premium.

"... We don't use the health care service very often, so I don't think it's worth to pay the premium on a regular basis ..."

(Insured respondent)

"... There are 10 people in my household. Hence, the CBHI premium costs us 33,000 a month. This amount of money is a lot for an agricultural household like us. It is better to use that amount of money on food and stationaries for our children ..."

(Insured respondent)

" ... In the recent years, the cost of living has been increasing gradually. There are 5 people on our household. As we don't want to pay 30,000 LAK a month, we may quit the scheme, and use that amount of money on something else ..."

(Insured respondent)

The CBHI were also invited to provide their opinion about the CBHI premium rate and existing members' willingness to pay with respected to their households' monthly income level. The CBHI officers in the CBHI provincial office stated that the premiums were set by the CBHI headquarter in Vientiane Capital; as a result, they cannot control the premium rate. However, the CBHI officers told us that the premiums are set at the very low and affordable rate for any income level.

"... The CBHI is not for profit insurance scheme; the premiums were set at the lowest possible way to ensure that they are affordable by any level of income in the informal sectors ..."

(Director, CBHI)

“ … The premium rates stay constant for more than 10 years regardless to inflations in the recent years, I don’t think the rates are unaffordable…”

(Administration officer, CBHI)

“… I think the premiums set by the CBHI headquarter are very low compared to the benefit related health service utilization in the future.

(Hospital CBHI officer)

The highest possible monthly premium rate is set to be 33,000 LAK for a big household with more than 8 people. The amount of 33,000 LAK is nothing; it is only equivalent to 5 kg of rice …”

(Administration officer, CBHI)

“ … We do understand that some households are reluctant to pay for the CBHI premium as they do not get any instant benefit from the scheme. This could be the reason why they want to quit the scheme…”

(Hospital CBHI officer)

Some respondents do not have any financial issue on paying the CBHI premium. However, the outcome shows that they wish to discontinue their CBHI membership status because they do not satisfy with the services provided by the contracted hospitals. Most of them prefer to use private clinic for OPD services, and Thai hospital for IPD service.

"... CBHI may not necessary for our household because we rarely use the service, couple month ago my wife had a stomach ulcer. We decided to take her to the Mukdahan International Hospital, because they provide better services and it is not that far from our hometown. Besides that doctor provide a very good recommendation in term of patient's diets for a speedy recovery"

(Insured respondent)

" ... Whenever my children are under the weather, I took them to a private clinic. It is more convenient for us rather waiting for such a long time at the contracted hospital...."

(Insured respondent)

"... Contracted hospitals are very dirty; we don't want to use it even the health care services are covered by the CBHI scheme. Health issue is the most important thing for us. We preferred to use more reliable hospitals in Thailand..."

(Insured respondent)

Need characteristics

Chronic condition was the only component of Andersen's behavioral model. In order to find out if households' chronic condition pay the important role in deciding whether to continued or discontinued their CBHI membership status; information were retrieved by using FGD and in-depth interview sessions from insured and uninsured respondents, and CBHI officers respectively.

"... Our grandma's health condition is not very good; we have to use health care service at the provincial hospital very often. CBHI health care scheme is

very useful for our household. It immensely reduces our financial expenditure; we will stick with the CBHI scheme as long as possible …"

(Insured respondent)

"… We have a lot of elderlies in our households; it is a must for us to join the CBHI. Otherwise health care expenditure will take all of our household's income.

(Insured respondent)

In contrast some household with a chronic condition may have willingness to quit a scheme. They state that they wish to seek for health care service somewhere else other than CBHI contracted hospitals

"…At that time we were insured by the CBHI scheme, my husband found out that he had a liver problem, we decided to go to a hospital in Thailand for his treatment because lots of people recommended us that Thai Hospitals are more reliable and better services. We felt that CBHI scheme may not necessary for our household (as we preferred the Thai hospitals). We finally quit the scheme about one year ago… "

(Uninsured respondent)

The CBHI officers at provincial level stated that some households enrolled CBHI on propose because one of their household members has a health problem that needs a planned operation or longtime treatment. This issue is directly related to the adverse selection problem, in which households' demand for insurance is positively associated with their risk of loss. In order words, households that have some health issues have greater willingness to purchase health insurance packages.

“ … Lots of people enrolled the scheme on purpose, they enrolled the scheme then wait for about 7 month or until they are eligible to have a planned operation. After an operation, they stopped paying the premium to automatically cancel their membership status. They don’t really care about their membership status because they can always enroll the scheme once gain by following the identical procedure…”

(Director, CBHI)

“ … We should have a better gate keeping mechanism to control the issue related to adverse selection …”

(Administration officer, CBHI)

4.7 Savannakhet CBHI’s implementation and practice

4.7.1 Background

In developing countries health financing is an important mechanism that lower financial burden related to health services expenditure for the relatively poor households. Since CBHI is a not-for-profit organization, there is a question mark on the improvement in term of accessibility to health care services and financial protection against catastrophic expenditure related to health care services.

The goal of developing health financing is to ensure that there is a sufficient fund available for the relatively low-income households to be able to use hospital services without any financial barrier. As already mentioned earlier, health financing includes 3 specific function i.e. collecting revenue, revenue (fund) pooling, and purchasing health services.

The main objective of this section is to evaluate the effectiveness CBHI scheme implemented in Savannakhet province. Similar to the previous section of this

research, a brief methodological framework was introduced to remind readers about the overview of the research process.

4.7.2 Methodology

This section is mainly focus on the impact of CBHI on health providers (mostly public hospital), implementation of the scheme in general, as well as implication in order to increase accessibility and quality of health service received for the households resided in the rural area of Savannakhet province. A qualitative study design (which includes in-depth interview and FGD was applied in this section to be able to capture all the information related to implementation process of the CBHI in detail.

The researcher purposively selected 3 groups of respondents involved in the CBHI in general to participate in the in-depth interview and FGD sessions as follows:

- CBHI officers, which includes the CBHI director, administration team, and hospital CBHI officers of Savannakhet province (in-depth interview) as indicated in Table 39
    - Director of the CBHI Savannakhet: 1 person
    - Administration officers: 7 persons (4 persons from Kaysone Phomvihane district and 3 persons from Champhone district)
    - Hospital CBHI officers: 2 persons
- Department of Health officers (In-depth interview)
    - Deputy head of department of health (Savannakhet province): 1 person
- Health personnel in the contracted hospitals, in this study there are 2 contracted hospital i.e. Savannakhet provincial hospital in Kaysone Phomvihane district and Champhone district hospital in Champhone district (In-depth interview):
    - Provincial hospital director (Kaysone Phomvihane): 1 person

- District hospital director (Champhone): 1 person

- CBHI members, who received the direct benefit from the CBHI scheme / insured respondents willing to continue their membership (FGD): 9 persons as indicated in Table 39

  Notes: none of the insured respondent willing to discount their membership received the benefit from the CBHI in the previous year.

The CBHI implementation process was discussed with key informants regarding to the CBHI's 3 major components:

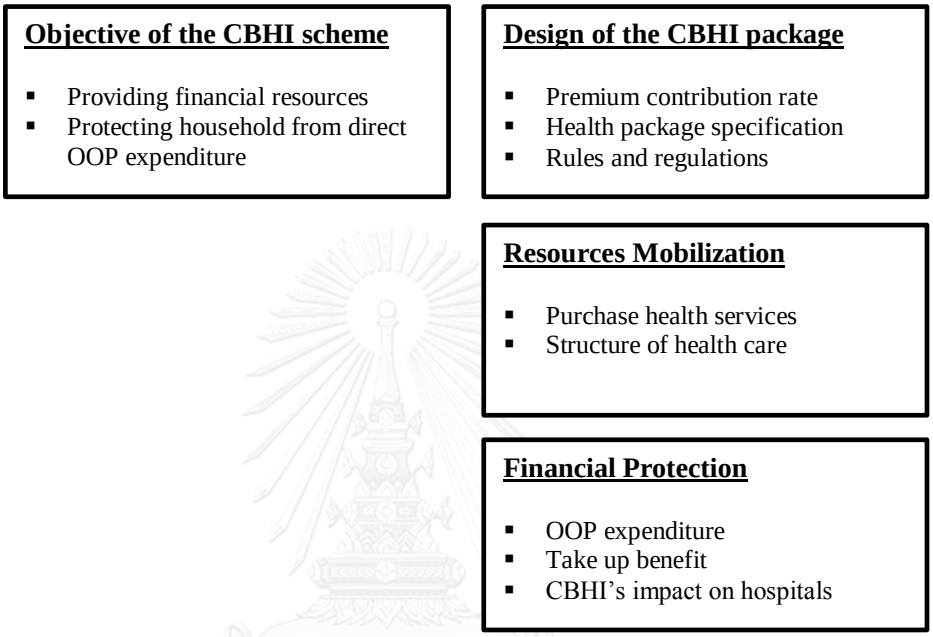
- Health care package of the CBHI scheme
- Financial protection
- Resource mobilization

In each 3 components, several aspects including attitude towards the CBHI scheme, CBHI's impact to the contract hospitals, and implication of the members were discussed in detail based on positions of participants in in-depth interview and FGD sessions. All participants were expected to show their attitude toward each component of the CBHI scheme.

Different dimension were analyzed in each group by qualitative data collection process. Specifically, the issue related to implementation process and constrains of the CBHI were expected to be deeply discussed with the CBHI officers (the director and other administration officers of CBHI Savannakhet province). On the other hand, the health personnel including health administration officers of Department of Health, Director of Savannakhet provincial hospital and director of Champhone district hospital were expected to provide information related to problem and

impacts of the CBHI scheme on health facilities. The issue related to accessibility and quality of health services were retrieved from randomly selected CBHI members.

Figure 16: CBHI's analysis framework



4.7.3. Results

Findings of this section are presented with respected to the factors influencing the CBHI's objectives i.e. design and structure of the CBHI, resource mobilization, and financial protection. The researcher includes number of opinions from all groups of respondents/ stakeholders in several aspects: implication for household in rural areas, impact on contracted hospital, attitude towards the CBHI health care package as well as implementation of the CBHI scheme.

Design and structure of the CBHI

Initially the CBHI scheme was launched in 2001 as a Ministry of Health pilot project, which technically and financially supported by WHO and United Nations Human

Security Fund (retrieved from CBHI understanding and impacts, the world bank, 2010). The CBHI scheme is known as a one of the main risk-protection schemes in Laos that specifically targets the informal workforce, who are working in the informal economy including self-employed and are not being covered by any other type of health insurance. The other health care schemes are Civil Servants' Scheme (CSS), Social Health Insurance (SHI) for state and private-owned enterprises and Health Equity Fund (HEFs) for the very poor household (mostly in rural areas).

CBHI is divided into 3 administration levels as follows:

National level, its major role is designing the CBHI policy in general, which includes premium rates, and payment to the contracted hospital based on the existing economic status, as well as the recommendation or request from the provincial and district level. The national level CBHI also has to report the important issue related to the CBHI to the Ministry of Health on a regular basis.

Provincial level's role is to analyze possibility of expanding the coverage of the scheme then report to the national level. Provincial level also expects to provide the solution for the problem that may occur between CBHI at district level and contracted hospitals. Besides, they have to report about the general situation and problem occurred to the national level.

CBHI at district level is in charge of collecting and managing the fund, signing the contract with contracted hospitals, and inspecting the quality of service provided. The district CBHI offices have to transfer the collected premium to contracted hospital. However the amount of money transferred, monthly premium rate, and benefit package offered by the CBHI scheme are depending on the national level. In addition, district level CBHI also responsible to provide the basic knowledge and promote the scheme to the target population in the supervised area in order to increase membership number as well as risk pooling condition. They have right to cancel payment to the contracted hospitals in case the hospitals do not provide

adequate services in term of quality to the CBHI members or if the contracted hospitals fail to report about the take up benefit and membership conditions in timely fashion. Furthermore, if there is a problem between members and contract hospital, it's the CBHI's role to negotiate and provide an appropriated solution.

> *"...CBHI administration is divided into 3 levels: national, provincial and district level. As we are at the provincial level we have to follow the policy set by the national level in term of policy and premium rates..."*
>
> *(Director, CBHI)*

> *" ... If the contracted hospital fails to provide adequate service to out we have right to cancel the payment ..."*
>
> *(Administration officer, CBHI)*

> *"... If the problem occurred between contracted hospital and CBHI members, we will try our best to negotiate in an amicable way ..."*
>
> *(Director, CBHI)*

> *"...We have to write the report to the national level about the overall condition, problem and possible solutions to the national level on a regular basis ..."*
>
> *(Director, CBHI)*

CBHI's premium rates are collected differently between Vientiane Capital and other provinces. In Vientiane Capital, the rates depend on two factors: choice of insurance package and number of people in the household. On the other hand, premium rates in other provinces are based on 2 important households' characteristics i.e. areas of residents and households' sizes. Areas of residents were divided into 2 categories based on socio-economic condition, Area A refers to a relatively better economic

areas whereas Area B refers to the smaller economic areas. In this study, Kaysone Phomvihane district is categorized as Area A, on the other hand, Champhone district is categorized as Area B.

Before launching and operating the scheme, the Lao government realizes that there are a lot of populations in the informal sector of the economy not being covered by any type of private insurance; most of them belong to the relatively poor income quintiles. As a result, out-of-pocket expenditure was the only option for this group of population; the poor households have very limited accessibility to health care facilities due to unaffordable health care services costs. Hence, illness could be a serious problem not only their health but also financial condition in both short and longer term as well.

> *"... Lots of patient demands for proper health care service, but they don't have enough financial resource to pay out-of-pocket. Hence, our government realized the advantage of risk pooling mechanism. The CBHI was developed to protect household from pay out-of-pocket..."*
>
> *(Administration, officer)*

In term of role and regulation of the scheme, the CBHI health care coverage begins after two consecutive month of premium payment. The coverage becomes larger as the duration of enrolment increased as follows:

Table 40: Take up of CBHI benefit

Duration of membership	CBHI's coverage
2 Months	OPD services
4 Months	IPD service and emergency surgeries
7 Months	IPD service and planned surgeries

Table 40 shows that the enrolled household could not instantly use the CBHI health care package after the initial premium payment. The benefit package starts at the second month of membership with the rights of using OPD services. The IPD services and emergency surgery are allowed after 4 consecutive month of premium payment, while planned surgeries are allowed after 7 months of membership. The membership status is ended if household fails to pay the premium for 2 consecutive months.

Income of the CBHI mainly comes from 4 major sources: premium collected from the CBHI members, grant aid from local and international donors, HEF (the purchase may be government or INGO who purchase CBHI package for the very poor household), and government allowance for CBHI scheme.

After collecting the premium, CBHI officers at the district level transferred 80% of the collected premium fund to the district hospital in Kaysone Phomvihane district, the rest of 20% is transferred to the district hospital. The premium rates at the provincial level other than Vientiane Capital have been constant in the past 10 years regardless to the change in cost of living and inflation. Besides that the CBHI's operational costs have been increased in the pass years. As a result, the annual premiums paid by household were not adequate for the cost of contracted hospitals of both Kaysone Phomvihane and Champhone districts.

The administration cost of the scheme is deducted from the collected premium is deducted from the collected monthly premium, but no more than 10% of the total amount. In order to increase the incentive of village level financial officers, at the time of collecting premium, 1000 LAK is given for each for each existing member, whereas 2000 LAK is given for each new member as the commission fee.

> *"... To make village level financial officers work harder, they are given 1000 LAK once the money is collected from CBHI members. They are given at the higher amount of 2000LAK if it is collected from the new CBHI member ..."*
>
> *(Administration officer, CBHI)*

" ... The premium rates are the exactly the same for many years, whilst all the expenditure increases ..."

(Administration officer, CBHI)

" ... The premium rates are very low; it is unable to cover all the claims from the contract hospital ..."

(CBHI director)

" ... The CBHI cannot pay all the health expenditure for it members; the government has to subsidize all the expenditures ..."

(Deputy Head, Department of Health)

Recall that the CBHI target the informal workers in the economy, those informal workers comprise of 80% of total population in Laos (Khamphan, 2013). Most informal workers belong to the poor income quintiles. One of the hospital CBHI officers states that the premium rates are still expenditure to the very poor families in rural area.

"... As a CBHI office I do realize that the premium rates are not a lot compared to the benefit received. However, some household with many members cannot afford the monthly premium ..."

(Hospital CBHI officer)

"... I think the premium rate is expensive for a farmer household like us, because our household's month income is only 400,000 LAK. We have 10 people the premium rate is 28,000 LAK ... but it is still worth it"

(Insured respondent)

Both OPD and IPD services are covered by the CBHI scheme regardless to the costs of treatment. In other word, there is no exemption or financial ceiling for the cost of

health service utilization at the contract hospital. However, as mentioned in the literature review, some treatments are not covered in the CBHI package for instance: dental services, eyeglasses services, blood and organ transplant, deliberate self-harm and so forth.

There are 3 types of contracted health facilities

- Provincial hospital for both IPD and OPD services
- District hospital for both IPD and OPD services
- Local health facilities for OPD service only

Before going to the district hospital members are encouraged to go to the local health facilities (for convenient reason); however, they can directly go to the district without local health facility's permission. On the other hand, insured households are not eligible use provincial hospital directly other than insured households resided in Kaysone Phomvihane district (Because they are required to pay higher premiums). At the end of the month, head of local health facilities (village level health facilities) needs to report about member's health service utilizations.

In case of requiring health service utilization, the procedure of acquiring CBHI health services is as follows

- District A residents: district A includes Kaysone Phomvihane district, member reside in this area can directly visit the provincial hospital for both OPD and IPD services.
- District B residents: district B includes Champhone distict, members reside in area B have to visit either local health facility or district hospital first, after receiving the permission from the district hospital they are able to go to the provincial hospital in Kaysone Phomvihane district. In case of emergency, residents in district B can directly visit the provincial hospital; however,

patient's household have to submit the letter to district B hospital for the authorization document to be used as a reference within 48 hours.

Notes: CBHI do not cover the health service utilization in other provinces

The CBHI members agree that the scheme provide the positive impact in reducing health services costs. However, most of them feel that the rule related to health care faculties should be more relaxed.

"... I think CBHI is an excellent scheme, but the CBHI scheme should have allow us (who live in district B) to directly use the provincial hospital without any authorization from district hospital..."

(Insured respondent)

"... As a resident in Kaysone Phomvihane district, I think the CBHI should cover the health service utilization in other provinces in case of emergency. One of my children is currently studying in Vientiane; in order to be covered by the CBHI scheme, she needs to go back to Savannakhet Provincial hospital for health care service..."

(Insured respondent)

According to the CBHI's rules and regulations, enrolled households are eligible to use any health facility within the province. In case that the members have to use the health service in other province, their households have to advance the payment for health service utilization. The patients' households have rights to claim for health service expenditure reimbursement with the CBHI scheme. The problem is that the claiming process is complicated and time consuming because households have to prove that the health service utilizations were really emergency and necessary

"... To be honest, in theory the insured household have right to claim for health service utilization in other province. However, the process is very

difficult and time consuming in practice. Most of the claims were rejected, simply because they don't have enough evidence..."

(Administration officer, CBHI)

The CBHI scheme is operated under the voluntary basis; hence the targeted population i.e. independent workers can make their own choice whether to enroll or not to enroll the scheme. Similar to any other health insurance scheme insurance scheme, the scheme becomes sustainable and viable with more people joining the scheme as membership size plays the important role in diversifying risk by increasing risk-pooling condition. Other than creating risk-pooling condition more people in the scheme also creates economy of scale, which enables lower operating costs. In other words, economy of scale in term of insurance refers to the ability to lower transaction costs by receiving better deals from health care providers due to the larger scale of membership.

Despite many people enrolling the scheme, the total loss of the scheme could significantly greater than the income of the scheme (if majority of people use the health care services), which simultaneously leads the scheme to financial difficulties.

"... As the scheme provide a lot of advantage to the member in term IPD and OPD service, and we are in the process of expanding the coverage area of the scheme, the number of membership is increasing every year ..."

(CBHI director)

In conclusion, CBHI scheme is available for anyone regardless to their health condition and social economic status. The CBHI offers both OPD and IPD in contracted health facilities, which categorized into 3 levels i.e. provincial hospital, district hospital and local health facility. The premium rate is very low compared to the possible service received. The findings of this study show that most of the insured respondents satisfied with the services provided by CBHI officers and contracted hospitals.

Majority of insured respondents stated that they realized the benefit about the CBHI from the head of village, CBHI scheme campaign and friends. However, significant numbers of uninsured respondents do not have idea about the CBHI scheme.
Some respondents do not fully satisfy with the flexibility in term of choice of s. CBHI members resides in district B are unable to directly use health care service in provincial hospital until achieving authorization from the closest district hospital. In case of using health service in other provinces, in theory the insured have right to request for the reimbursement; however, the implementation process is very difficult and time consuming in practice. Most of the insured respondents ended up with nothing as reimbursement.

Resource mobilization

Both CBHI and health provider administration officers admit that CBHI plays the important role in mobilizing resource from one group to another group. According to FGD and in-depth interview, the key informants state that some poor people in the urban area have relatively higher demand in health service utilization in comparison with their ability to pay. Due to the huge expenditure, the poor households forego using health care service as much as possible by using alternative medicine or self-prescription. It is reported that most of the poor households do not go to hospital immediately; they opt to use health care service when their health condition deteriorated.

It is able to find out that some household have to tradeoff between health service utilization and several subsistence expenditures for instance food, clothing, children's school fee and so forth. In the worse scenario, high health expenditures forced those households to sell their assets, livestock and properties in exchange for hospitalization. The existence of health insurance scheme and resource mobilization enables low-income households to access health facilities without significant health expenditure

Recall that the main objective of establishing the CBHI scheme is to increase accessibility to health care facilities and to lower financial burden related to health service utilization. The process of creating risk pooling condition and resource mobilization requires a close relationship between contracted hospitals and insurance schemes. Based on the information retrieved from qualitative data collection, collected premium do not provided adequate financial resource for health providers' cost, because of the excess health service utilization of CBHI members in the contracted hospitals.

"…. The total fund from premium collection is not enough for the cost of health service, and medicine used in the provincial hospital. The government has to subsidize the rest …"

(Provincial hospital director)

"… Because the premium rates are very low, the total amount of collected premium is not enough for the total health care service cost. The best thing we can do is to pay contracted hospitals as much as possible; the shortage amount was subsidized by the government…"

(CBHI administration officer)

As mentioned earlier, medical checkup is not needed to apply for the CBHI membership. As a result everyone in the formal economy including vulnerable group is eligible to join the scheme for equity reason.

"… Medical checkup for enrollment is not needed; everyone in the formal economy is welcome to be CBHI members …"

(CBHI administration officer)

"… CBHI has played the significant role in creating opportunity for poor to be able to access health care facilities…"

(District hospital director)

CBHI have contributed a lot of financial resource for contracted hospital in the past years. In other word, after the establishment of the CBHI scheme, the health service demand in both district and provincial hospital becomes higher, since patients' households do not bear the full cost of hospitalizations. Besides creating more customers as well as income for health facilities, the availability of CBHI scheme also increase the incentive of using local health facilities rather than going to Mukdahan province for health care services.

> *"... Regardless to the ability to pay of the CBHI scheme, the scheme creates a lot of incentive for patients to visit hospital, which generates a lot of revenue (from both CBHI and government subsidy) ..."*
>
> *(Provincial hospital director)*

> *"... Because I have a CBHI insurance package, it is free for me to go to the provincial hospital. I don't have to go to Mukdahan for OPD service..."*
>
> *(Insured respondents)*

Revenue collected by village level CBHI financial officers were gathered at the district level. The district level CBHI offices transfer 80% of their collected fund to the provincial level for the provincial hospital; the rest of the fund is reserved for the district level health facilities. The total fund were pool only at the provincial level, because the premium collected as well as rules and regulations are different in some provinces.

From the FDG and in-depth interview, it is reported that there are a lot of insured patients from both Kaysone Phomvihane district, and other districts who are transferred from district hospitals.

“ … Because the CBHI schemes ease the accessibility to health care service, more insured patients from both Kaysone Phomvihane and other districts come and use the health care service at the provincial hospital …”

(Provincial hospital director)

The moral hazard problem seems to be inevitable for the Savannakhet CBHI scheme as there is no gate keeping mechanism. Recall that the CBHI members have right to have right to use OPD service after being CBHI members for 2 months, 4 months for emergency operations, and 7 months for planned operations. The outcome of this study shows that lots of households stop paying their premium (for two consecutive months) after their planned operations, which automatically cancel their membership status.

“…From my experience, I found that lots of people do not pay the CBHI premium after their operations as they want to quit the scheme. It seems that they intentionally wait for the planned operations… The mechanism of this scheme could deliberately destroy by this practice…”

(Director, CBHI)

“… I think the national level CBHI office should issue some gate keeping policy to minimize the moral hazard issues…”

(Director, CBHI)

In general the relationship between provincial CBHI office and contract is very good. Most of the CBHI administration officers used to work as medical doctors in the provincial as well as district hospitals in the past. The CBHI scheme generates more revenue to both contract hospital and health care personnel, as more people use health services. According to administration officers in the provincial hospitals, it is revealed that the CBHI office does not make any late payment for health service utilization for insured patients. On the other hand, the contracted hospitals provide a

very transparent transaction related to the health service utilization of the insured respondents.

> *"... It is very easy to work with the CBHI scheme, the administration officers used to be my colleague at the provincial hospital. They rarely make a late payment for insured patients' health service utilization..."*
>
> *(Provincial hospital director)*

> *"... The contracted hospitals always submit us transparent and understandable reported about the insured patients' health service utilization..."*
>
> *(Director, CBHI)*

CHAPTER 5: DISCUSSION

5.1 Introduction

The discussion part once again presents and summarizes the overall methodology and data analysis in general. It is also included the comparison between the research outcome and broader literatures in the related field i.e. Community Based Health Insurance (CBHI), health policy, and the effectiveness of health financing policy in the global perspective, South East Asian, and finally lowering into the local scenario.

Recall that primary aims of the situation analysis part is to find out the effectiveness of the CBHI scheme in term of health service accessibility, financial protection, high dropout rate, and implementation of the CBHI scheme in general. The conceptual framework was adopted from Andersen Behavioral model. In which, independent variables were based on Andersen Behavioral models. On the other hand, the dependent variables of this study were derived from the study's objectives, which include: health service accessibility, and financial protection against catastrophic expenditure of the scheme. The next part of this chapter will go over the discussion of pros and cons related to the methodological issue followed by the summary and discussion with respected to the previous related literatures.

5.2. Methodology

As previously mentioned in the chapter 3, this study applied a mixed method study design, in which both quantitative and qualitative approaches were used in the data collection process to be able to fulfill all the objectives of this research. Structure questionnaire method was used in the quantitative part; it is used to assess socio-demographic, information about the CBHI scheme, up take of CBHI benefit, morbidity, socio economic, health service accessibility, and satisfaction with IPD services. On the other hand, in-depth interviews and FGD sessions were applied in the qualitative part. The FGD was used to retrieve information from the selected household, which

includes both insured and uninsured respondents in the selected cases; whereas the key informants from contracted hospital, department of health, and CBHI organization were invited to participate in the in-depth interview sessions. The main objective of qualitative data collection is to retrieve some explanation (how and why) related to the factor of interest, which could not be done by using a structured questionnaire.

5.2.1 Structured questionnaire

The main objective of quantitative part is to find out the differences between insured and uninsured households in term of health service accessibility financial protection of the CBHI scheme. First of all, the strength of implementing structured questionnaire is that the questionnaire provides accurate information related to households' socio-economics and health condition of both insured and uninsured respondents. The study sites includes 2 districts Savannakhet province, where the CBHI scheme available and affordable by large number of households. The outcomes from structured questionnaire were also used to identify the group of insured and uninsured households to participate in the FGD (uninsured households that used to be CBHI members, insured households with the willingness to quit the scheme, and respondents suffered from chronic condition) and exploring other research objectives. Despite a broad scope of research, including health service accessibility and financial protection; the cost of data collection process was relatively low, this is considered as the strength of using structured questionnaire.

The data collection process was implemented in 2 randomly selected hospitals from 2 districts: Savannakhet provincial hospital (Kaysone Phomvihane district), and Champhone district hospital (Champhone district), as it is not possible to identify CBHI insured and uninsured household within the 2 districts. The sample was not drawn from the total or general population, but from the CBHI contracted hospitals; the problem is respondents may not be significantly different in term of health service belief, family structure, and socio-economic status. Since the data collection

was processed at hospitals, the respondents are more likely to suffer from chronic health problem. In order to minimize this bias, both insured and uninsured respondents were solely selected from OPD, due to the fact that patients at IPD are more likely to have chronic health issues. The data collection process does not include the time at the hospital during the interview, but retrospectively retrieved information related to the IPD one year prior to the interview.

In term of socio economic status, the structure questionnaire was only designed to assess only cash income and expenditure of household. Hence the total cash income and expenditure could possibly underestimate, due to fact that there's no market available in some places of rural area, the Lao population do not always use cash as the medium of exchange for instance: they usually use paddy in exchange for clothing, livestock and so forth. Some household in the rural area have at least 1 family/household member working elsewhere and remit some financial resources back to their family on a monthly basis, the remittance was also include as a household's income. Another challenging problem related to the socio economic issue is that the CBHI scheme is exclusively designed for independent workers, not belong to any organization, which means that those group of people do not have a constant income; to overcome this challenge, we enquired respondents about the average income and expenditure on a monthly basis.

According to the interview, it seems that both insured and uninsured respondents may report their expense more than the actual amount in order to show that they had a lot of financial burden and difficulties. The structured questionnaire separately reported medical and non-medical expenditure; to minimize the over-reported health service expenditure, the self-reported medical expenditures were crosschecked from contracted hospitals, whereas non-medical expenditure was triangulated to retrieve the actual cost as much as possible. As a result, a possible weakness of this research was difficulty of identifying detail data related to non-medical expenditure, since most respondents reported extremely high transportation and accommodation costs.

Table 41: TOWS matrix of applying quantitative data collection

	Strengths	Weaknesses
Quantitative data collection by using structured questionnaire interview	▪ Accurately assess information ▪ Relatively low cost and time consuming ▪ Expenditures were divided into medical and non-medical sections ▪ Separately developed questionnaire for insured and uninsured respondent ▪ The data collection was process by trained interviewers/ research assistance	▪ Sample were collected from hospitals, respondents may be more likely to suffer from chronic condition ▪ Health expenditure may be over reported by respondents
Opportunities ▪ Easy for respondents to answer the question ▪ Large number of respondents	Opportunities + Strengths ▪ Questionnaire can be conveniently re-checked by interviewers ▪ Easy to transfer information from questionnaire to SPPS ▪ Large number of respondents enables randomization process	Opportunities + Weaknesses ▪ Respondents were only selected from OPD section to minimize respondents' chronic problem. ▪ Medical expenditures were crosschecked from contracted hospitals
Threats ▪ Some respondents are illiterate ▪ Respondents may not read the questionnaire thoroughly ▪ Respondents may not willing to participate	Threats + Strengths ▪ Research assistances carefully read and fill the questionnaires for those who are illiterate ▪ Before starting the interview, research assistance carefully explained the study's objectives ▪ It is possible to skip for the new respondents (lots of respondents available in the hospital for selection)	Threat + Weaknesses ▪ Some information related to related to the respondents such as: chronic condition were also retrieved from health care personnel ▪ Interview by using a triangulation method to minimize the overestimated/reported health care expenditure. ▪ Crosschecking the medical expenditures with contracted hospitals

The TOWS Matrix illustrates more detail about the advantages and disadvantages of using structured questionnaire interview. First of all the, the notable strength was that structured interview allows to accurately assess information related to respondents in timely fashion without huge amount of financial expenditure. Medical and non-medical expenditures were separately reported, so that it is more convenient to crosscheck and triangulate the amount of total health utilization expenditure. The opportunities in the TOWS analysis refers to the convenient during the data collection, for instance: there were wide selections of insured and uninsured households available in the contract hospitals so that it is possible to skip to the next respondents if they are not willing to participate (threat, the problem that may occur during the interview process). Another strength of conducting structured questionnaire was that it is easy for the research assistants/ interviewers to recheck the completeness of the questionnaire, due to the fact that the data collections were implemented in the rural area, some respondents are illiterate so that they are unable to complete the questionnaires themselves; in this case, the research assistants were expected to fill in the questionnaire for them. The possible bias from implementing data collection at hospitals (more likely to have chronic health problem) was minimized by excluding respondents from IPD section.

5.2.2 FGD and in-depth interview

Focus group discussion (FGD) was used to retrieve deeper information previously observed from the structured questionnaire interview. The FGD focused on finding information related to what and why in difference positions. The aims of conduction FGD sessions are to find out the reason of high dropout rate in the previous years, satisfaction of CBHI and contract health facilities, magnitude of financial catastrophe due to health service utilization and so forth. The respondents in the FGD session includes insured households with the willingness to quit the scheme, uninsured respondents used to enroll the scheme, and respondent with catastrophic expenditure; in which those respondents' characteristics were identified earlier by

structured questionnaire interviews. During the FGD, it showed that both insured and uninsured respondents were willing to share their experience in very friendly and open way; this is possibly due to the fact that the researcher was not a shareholder in the CBHI scheme or involving in the government sector. They were not hesitated to reveal the truth about the CBHI scheme and contract hospitals, which includes both satisfied and unsatisfied information.

Key informants from CBHI scheme, contracted hospitals, health department were invited to the in-depth interview sessions. Before conducting the in-depth interview, the researcher was granted the permission and facilitated by the head of Department of Health of Savannkhet Province. Throughout the in-depth interview sessions, the key informants did not hesitate to share their experience and knowledge about rules and regulation, problems, performance, and management mechanism in open way. The information retrieved were understandable and constructive criticism over the rules and regulations of the scheme, especially in term of premium rates, and gate keeping mechanism that prevents CBHI members from dropping out the scheme. The selections of key informants were based on their responsibility within the interested organization to ensure that they are able to clearly clarify about the topic of interest.

Last but not least, the Tows matrix of qualitative data collection summarized the advantages and disadvantages about this data collection method. The strength of all qualitative data collection is that it was able to gather more information about what and why in different point of views. In contrast, respondents may not willing to criticize the CBHI scheme and the contracted hospital can be considered as the weakness; to overcome this problem the researchers needed to inform the respondents that this research's outcome would provide the direct and indirect benefit to the CBHI and the researchers were not belong to CBHI or contract hospitals.

There were some notable opportunities, for instance there were adequate number of insured and uninsured households which are eligible for the FGD and in-depth

interview. Hence it was possible for the researcher to skip or change to other households, in the case that they were unable to participate the FGD session. The time consuming process of conducting FGD session was considered as a threat, the reason is the education level of CBHI target group was relatively low compared to the civil servant and employee which belong to CSS and SSO respectively. From this point, the interviewers had to triangulate in the interview process to be able to access the most reliable information.

Table 42: TOWS matrix of applying qualitative data collection

	Strengths	Weaknesses
Qualitative data collection by FGD and in-depth interview	▪ Able to access the complex information from respondents and key informants ▪ The qualitative data collection also provide the explanation on what and why in different aspects ▪ The data collection was process by trained interviewers/ research assistance	▪ Respondents may not dare to criticize the scheme as well as the contracted hospital ▪ Key informants may not willing to reveal the truth and criticizing their own colleagues
Opportunities ▪ From the structured questionnaire interview, there was an adequate number of insured and uninsured respondents, who are eligible to participate in the FGD session ▪ Key informants in the related organizations are willing to participate	**Opportunities + Strengths** ▪ Adequate number of eligible respondents make it possible to access the reliable information by skipping to other households	**Opportunities + Weaknesses** ▪ Presenting about the expected benefit from the study's outcomes, so that the key informants and respondents are not reluctant to share knowledge and experiences.
Threats ▪ Some eligible respondents are illiterate or very low education level. ▪ Some eligible respondents may not willing to participate ▪ Key informants may not available to join the in-depth interview during the data collection process'	**Threats + Strengths** ▪ Interviewers need to take more time in explaining the topic of discussion ▪ Interviewers need to triangulate in the interview process in order to access the most accurate information ▪ Finding another perfect substitute key informants ▪ More flexible in term of times and location of interview	**Threat + Weaknesses** ▪ Information were kept confidential ▪ The researchers are not belong to any related organization

5.3 Discussion on research's outcome

The outcomes of this study were discussed in this section with respected to the previous studies' outcomes and findings. First of all, the discussion was discussed about the result of objective 1, the differences in term of health service accessibility between insured and uninsured respondent by focusing on health seeking behavior of households. Secondly, the role of financial protection was also discussed including the related issue for instance: financial catastrophe, health related expenditure (medical and nonmedical expenditures). The Third part involved with respondents' reason to discontinue CBHI membership, satisfaction of CBHI scheme as well as contracted hospitals. Last but not least, this chapter also analyzed about the existing rules and regulations of the CBHI in order to provide the possible policy recommendation in the next chapter.

5.3.1 Health service accessibility

Respondents' socio-demographic

As previously mentioned in the methodology, the numbers of insured and uninsured households were equally divided into 126 households. The respondents as households' representatives were male, aged more than 50 years old, the normal age range for a household's head in Laos. Regardless to the insurance status, most of the respondents were farmers in the second poorest income quintile (1,000,000 to 2,500,000 LAK). The family sizes in the study were categorized into 2 sizes: small (less than 1-4 people), and large (more than 5 people); in this studies the most reported household size was "large". The education status were categorized into 5 levels: never attended school, primary school, lower secondary school, high school, and university or higher; in which the highest level of most respondents was primary school (grade 5).

The result from the logistic regress model 1 (accessibility to health services) shows that the smaller households were slightly having higher probability of hospitalization

(yet, it is not statistically significant at 95% confident interval). This outcome is similar to a research from Zimbabwe, which found that larger households have bigger burden of expenditure and this factor limits their chance of getting to proper health services (Zigora, 1996).

The study initially included religion as one of the independent variables; however, the result shows that all respondents were Buddhism, so that we decided to omit this factor in the analysis. The education level of respondents was generally low in which only 6 households (3 insured and 3 uninsured households) of respondents completed the university degrees; the reason is that people with higher education background were mostly targeted by other health care scheme i.e. Civil Servant Scheme (CSS) for civil servants, and Social Security Organization (SSO) for employees in private sectors.

As the CBHI aims to improve health service accessibility and financial protection to the independent workers regardless to the income level, most them were belong to the poor income quintiles, none of the CBHI insured respondents belonged to the richest income quintile. Most of the rich households in the informal economy (which includes business owner and landlords) prefer to use health care facilities somewhere else especially in Thailand.

Factors influencing CBHI enrollment

Number of children in respondents' households was taken into account in order to identify the reasons of CBHI enrollments. According to the FGD session, households with lots of children stated that they are not willing to enroll the CBHI scheme, since they already have a lot of expenditure on a regular basis. It is in tandem with a previous research (Mwabu, 1998) which reveals that smaller families have higher incentive to enroll the scheme in comparison to the larger families, because smaller families have better family planner than larger families.

According to the key informants from in-depth interview session, the number of eligible group of population for the CBHI scheme was very big. However, the actual number of enrolled households was surprisingly low. Information retrieved from the FGD session shows that the uninsured respondents did not wish to join the CBHI scheme because none of their households' members used health care services very often. It seems that they do not really understand the concept of the scheme other than the instant benefit provided by the CBHI. Some of them stated that premium rates are very expensive for the poor farmers, who grow rice in exchange for other products. The older study on CBHI also found that total amount of members schemes are mostly lower than expectation because unaffordable premium rates (Bennett. et at., 1998).

As mentioned earlier in the literature reviews, the CBHI have been introduce in Laos for number of years. In general, the CBHI organization has made an acceptable progress in the recent years; the geographical coverage is in the increasing trend. Besides that the CBHI scheme is able to keep the premium rates constant from the very beginning, regardless to the inflation and the increasing of other prices in the economy. The CBHI plays an important role in reducing financial expenditure; before joining the CBHI scheme, respondents in the FGD session stated that they experienced immense out-of-pocket expenditure and ended up by selling their assets or making loans in exchange for quality health care services.

Similar to other insurance schemes, CBHI also faces an adverse selection problem, referred to households with greater demand of health care services are more likely to enroll the scheme compared to the healthy households (Chandler, 2014). According to the FGD session and in-depth interview, it shows that there is a positive relationship between existence of chronic condition within household and the demand to enroll the CBHI. Despite, the CBHI rules and regulations require the targeted population to enroll as a household and there is a window period to make a planned operation; those households were not reluctant to enroll the scheme in order to avoid paying health care service by straight cash. Once again this issue is

similar to a previous study, which states that hospitalization under CBHI scheme was affected by adverse selection problem (Bennett. et at., 1998).

CBHI is open for anyone not being targeted by other health care schemes (CSS, SSO, and HEF). There is no medical checkup required before the CBHI enrollment; however, the CBHI members need to pay monthly premiums on time to maintain their membership status. In order to be able to capture those poor populations, it is needed to provide a suitable subsidy and flexible payment system. This issue is not only occurred in Laos, the previous literature shows that poor populations usually fail to gain benefit from Community Health Insurance (Schneider, 2005).

CHAPTER 6: CONCLUSIONS AND POLICY IMPLICATIONS

6.1 Study's findings

The outcomes of the study's objectives are once again presented in this section to provide further information about the CBHI's performance in the past decades. Number of people enrolled the scheme has been gradually increase in recent years. However, no known formal study was conducted to find out the role of the CBHI in term of accessibility to health care service and financial protection against financial catastrophe.

In theory, the CBHI scheme is not targeting the poorest group of people in the Lao economy. The CBHI targets the group of poor people, who are still affordable to pay the relatively low premiums on a regular basis. In the recent years the CBHI scheme has been well known among the targeted low-income group in both urban and rural area. It means that CBHI scheme was effectively reaching its targeting groups of population. The role of CBHI aims to provide financial protection for health service utilization by covering both OPD and IPD services for its members. Statistically the insured households reported to use health care service more often and less total costs in comparison to the uninsured respondents. However, the logistic regression's result found that there is no difference in term of health care service utilization and total health care cost. Despite it is not statistically significant the risk pooling and prepayment mechanism contribute some degree of lowering financial barrier to heath service utilization for the poor households, who are prone to suffer from financial catastrophe. The finding shows that some insured households still have financial catastrophe due to the high non-medical expenditure, which possibly includes transportation cost, food and accommodation for both patients and families at the time of hospital admission and more.

From the absent of medical expenditure, the insured households obviously have less total health service expenditure compared to the uninsured households. Hence, the

CBHI scheme increases the demand for health care service through lowering health services expenditure. Regardless to other households' characteristics of respondents, the insured households had higher frequency of hospitalization in the previous year, because uninsured household had to responsible for both medical and non-medical expenditure by themselves using straight cash. The finding showed that the households with female head of households, income less than 1,000,000 LAK a month, and existence of chronic condition were more likely to be hospitalized under the CBHI scheme.

As mentioned earlier in the discussion part, if one of household members had a health problem and needed to be hospitalized; other household members always showed up and stayed with the patient in the hospital to take care of the patient for instance: helping the patient to take a bath, cleaning and cooking for the patient because the hospital in Laos do not offer any of these services for the IPD patients. The non-medical costs are even higher for those households resided far away from the closest contract hospitals. As a result, based on the logistic regression the CBHI scheme was unable to significant reduce the costs from health care service utilization or the probability of suffering from financial catastrophe.

Regardless to the insurance status, both insured and uninsured households in Savannakhet Province suffered from financial catastrophe from using health care services. Those poor households tried to cope with the huge expenditure by selling their assets (such as: vehicles, life stocks, and so forth) as well as borrowing from friends and families. Some uninsured households reported to delay seeking health care services and preferred to go for the cheaper option for instance: self-prescription, traditional medicine, tradition health practitioner, shaman, and so forth.

In term of CBHI coverage, the non-compliance with the CBHI requirements of using IPD seems not to be an issue for the high total health expenditure. The burden of health care expenditure caused by non-medical expenditure contributes significant impact on total health expenditure and financial catastrophe. The larger proportion

of households suffering from huge expenditure and even catastrophe payment in lower income quintile suggests that the CBHI scheme possibly suitable for the better off households, who are able to afford for the non-medical expenditure themselves. It is true that the HEF is initially designed for the very poor households. However, the process of enrolling or applying for the HEF is very difficult and time consuming, which is not practical in reality. In addition the HEF costs a lot of government subsidy and may not fit the bill of Lao government.

The finding shows that the insured households have higher frequency of hospital admission as they do not have to responsible for the health care service. It also found that the CBHI is useful and more likely to protect households from financial catastrophe if the patients do not live far away from the contract hospital, so that it is possible to minimize their transportation cost, food, and accommodation (the cost of patients and their families). Despite the scheme is unable to provide a significant impact on financial protection and accessibility to health care service, but the scheme do lower the amount of financial burden of insured households. It is not only responsible for medical expenditure but the insured household do not have to make the lump-sum amount of payment for the medical expenditure; in other words, it is like the scheme enables the CBHI members to pay for the health care services by installments through monthly premium.

6.2 Policy of the scheme

Policy of the CBHI scheme involves with both contracted health facilities and the CBHI management mechanism as followings:

- Health care system

  Despite this study's primary objectives is to focus on the performance of the CBHI scheme in Savannakhet province, which randomly includes Kaysone Phomvihane and Champhone districts. The study also aims to find out the

implementation and management of the scheme at the district level. Lacking of village health centers forced households to use district and provincial hospital directly, which simultaneously increase the non-medical expenditure through transportation, food and accommodation costs. The existing health care facilities needed to be improved for instance: human resources development, shortage of health care personnel, lacking of medical equipment and supply, poor service minded personnel, and lacking of community trust in term of quality because some households prefer to use the Thai hospitals in Mukdahan province rather than using local health facilities.

In order to build and effective and sustainable health care scheme, the management team at the central level need to improve the weakness mentioned above to be able to standardized the quality of services. The upgrade of both health facilities would be able to increase the risk pooling condition and sustainability of the scheme.

- Health budget per capita

Recall that the per capita budget in term of health for Lao population relatively low compared to other neighboring countries in South East Asia. It means that the investment on public health is also low. Despite there are some granted aids from international NGO, the fund is still inadequate for medical equipment, hospital renovation, health personnel training, and others cost related to hospital management. Since all hospitals in Savannakhet province are under the subsidy of the Lao government, the cost of health care services are low compared to private clinics. The government also is also responsible for some CBHI insured patients at the hospital, since

the CBHI scheme is unable to cover all medical expenditure of the insured patients. Due to the fact that the CBHI's premium rates are very low compared the possible costs of medical expenditure; in addition, there is no ceiling for both OPD and IPD medical expenditures.

- Health care service's purchase

The concept of strategic purchasing with public hospitals (which includes provincial and district hospitals) has been used in the process of acquiring health care services for the insured patients. Because those hospitals are government operated and owned by the government, the cost of health care service is less than the private clinic. As a result, the cost of using health care service for insured patient at the public hospitals is lower compared to the services provided somewhere else. The strategy of using solely public hospitals is playing the important role to the sustainability and success of the scheme.

- Payment of the scheme to contracted hospitals

As mentioned earlier that 90 % of the total revenue collected from the CBHI member is transferred to the contracted hospital for insured patients' medical expenditure regardless of the actual cost of health care service at contracted hospital. Only 10 % of total revenue is reserved for the administration cost at the CBHI offices. The period of payment to health facilities is depending on the agreement between contracted hospital and CBHI office. The reason is the total revenue from premium collection makes up only fraction of the actual amount of hospital cost. The government subsidizes the shortage amount of health care cost for insured patients. The

CBHI scheme reserved the right of choosing health care service; only patient resided in Kaysone Phomvihane district is eligible to go to the provincial hospital directly, whereas patients resided in other districts can only visit the nearest hospital.

The village health care center is responsible only the OPD services. The district level health office provides the medical supplies for village health center. The medical supplies for insured patients are reimbursed by the CBHI. District health office is directly in charge for the financial activities of village health centers. Hence, the CBHI fund transferred to district hospital also includes funds for village health center.

There is a CBHI financial officer at each village that under the supervision of village health officer, who is in charge of collecting the premium. However, the premium fee can be paid at the village health center. At the end of each month, the head of village health office have to travel to the district health office to report about general health care activities, and medical supply used to the district level supervisor.

- Management of the scheme

Recall that the management mechanism of the scheme is divided into 3 levels: central level (head quarter) in Vientiane capital, provincial level, and district level. The central level is in charge of developing the CBHI policy based on the recommendation from both provincial and district level. The provincial level's role is to find the possibility of expanding the coverage of the CBHI scheme based on the availability of contract hospitals and affordability of the CBHI premium. In addition, the provincial CBHI office also entitles to investigate and solve the problems reported by the district level office. The district level CBHI office is in charge of registering new members, collection monthly premium. Besides that they are also in charge of signing

contract with local hospital, supervise the health care service of insured patients as well as the quality of contracted health facilities.

Since the CBHI scheme's rule and regulation are identical throughout the countries, there is less flexibility in term of policies and health care package. However, management skill could make a huge impact to the accomplishment of the scheme. The study found that the CBHI scheme at all 3 level have adequate experience and managerial skills to increase CBHI coverage, collecting premium, and controlling administrative budget of the scheme. However, the weakest in term of management seems to be related to the local level, it is report that village level financial officers usually fail to deliver the collected fund on time.

6.3 Policy recommendation

Health financing is considered as an intermediary between the demand and the supply siders of the health care system as known as households and health care facilities. Health insurance provides financial resource to the existing health care system. In addition, it is also provide the financial incentive to the health care providers in a cost-effective way. The improvement of health financial system would also make it possible to control medical cost escalation. According to this study's outcome, the policy recommendation consists of two sections:

- The first parts involves with improving health care facilities and service within Savannakhet province,
- The second part involves with management and policy of the CBHI scheme.

Recall that this study investigates the role of the scheme in term of accessibility and financial protection of the scheme. In addition, the scheme also aims to find out the reason of suffer high drop-out rate in the recent years; which immensely affects the

financial stability, risk pooling condition, and sustainability of the scheme in the long-run.

The outcome of the study shows that, lots of patients in the poorest income quintile suffered from the huge health service expenditure from both medical and non-medical expenditure. The non-medical expenditure incurred from the high transportation cost, food, and accommodation expenditure for both patients and their followers. It is considered as a Lao culture that patients from the rural areas are always followed by number of relatives to health care facilities. The reason is the Lao hospitals do not provide food service for admitted patients. From this point, it is households' responsibility to take care of the patients themselves for instance: cooking, cleaning and so on so forth.

According to the FGD, some respondents stated that they do not wish to use the Lao hospital due to the lacking of good quality service. As a result some of them prefer to use private clinic for OPD service or the Thai hospitals for IPD services. It is highly recommended that the health care facilities should be improved in term of infrastructure and other services to be able to compete with the Thai hospitals close to Savannkhet province. The hospital should provide food service for admitted patients to ensure that patients receive complete nutrition meals. The availability of food at hospitals would immensely lower non-medical expenditure because some family members do not have to follower the patient during the admission period. In case hospitals are unable to provide for admitted patients, alternatively hospitals should organize the private sector to sell complete nutrition food for patients in hospitals at the reasonable price. More health care facilities would increase health care service accessibility, lowering amount of transportation cost as well as the probability of suffering from financial catastrophe.

Due to the fact that there's no medical checkup before enrolling the scheme, the CBHI are prone to suffer from the adverse selection problem; in other words, people who suffer from chronic health condition or in need for medical treatment are more

likely to enroll the scheme. Moreover, CBHI members are can freely leave the scheme any they wish by stop paying the premium and they are also eligible to enroll the scheme once; in this case lots of people decide to quit the scheme after getting plan operations.

Table 43 presents the policy recommendation based on the TOWS matrix, which also includes the SWOT analysis in term of improving health care facilities and services. According to the finding, the current strength of Lao health care facilities is that they are able to employ health care personnel at relatively low cost. In addition, there are public health care facilities at every single district within the province. However, old and dirty environment in hospital buildings due to the maintenance mechanism is considered as the weakness of contract hospital. Since there is no private hospital available, the competition in health care service remains low. It is able to conclude that the high demand of health care service can be referred as an opportunity of health facilities. However, upper income households still prefer to use health private clinic and Thai hospitals instead of hospital's OPD and IPD services respectively.

Regarding to the existing strengths and opportunities; the suggested proactive strategy is to expand the hospital's service through increasing number of health care personnel as well as hospital bed's capacity. The develop strategy which derives from weakness and opportunity suggests that IPD should provide food for the admitted patients to lower their households' non-medical expenditures. In addition, some ageing building at both provincial and district hospitals should be renovated to improve quality health of care services. The react strategy based on information from weaknesses and threats of the current Lao health care facilities show that it is highly recommended for health care facilities' stakeholders to improve overall quality of service provide to be comparable with Thai hospitals of Mukdahan province. From weaknesses and threat, the possible adapted strategies would involve with advertising issue in order to increase people's awareness.

The information presented in the logistic regression model 1 (probability of hospitalization) shows that the richest income quintile was significantly less likely to be hospitalized compared to the poorer households (p-value = 0.088). Recall that the result from the FGD also reveals that most of the high-income households prefer to use hospital services in Thailand cited that the services provided are better in the Thai hospital. From this point, the “re-act” strategy suggested that the quality of health care service should be improved to be comparable with the Thai hospital should be prioritized, so that the demand of local health care services would simultaneously increase along with incentive of enrolling the CBHI scheme.

Table 43: TOWS matrix of health care facilities in Laos

SWOT Analysis and TOWSMATRIX	S-STRENGHTS	W-WEAKNESSES
	1. Relatively low labor cost 2. Availability of health care facilities at provincial and district level	1. No food service provided at the public hospital 2. Families are in charge of cleaning or cooking or patients 3. Old and dirty hospital buildings
O-OPPORTUNITIES	SO-STRATEGIES	WO-STRATEGIES
1. Lots of people are willing to use health care service in both provincial and district level	(Proactive) 1. Increase capacity of in-patient health care service 2. Increase number of health care personnel	(Develop) 1. Include food service for admitted patients to lower non-medical expenditure 2. Renovate hospital building and increase hospital beds
T-THREATS	ST-STRATEGIES	WT-STRATEGIES
1. Some patients prefer to use Thai hospital services	(Re-act) 1. Improve quality of health care services to be comparable to those provided in the Thai hospitals	(Adapt) 1. Increase awareness by advertising campaign (encourage Lao population to use local health care facilities)

Management and policy of the CBHI scheme

From the study's findings, we are able to summarize strength, weakness, opportunity and treat in the TOWS matrix model. First of all, there are several strengths of the CBHI scheme; for instance: the CBHI offer the relatively low and various premium rates based on numbers of people in the households and socio-economic background of the district of resident. Unlike many other CBHI schemes, this scheme covers health care services in both OPD and IPD in public hospitals. The CBHI scheme also welcomes all independent workers in the economy without any initial medical checkup required. Another advantage for the CBHI members is that they are able to quit the scheme any time they wish and enroll the scheme once again sometime in the future.

However, the Lao CBHI scheme's weakness includes all the cost of its strengths. For instance, the result of setting low premium rates limits the possible revenue of the scheme. In addition, the coverage of both IPD and OPD services immensely increase the total cost of operation. Without any medical checkup before enrolling the scheme causes a lot of convenient for the CBHI members but it is also higher the probability of having adverse selection problem, because households with at least one member having chronic condition are more likely to enroll the scheme to lower their medical bills. Another weakness of the CBHI scheme is that the scheme does not cover several health care services as mentioned in the earlier chapter.

The relatively low competition of the health insurance in Laos can be considered as the main opportunity to gain more customers, increase the risk pooling size, and ensure financial sustainability in the long run. Besides that the CBHI scheme targets larger group of people in comparison to other health care schemes such as: CSS, SSO, and HEF. The threat of the CBHI scheme is related to the popularity of the scheme itself; most of the target population expects the instant benefit from the scheme rather than the benefit in the long run. As a result, they do not wish to

enroll the scheme and pay the monthly premium to ensure financial protection in term health server utilization in the long run.

Table 44: TOWS matrix of CBHI's management mechanism and policy

	S-STRENGHTS	W-WEAKNESSES
SWOT Analysis and TOWSMATRIX	1. Low-premium rate and affordable for lower income quintiles 2. Cover both OPD and IPD patients without any copayment 3. No medical checkup before enrolling the scheme 4. Patients can freely dropout from the scheme 5. Former member can always enroll the scheme	1. High operation costs 2. Patients do not have various choices of selection health care facilities 3. Some health care services do not include in the CBHI package
O-OPPORTUNITIES	SO-STRATEGIES	WO-STRATEGIES
1. Lots of people are eligible to enroll CBHI scheme 2. Lack of competitiveness in the Lao insurance	(Proactive) 1. Increase awareness by organizing advertising campaign	(Develop) 1. Creating the gate keeping mechanism to prevent members from dropping out the scheme (after using health care services) 2. Increase flexibility in term of health facilities selection 3. Increase range of health care service coverage
T-THREATS	ST-STRATEGIES	WT-STRATEGIES
1. Some target population do not wish to enroll since they expect the instant benefit from the scheme	(Re-act) 1. Educated potential members about the risk pooling mechanism and benefit of enrolling the scheme in the long run	(Adapt) 1. Before enrolling the scheme, medical checkup session should be conducted to avoid adverse selection problem

According to the strength and opportunity, the proactive strategy can be adopted by organizing the advertising campaign to maximize number of CBHI members and risk pooling condition to ensure sustainability of the scheme. Moreover, developed strategy based on the scheme's weaknesses and opportunities are creating the gate keeping mechanism as a barrier to prevent its member leaving the scheme, because it is reported that lots of CBHI member decided to quit the scheme after receiving the planned operation or other benefit from the scheme. Due to the fact that some health issues do not cover by the scheme, it is highly recommended that the scheme should extent its range of health care service coverage as well as increase flexibility in term of health facilities selection. From the existing strengths and threats, the possible re-act strategy is to educate group of potential members about the risk pooling condition to ensure their understanding about the risk pooling concept in the long run. Last but not least, the adapt strategy derived from weakness and threat of CBHI scheme suggested that medical checkup session should be conducted before enrolling the scheme to avoid adverse selection problem. In case of having a chronic condition within a household, different premium policy or co-payment strategy should be used.

The logistic regression models (model 1, model 2, and model 3, which analyze the probability of hospital admission, hospital admission covered by the CBHI scheme, and financial catastrophe due to hospitalization. The results from all models suggest that the existence of chronic condition within household has significant impact on hospital admission (p-value = 0.057), hospital admission covered by CBHI (p-value = 0.065), and financial catastrophe (p-value=0.67). From this point, the "adapt strategy" from the CBHI's TOWS matrix should be prioritized due to the fact that the policy suggests that the adverse problem can be minimized by conducting medical checkup session before enrolling the scheme. The households with chromic health problem should pay higher premium rates compared to the healthy households.

The research outcomes also found that lots of poor households suffered from chronic related health problems, so that it may not be a good solution for them to

pay higher premiums. Hence, the long term policy for the government is to organize the health promoting campaign to improve the overall health condition of the population. In addition, the local government should promote the economic condition within the community, for instance: developing/ improving “one village one product project”, promoting agricultural issue, and so forth to generate income for the poor households as much as possible, so that the CBHI premiums become more affordable for them.

Furthermore, the policy based on the existing strengths and opportunities should also be prioritized. As shown in the figure 44, the strengths of the CBHI scheme that insured household could take the benefit include offering low-premium and affordable premium, covering both OPD and IPD patients without any copayment, no medical checkup and more. Largest eligible group of population are considered as the opportunity of the scheme to maximize the risk pooling condition. The financial sustainability of the CBHI scheme can be accomplished through expanding size of risk pooling. From this point, it is very important for the CBHI scheme to organize the CBHI advertising campaign to increase the scheme’s awareness.

6.4 Future Research

This is the very first study conducted in Laos to find out the role of the CBHI scheme in term of accessibility and financial protection in Savannakhet province, Laos. The study also examines the reason behind the immense dropout rate from the CBHI scheme to be able to provide a policy recommendation to ensure the sustainability of the scheme in the long run.

This study was conducted in a relatively better economy condition compared to other provinces of Laos. In order to access more information on accessibility, financial protection as well as reason of leaving the scheme, further study on these topics should be conducted purely in the lower economic background areas or rural areas to see if the scheme is able to lift the quality of lives for the targeted

population. The result of this study found that the scheme face an issue related to the adverse selection, it is highly recommended that the copayment policy should be implemented for households with chronic condition. As a result, a future study that focus on the cost and premium rate of co-payment package should be carefully analysis to find out the possibility operating the scheme under copayment mechanism.

Recall that the reason of financial catastrophe was partially due to the higher non-medical expenditure, in which the non-medical expenditure comes from transportation cost, food expenditure for both patients themselves and families. The cost of food for patients can be minimized if the health facilities include completed nutrition food in the IPD services. The suggested future research should be conducted about the real cost of including food service in the hospitals' IPD service, because if the consequence of this option would simultaneously increase the cost of IPD services and the premium rate. Due to the fact that the CBHI members have limited choices of selecting health care facilities, the future research should be conducted to find out the actual cost and the possibility of allowing patients to freely select health care facilities according to their preference.

REFERENCES

Aday, & Andersen, R. (1975). *Development of Induce of access to Medical care*. Michigan: Michigan Ann Arbor: Health Administration Press.

Ahuja, R., & Jutting, J. P. (2004). Are the poor too poor to demand health insurance? Indian council for research on international economic relations *Working Paper no. 118*. New Delhi.

Akashi, H., Yamada, T., Huot, E., Kanal, K., & Sugimoto, T. (2003). User fees at a public hospital in Cambodia: effects on hospital performance and provider attitudes. *Elsevier, 58*(2004), 553–564.

Andersen, R. (1968). A behavioral model of familie's use of health services. Chicago, Illinois: University of Chicago.

Andersen, R. (1995). Revisiting the Behavioral Model and Access to Medical Care: Does It Matter? *Journal of Health and Social Behavior, 36*, 1-10.

Annear, P. (2007). *Health Equity Fund in the Lao PDR Vol. 1: Guilines for implementation and management* Vientiane Ministry of Health (Laos).

Antunes, A. (2008). Health care financing in Lao PDR. Vientiane: WHO, Laos.

Arhin, D. C. (1995). Rural health insurance: a viable alternative to user fee? a review and evidence from three countries. *Public Health and Policy Publications: London School of Hygiene and Tropical Medicine, 19*.

Asenso-Okyere, W. K., Osei-Akoto, I., Anum, A., & Appiah, E. N. (1997). Willingness to pay for health insurance in a deveoping economy. A pilot study of the informal sector of Ghana using contingen valuation. *Health Policy*(42), 223-237.

Bennette, S., Cresse, A., & Monashch, R. (1998). *Health insurance schemes for people outside formal sector employment*. Geneva: WHO.

Bounxou. (2012). CBHI Savannakhet Savannakhet: CBHI Savannakhet.

Carrin, G., & James, C. (2005). *Social health insurance: Key factors affecting the transition towards universal coverage* Retrieved from http://www.who.int/health_financing/documents/shi_key_factors.pdf

Carrin, G., Mathauer, I., Xu, K., & Evans, D. B. (2008). Universal coverage of health services: tailoring its implementation. *Bull World Health Organ, 86*(11), 857-853. doi: doi:10.2471/BLT.07.049387

CBHI. (2004). *CBHI user guide* Vientiene: CBHI.

Chaddha, V. K. (2006). Sample size determination in health studies. *NTI bulletin 42*(3), 55-62.

Chandler, S. J. (2014). Adverse selection. from http://demonstrations.wolfram.com/AdverseSelection/

Chongsuvivatwong, V., Phua, K. H., Teng, M. Y., Pacock, N. S., Hashim, J. H., Chhem, R., . . . Lopez, A. D. (2011). Health and health-care systems in southeast Asia: diversity and transitions. *Lancet, 377*, 429–437.

Creese, A., & Bennett, S. (1997). Rural risk-sharing strategies. In S. J. George (Ed.), *Innovations in health care financing. World Bank discussion paper no.35* (pp. 163-182). Washington, DC: World Bank.

Cronin, K. (2006). Wading through medical insurance pools: a primer. *Issue Brief American Academy of Actuaries*.

De Allegri, M., Sauerborn, R., Kouyate, B., & Flessa, S. (2009). Community health insurance in sub-Saharan Africa: what operational difficulties hamper its successful development? . *Tropical Medicine and International Heatlh, 14*(5), 586-596. doi: 10.1111/j.1365-3156.2009.02262.x. Epub 2009 Mar 11.

Dong, H., Gbangou, A., DeAlegri, M., Pokhrel, S., & Sauerborn, R. (2006). The differences in characteristics between health-care users and non-users: implication for introducing community-based health insurance in Burkina Faso. *Springer-Verlag 2006, 2008*(9), 41-50.

Douangvichit, D., Libsuetrakul, T., & McNeil, E. (2012). Health care expenditure for hospital-based delivery care in Lao PDR. *BMC Research Notes, 5*(30).

Ekman, B. (2004). Community-based health insurance in low-income countries:a systematic review of the evidence. *Health Policy and Planning, 19*(5), 249–270.

Garrin, G., Walkens, M., & Criel, B. (2005). Community-based health insurance in developing countries: a study of its contribution to the performance of health

finanincing systems. *Tropical Medicine and International Heatlh, 10*(8), 799-811.

Goddard, M., & Smith, P. (2001). Equity of access to health care services: Theory and evidence from the UK. *Social Science & Medicine, 53*(2001), 1149–1162.

Gumber, A. (2001). *Hedging the Health of the Poor the Case for Community Financing in India*. Washington, D.C: The World Bank.

Gwatkin, D. R. (2003). How well do health programmes reach the poor? *The Lancet, 361*.

Hjortsberg, C. (2003). Why do the sick not utilise health care? the case of Zambia. *Health Econ, 12*. doi: 10.1002/hec.839

Hsiao, W., & Liu, Y. (2001). Health Care Financing: Assessing Its Relationship to Health Equity. In T. Evans, M. Whitehead, F. Diderichsen, A. Bhuiya, & M. Wirth (Eds.), *Challenging Inequalities in Health: From Ethics to Action*. Oxford: Oxford University Press.

ILO Laos. (2007). *Consultative study - Social Protection for All: The Way Ahead, LAO/01/M91/LUX-Development of Social Security Phase II 2002-2007*. Vientiane: ILO Laos.

Ir, P., Bigdeli, M., Meessen, B., & Van Damme, W. (2010). Translating knowledge into policy and action to promote health equity: The Health Equity Fund policy process in Cambodia 2000–2008. *Health Policy, 96*(3), 200-209. doi: 10.1016/j.healthpol.2010.02.003

Islam, M. (2007). *The Health Systems Assessment Approach: A How-To Manual* (M. Islam Ed.).

Jacobs, B., & Price, N. (2004). The impact of the introduction of user fees at a district hospital in Cambodia. *Health Policy and Planning, 19*(5), 310-321.

Jakab, M., & Krishnan, C. (2001). *Community Involvement in Health Care Financing: A Survey of the Literature on the Impacts, Strengths, and Weaknesses*. Washington, D.C: The World Bank.

Jowett, M., Contoyannis, P., & Vinh, N. D. (2003). The impact of public voluntary health insurance on private health expenditures in Vietnam. *Social Science & Medicine, 56*(2), 333-342. doi: 10.1016/s0277-9536(02)00031-x

Jutting, J. P. (2003). Do community-based health care insurance schems improve poor people's access to health care? evidence from rural Senegal. *World Dev, 32*(2), 273-811.

Jutting, J. P. (2003). Do Community-based Health Insurance Schemes Improve Poor People's Access to Health Care? Evidence From Rural Senegal. *Elsevier, 32*(2), 273–288.

Kawabata, K., Xu, K., & Carrin, G. (2002). Preventing impoverishment through protection against catastrophic health expenditure. *Bulletin of the World Health Organization, 80*(8), 612.

Krueger, R. A. (1988). *Focus groups: a practical guid for applied research*. Newbury, CA: Sage Publications.

Kutzin, J. (2000). Towards Universal Health Care Coverage:A Goal-oriented Framework for Policy Analysis.

La Concertation. (2004). *Inventaire des mutuelles de santé en Afrique— ynthèse des travaux de recherche dans le 11 Pays.* Dakar: La concertation.

Langenbrunner, J., Cashin, C., & O'Dougherty, S. (2009). *Designing and Implementing Health Care Provider Payment Systems: How-To-Manuals*. Washington, D.C: The World Bank.

Lao Department of Organization and personel. (2007). Human Resources for Health: Analysis of the Situation in the Lao PDR. Vientiane.

Le Grand. (1982). *The Strategy of Equality*. London: George Allen & Unwin.

Liu, K., & Perozek, M. (1991). Effects of Multiple Admission on Nursing Home Use: Impliications for Fron-end Policy. *PubMed, 28*(2).

Makinen, M., Waters, H., Reuch, M., Almagambetova, N., Bitran, R., Gilson, L., . . . Ram, S. (2000). Inequalities in health care use and expenditures: empirical data from eight developing countries and countries in transition. *Bulletin of the World Health Organization, 78*(1), 55-65.

McPake, B. (1993). User charges for health services in developing countries. *Social Health & Medicine, 36*, 1397-1405.

McPake, B., Hanson, K., & Mills, A. (1992). *Implement the Bamako Initiative in Africa: a review and five case studies*. Longdon: PHP Departmental Publication No.8, Longdon School of Hygiene and Tropical Medicine.

Ministry of Health. (2010). Draft on health financing strategy, Lao PDR, 2011-2015. Vientiane, Laos.

Mooney, G. H. (1983). Equity in health care: confronting the confusion. *PubMed, 1*(4), 179-185.

Mugenda, A., & Mugenda, O. (1999). *Research Method: Qualitative and Quantitiative Approaches*. Nairobi: Acts Press.

Musau, S. N. (1999). *Community based health insurance: experience and lessons learned from east and southern Africa (Tecnical report no. 34)*. Bethesda, MD: Abt Associates.

Mwabu, S. N. (1998). *Health development in Africa*. Abidjan, Cote d'Ivoire: The African Development Bank Group.

Neuman, W. L. (2006). *Social research methods: qualitative and quantitative approaches*. Boston: Allyn and Bacon Publisher.

O'Donnell, O., Doorslaer, E. v., Rannan-Eliya, R. P., Somanatha, A., Garg, C. C., Hanvoravongchai, P., . . . Vasavid, C. (2005). *Explaining the incidence of catastrophic expenditures on health care: Comparative evidence from Asia* Vol. 5. Retrieved from http://www.equitap.org/publications/docs/EquitapWP5.pdf

OIT. (2009). Protéger les plus démunis, guide de la micro-assurance. compendium de Micro-Assurance. Geneva, Switzerland: Organisation international du travail.

Oxfam. (2008). *Health Insurance in Low-Income Countries: Where is the evidence that it works?* Retrieved from http://www.oxfam.org/sites/www.oxfam.org/files/bp112_health_insurance_0805.pdf

Parmar, D., Reinhold, S., Souares, A., Savadogo, G., & Sauerborn, R. (2012). Does community-based health insurance protect household assets? evidence from rural africa. *Health Service research*.

Pholsena, S., & Thome, J. (2009). *Lao People's Democratic Republic: Health financing reform and challenges in expanding the current social protection schemes*. Vientiane: WHO.

Preker, A., & Carrin, G. (2004). *Health financing for poor people: resource mobilization and risk sharing*. Washington, D.C.: World Bank.

Preker, A., Langenbrunner, J., & Jakab, M. (2002). Rich-Poor Differences in Health Care Financing. In D. Dror & A. Preker (Eds.), *Social Reinsurance: A New Approach to Sustainable Community Health Financing*. Washington, D.C: The World Bank.

Ranson, K., Sinha, T., Chatterjee, M., Acharya, A., Bhavsar, A., Morris, S. S., & Mills, A. J. (2006). Making health insurance work for the poor: Learning from the Self-Employed Women's Association's (SEWA) community-based health insurance scheme in India. *Social Science & Medicine, 62*(3), 707-720. doi: 10.1016/j.socscimed.2005.06.037

Rokx, C., Schieber, G., Harimurti, P., tandon, A., & Somanathan, A. (2009). *Health Financing in Indonesia: A Reform Road Map*: The World Bank.

Ron, A. (2006). *CBHI Lao PDR: Review of CBHI pilot scheme* Vientiane: Ministry of Health.

Sachs, J. D. (2001). Macroeconomics and health: investing in health for economic development *Report of the commission on macroeconomics and health*. Geneva.

Savannakhet Governor Office. (2011). *Savannakhet population reported*. Kaysone Phomvihane, Savannakhet, Laos: Savannakhet Governor Office.

Schneider, P. (2005). Why should the poor insure?. Theories of decision making in the context of health insurance. *Health Policy Plan, 22*(1), 40-48.

Schneider, P., Diop, F., & Leighton, C. (2001). *Pilot Testing Prepayment for Health Services in Rwanda: Results and Recommendations for Policy Directions and Implementation*. Cambridge, MA: Abt Associates Inc.

Schwartz, B., & Viravong, V. (2006). *Health Care Financing in Lao PDR: Sub-Sector Analysis*. Vientiane: Ministry of Health.

Syhakhang, L., Soukaloun, D., Tomson, G., Petzold, M., & Rehnbeg, C. (2011). Provider performance in treating poor patients - factors influencing prescribing practices in lao PDR: a cross-sectional study.

Tabor, S. (2005). *Community-Based Health Insurance and Social Protection Policy*. Washington, D.C: The World Bank.

Tangcharoensathien, V., Patcharanarumal, W., Ir, P., Aljunid, M., Sayed, Mukti, G., Ali, Akkhavong, K., . . . Mills, A. (2011). Health-fi nancing reforms in southeast Asia: challenges in achieving universal coverage. *Lancet, 377*.

Thome, J. M., & Pholsena, S. (2009). Lao people's democratic republic: health financing reform and challenges in expanding the current social protection schemes *Promoting sustainable strategies to improve access to health care in the Asian and Pacific region*. Bangkok, Thailand: United Nation ESCAP.

UN Data. (2011). Per capita government expenditure on health (PP int. $). Retrieved 11th July, 2014, from http://data.un.org/Data.aspx?d=WHO&f=MEASURE_CODE%3AWHS7_108

Waelkens, M. P., & Criel, B. (2004). *Les mutuelles de sante en Afrique sub-Saharienne-Eta de Lieux et Reflexions sur un Agenda de Recherche*. Washington: World Bank.

Wagstaff, A., & Doorslaer, E. v. (2003). Catastrophe and impoverishment in paying for health care: with applications to Vietnam1993-1998. *Health Econ, 12*, 921-934. doi: 10.1002/hec.776

WHO. (2000). *Health system: improving performance*. World Health Organization 1211 Geneva 27, Switzerland: WHO.

WHO. (2004). Technical paper: the impact of health expenditure on households and options for alternative financing.

WHO. (2005). *Achieving universal health coverage: developing the health financing system*. Geneva: Department of Health Systems Financing, Health Financing Policy.

WHO. (2010). *World Health Statistics 2010*. France: The World Health Orgnaization.

World Bank. (1997). *Sector strategy for HNP*. Washington D.C.: World Bank.

World Bank. (2010). Community-Based Health Insurance in Lao P.D.R.: Understanding Enrollment and Impacts. *The World Bank*.

Wyszewianski, L. (1986). Financially catastrophic and high-cost cases: definitions, distinctions, and their implications for policy formulation. *PubMed, 23*(4), 382-394.

Xu, K., Evans, D. B., Carrin, G., & Agular-Revera, A. M. (2005). *Designing health financing systems to reduce catstrophic health expenditure*.

Xu, K., Evans, D. B., Carrin, G., Mylena, A., Aguilar-Rivera, Musgrove, P., & Evans, T. (2007). Protecting household from catastrophic health spending: moving away from out-of-pocket health care payments to prepayment mecanisms is the key to reducing financial catastrophe. *Health Affairs, 26*(4), 973-983.

Zigora, T. A. (1996). Current issues, prospects, and programs in health insurance in Zimbabwe. In B. Allison, D. Jane, L. Gilson, E. Lambo, & P. Shaw (Eds.), *Sustainable health care financing in southern africa*. Washington, D.C.: The World Bank.

APPENDIX

Questionnaire for insured households

Part 1:	**Social demographic**
1	**Name and last name**
2	**Gender** 1. [ ] Female 2. [ ] Male
3	**Age**
4	**Martial status** [ ] 1. Single [ ] 2. Married [ ] 3. Widowed [ ] 4. Divorced [ ] 5. Separated
5	**How many childen do you have?**
6	**How many people in your household?**
7	**What is your religion?** [ ] 1.Buddism [ ] 2. Animism [ ] 3. Christianity [ ] 4. Others: ……
8	**What is your highest lelvel of education?** [ ] 1.Never attend school [ ] 2. Primary school [ ] 3. Lower secondary school [ ] 4. High school [ ] 5. University or higher (0 year) (5 ye ar) (8 ye ar) (11-12 year) (15 ye ar or higher)
9	**What is your main occupation?** [ ] 1. Business/trader [ ] 2. Casual worker [ ] 3. Farmer [ ] 4. Street vendor [ ] 5. Laborer [ ] 6. Others:……
Part 2:	**Up take of CBHI scheme**
10	**How long have you been a member of the CBHI scheme?** years month
11	**How many members of the household are insured with CBHI?**
12	**What was the source of information that helped you to decide to join the CBHI scheme?** [ ] 1. Friends [ ] 2. Radio [ ] 3. News paper [ ] 4. Television [ ] 5. Hospital [ ] 6. Village head [ ] 7. CBHI officer [ ] 7. Others:……
13	**What are the main factors that made you join the CBHI scheme?** [ ] 1. Hard economic condition [ ] 2. Poor health condition in my family [ ] 3. Avoid out-of-pocket expenditure [ ] 4. Recommend from family or friends [ ] 5. Others:……
14	**How do you decide which hospital you visit for in-patient treatment? (reasons for choice of hospital)** [ ] 1.Distance [ ] 2. Health personel [ ] 3. Hospital evironment [ ] 4. Others:……
15	**Apart from CBHI scheme, do you have any other health insurance (private insurance)?** [ ] 1. Yes [ ] 2. No if "Yes", What is the name of the insurance company? ……
16	**As a member of the CBHI scheme, do you think it is useful for you?** [ ] 1. Yes [ ] 2. No if yes, what is the main reason? ……
17	**What do you like about the CBHI scheme?** [ ] 1. Reducing out-of-pocket [ ] 2. Better accessibility to health care services [ ] 3. Better health care services [ ] 4. Others:……
18	**What don't you like about the CBHI scheme?** [ ] 1.Premium rate [ ] 2. CBHI personel [ ] 3. Method of payment [ ] 4. Health care package [ ] 5. Others:……
19	**Will you renew your CBHI membership once it expires?** 1. [ ] Yes 2. [ ] No if "No" why?
20	**Will you recommend friends, relative, or other people to join the CBHI scheme?** 1. [ ] Yes 2. [ ] No why?
21	**On overall, how would you rate the CBHI scheme?** [ ] 1. Very good [ ] 2. Good [ ] 3. Average [ ] 4. Poor [ ] 5. Very poor
Part 3:	**Morbidity and the previous year's hospitalization**
22	**Is there anybody in your family who has any of the following chronic conditions requiring continous care more than 6 months?** [ ] 1.Yes [ ] 2. No (if "yes" please answer question 22.1)
22.1	**If "yes", which one(s)?** [ ]1. Chornic headach [ ]2. Diabetes [ ]3. Back pain [ ]4. Hypertension [ ]5. Joint pains [ ]6. Heart disease [ ]7. Ear disease [ ]8. Tuberculosis [ ]9. Epilepsy [ ]10. Paralysis [ ]11. Eye disease [ ]12. Depression/stress [ ]13. Asthma [ ]14. Stomach ulcers [ ]15. Others:……

23	**Did you or a member of your family get any illness or injury during the previous month ?** [ ] 1. Yes [ ] 2. No if "Yes" How many time? :..... Please answer questions 23.1 -23.7	
24	**Have you or a family member been hospitalized within the period of 12 months?** [ ] 1. Yes [ ] 2. No if "Yes" How many admissions? :..... Please answer questions 24.1 -24.8	
Part 4:	**Social economic status**	
25	**What is your monthly household income? (LAK)** [ ] 1. More than 10,000,000 [ ] 2. 5,000,000-10,000,000 [ ] 3. 2,500,000 [ ]4. 1,000,000-2,500,000 [ ]5. L ess than 1,000,000	
26	What is your monthly expenditure? [ ] 1. More than 10,000,000 [ ] 2. 5,000,000-10,000,000 [ ] 3. 2,500,000 [ ]4. 1,000,000-2,500,000 [ ]5. L ess than 1,000,000	
Part 5:	**Health service accessibility**	
27	**From the previous year, did you/any family member ever have a problem in getting health care servides that you think you needed?** [ ] 1. Yes [ ] 2. No (if "No" Please skip question 27.1)	
27.1	**If "Yes", What was the illness?** **why did you or family member not get health care?**	
28	**How would you rate the difficulty of accessiing health care facilities?** [ ] 1.Very easy [ ] 2.Easy [ ] 3. Average [ ] 4. Difficult [ ] 5. Very difficult	
Part 6:	**Stisfaction with Inpatient Health Care Services**	
29	**How would you rate the overall satisfaction?**	
	Heatlh service	[ ] 1.Very satisfied [ ] 2. Satisfied [ ] 3. Average [ ] 4. Dissatisfied [ ] 5. Strongly dissatisfied
	Doctors	[ ] 1.Very satisfied [ ] 2. Satisfied [ ] 3. Average [ ] 4. Dissatisfied [ ] 5. Strongly dissatisfied
	Drugs	[ ] 1.Very satisfied [ ] 2. Satisfied [ ] 3. Average [ ] 4. Dissatisfied [ ] 5. Strongly dissatisfied
	Staff	[ ] 1.Very satisfied [ ] 2. Satisfied [ ] 3. Average [ ] 4. Dissatisfied [ ] 5. Strongly dissatisfied

Questions 23.1 – 23.7

Question	23.1	23.2	23.3	23.4
	What is the illness or injury?	How many days did you/ they not work because of the illness	Where was the health care sought?	In case nothing was done, what was the reason?
Episode 1				
Episode 2				
Episode 3				
	23.5	23.6	23.7	
Question	What was the total cost of the health (paid by OOP or insurance)	From where did you get money to pay?	Were you satisfied with the services reccived? (1-5 rating scale,1 best – 5 worse)	
Episode 1	Treatment:	Treatment:		
	Transport/others:	Transport/others:		
Episode 2	Treatment:	Treatment:		
	Transport/others:	Transport/others:		
Episode 3	Treatment:	Treatment:		
	Transport/others:	Transport/others:		

Questions 24.1-24.8

Question	24.1	24.2	24.3	24.4
	What was the illness or injury?	Which hospital were you/ your family admitted?	How many days did you/ yourfamily stay in hospital?	What were the overall costs for the health care service?
Episode 1				Treatment: Transportation/others:
Episode 2				Treatment: Transportation/others:
Episode 3				Treatment: Transportation/others:
Episode 4				Treatment: Transportation/others:
Question	24.5	24.6	24.7	24.8
	How much did you pay for yourself/ a family member?	Who paid the remaining amount?	In case CBHI did not pay/ reimburse , what was the reason?	How would you rate the service received? (1-5 rating scales, 1 best – 5 worse)
Episode 1	Treatment: Transportation/others:	Treatment: Transportation/others:		
Episode 2	Treatment: Transportation/others:	Treatment: Transportation/others:		
Episode 3	Treatment: Transportation/others:	Treatment: Transportation/others:		
Episode 4	Treatment: Transportation/others:	Treatment: Transportation/others:		

Questionnaire for uninsured households

Part 1:	**Socia-Demographic Data**
1	**Name and last name**
2	**Gender** 1.[ ]Female 2.[ ]Male
3	**Age**
4	**Martial status** [ ]1. Single [ ]2. Married [ ]3. Widowed [ ]4. Divorced [ ]5. Separated
5	**How many childen do you have?**
6	**How many people in your household?**
7	**What is your religion?** [ ]1.Buddism [ ]2. Animism [ ]3. Christianity [ ]4. Others: ……
8	**What is your highest leivel of education?** [ ]1.Never attend school (0 year) [ ]2. Primary school (5 ye ar) [ ]3. Lower secondary school (8 ye ar) [ ]4. High school (11-12 year) [ ]5. University or higher (15 ye ar or higher)
9	**What is your main occupation?** [ ]1. Business/trader [ ]2. Casual worker [ ]3. Farmer [ ]4. Street vendor [ ]5. Laborer [ ]6. Others: ……
Part 2:	**Information about CBHI scheme**
10	**Do you know about the CBHI scheme?** [ ]1.Yes [ ]2. No (If "No" please skip questions 10.1-10.2 and answer question 10.3)
10.1	**If "Yes" what was the source of information?** [ ]1. Friends [ ]2. Radio [ ]3. News paper [ ]4. Television [ ]5. Hospital [ ]6. Village head [ ]7. CBHI officer [ ]7. Others:……
10.2	**If "yes" have you ever been a member of CBHI scheme?** [ ]1.Yes [ ]2. No (if "yes" Please answer question 10.2.1)
10.2.1	**What was the reason of droping-out?**
10.3	**Why haven't you joined CBHI scheme?**
Part 3:	**Morbidity and the previous year's hospitalization**
11	**Is there anybody in your family who has any of the following chronic conditions requiring continous care more than 6 months?** [ ]1.Yes [ ]2. No (if "yes" please answer question 11.1)
11.1	**If "yes", which one(s)?** [ ]1. Chornic headach [ ]2. Diabetes [ ]3. Back pain [ ]4. Hypertension [ ]5. Joint pains [ ]6. Heart disease [ ]7. Ear disease [ ]8. Tuberculosis [ ]9. Epilepsy [ ]10. Paralysis [ ]11. Eye disease [ ]12. Depression/stress [ ]13. Asthma [ ]14. Stomach ulcers [ ]15. Others:……
12	**Did you or a member of your family get any illness or injury during the previous month ?** [ ]1. Yes [ ]2. No if "Yes" How many time? :…… Please answer questions 12.1 -12.7
13	**Have you or a family member been hospitalized within the period of 12 months?** [ ]1. Yes [ ]2. No if "Yes" How many admissions? :……. Please answer questions 13.1 -13.8
Part 4:	**Social economic status**
14	**What is your monthly household income? (LAK)** [ ]1. More than 10,000,000 [ ]2. 5,000,000-10,000,000 [ ]3. 2,500,000 [ ]4. 1,000,000-2,500,000 [ ]5. L ess than 1,000,000
15	What is your monthly expenditure? [ ]1. More than 10,000,000 [ ]2. 5,000,000-10,000,000 [ ]3. 2,500,000 [ ]4. 1,000,000-2,500,000 [ ]5. L ess than 1,000,000

Part 5:	**Health service accessibility**	
16	**From the previous year, did you/any family member ever have a problem in getting health care servides that you think you needed?** [ ]1. Yes [ ]2. No (if "No" Please skip question 16.1)	
16.1	**If "Yes", What was the illness?** **why did you or family member not get health care?**	
17	**How would you rate the difficulty of accessiing health care facilities?** [ ]1.Very easy [ ]2.Easy [ ]3. Average [ ]4. Difficult [ ]5. Very difficult	
Part 6:	**Stisfaction with Inpatient Health Care Services**	
18	**How would you rate the overall satisfaction?**	
	Heatlh service	[ ]1.Very satisfied [ ]2. Satisfied [ ]3. Average [ ]4. Dissatisfied [ ]5. Strongly dissatisfied
	Doctors	[ ]1.Very satisfied [ ]2. Satisfied [ ]3. Average [ ]4. Dissatisfied [ ]5. Strongly dissatisfied
	Drugs	[ ]1.Very satisfied [ ]2. Satisfied [ ]3. Average [ ]4. Dissatisfied [ ]5. Strongly dissatisfied
	Staff	[ ]1.Very satisfied [ ]2. Satisfied [ ]3. Average [ ]4. Dissatisfied [ ]5. Strongly dissatisfied

Questions 12.1-12.7

Question	12.1	12.2	12.3	12.4
	What is the illness or injury?	How many days did you/ they not work because of the illness?	What was health sought?	In case nothing was done, what was the reason?
Episode 1				
Episode 2				
Episode 3				
Question	12.5	12.6	12.7	
	What was the total cost of the health? (paid by OOP or used health insurance)	From where did you get money to pay?	Were you satisfied with the services received? (1-5 rating scales)	
Episode 1	Treatment: Transportation/others:	Treatment: Transportation/others:		
Episode 2	Treatment: Transportation/others:	Treatment: Transportation/others:		
Episode 3	Treatment: Transportation/others:	Treatment: Transportation/others:		

Questions 13.1-13.8

Question	13.1	13.2	13.3	13.4
	What was the illness or injury?	Which hospital were you/ your family admitted?	How many days did you/ your family stay in hospital?	What were the overall costs for health care?
Episode 1				Treatment: Transportation/others:
Episode 2				Treatment: Transportation/others:
Episode 3				Treatment: Transportation/others:
Episode 4				Treatment: Transportation/others:
Question	13.5	13.6	13.7	
	How much did you pay for yourself /a family member?	Who paid the remaining amount?	How would you rate service received? (1-5 rating scales)	
Episode 1	Treatment: Transportation/others:	Treatment: Transportation/others:		
Episode 2	Treatment: Transportation/others:	Treatment: Transportation/others:		
Episode 3	Treatment: Transportation/others:	Treatment: Transportation/others:		
Episode 4	Treatment: Transportation/others:	Treatment: Transportation/others:		

In-depth interview

Questions for in-depth interview 1 (Interviewee: Health administrators)

1. What do you think about the Community Based Health Insurance (CBHI) scheme with respected to:
    - Enabling better accessibility to health care services for low and middle income in Savannakhet province
    - Offering financial protection against catastrophic/ huge out-of-pocket expenditure
2. How does the Community Based Health Insurance (CBHI) work in term of risk pooling and management?
3. What are the major weakness, constraint and problems in the implementation process?
4. What is the major impact of the Community Based Health Insurance (CBHI) on contracted hospital/ health care facility?
5. What are the significant impacts of the CBHI scheme on the members in term of quality, financial protection, and accessibility of the health care services?
6. In your opinion what was the best practice of the CBHI scheme?

Questions for in-depth interview 2 (Interviewee: Health providers)

1. What do you think about the Community Based Health Insurance (CBHI) scheme with respected to:
    - Enabling better accessibility to health care services for low and middle income in Savannakhet province
    - Offering financial protection against catastrophic/ huge out-of-pocket expenditure
2. How does the Community Based Health Insurance (CBHI) work and how it is managed?
3. What are major challenges of the health providers in the implementation process of the Community Based Health Insurance (CBHI) scheme?
    - Method of payment
    - Service provision
    - Attitude of the patient
    - Moral hazard
    - Adverse selection
4. With regards to:
    - High cost of treatment without exception services
    - The accounting system
    - No co-payment

    What is your opinion?
5. What are the significant impacts of the CBHI scheme on the members in term of quality, financial protection, and accessibility of the health care services?

Focus group discussion (interviewee: CBHI members)

Focus group discussion (interviewee: CBHI members/ former members)

1. What are your opinions about the following issues?
    - Health coverage for the insured households
    - Health coverage for people under 18 years old
2. Do you think the CBHI scheme enhance accessibility to health care services? Why?
3. Could you give the explanation about how the CBHI scheme reduces out-of-pocket expenditure?
4. Is there a time when you were sick but did not go for a health care service? Why?
5. Have you been sick and admitted to hospital without taking advantage of being CBHI member?
6. What was the major source of money to pay for the cost of health care?
7. Did you have financial difficulties for health service expenditure?
    - If yes, how did you manage with that situation?
    - If no, have you ever seen other people encountered with this situation and how did they manage it?
8. How well does the CBHI offer in term of:
    - Accessibility to outpatient care?
    - Accessibility to inpatient care?
    - Accessibility to service based on the chronic condition?
    - Accessibility to high cost care?

9. How do you rate quality of drug and quality of care prescribed by the contracted hospital? (You may skip this question if you haven't used any contracted hospital service)
10. What are the possible causes that make you less likely to review the CBHI membership status in the following month/year (For insured households only)? Or what were the causes that make you dropout from the CBHI scheme (For uninsured households only)?

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