

Community-Based Health Insurance in Lao P.D.R.

Understanding Enrollment and Impacts

The World Bank, November 2010

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Summary

Community Based Health Insurance (CBHI) is one of the four main risk-protection schemes in Laos and is expected to be one of the building blocks to achieving universal coverage in the future. However, after 9 years of pilot projects, coverage remains very low for reasons that are only partially understood. This study was conducted to better understand the factors affecting enrollment in CBHI, members' experiences with the scheme, and the impact of CBHI on members' utilization and out-of-pocket expenditures.

A household survey was administered to 1000 CBHI-enrolled households and 2000 comparison households (a total of 14,804 individuals) and a village survey was administered to the village chief in 87 villages. The study found that enrollment in CBHI is influenced by several factors at the household level, including age and education of household head, household size, socioeconomic status, quality perceptions and exposure to CBHI. Health status, risk preferences, having a pregnant woman in the household, and having more women of reproductive age also influence enrollment, confirming that adverse selection (the tendency for households with a sick family member to enroll) is present in the scheme. At the village level, significant determinants of enrollment include: urban/rural mix, the availability of other health care options in the village, age and education of the village chief, exposure to CBHI, village size and the location of the scheme. The impact findings showed that insured individuals have higher utilization rates and lower out-of-pocket expenditures than non-members. CBHI members are also more likely than non-members to use the referral system for their care.

Although the findings show positive impacts for CBHI members, few households actually benefit due to the scheme's low coverage. While the study points to programmatic changes that could be made to strengthen CBHI, it also highlights the challenges of scaling up coverage through CBHI and makes some suggestions for complementary approaches to achieving universal coverage.

This note was prepared as part of a World Bank program of analytic work on health financing in Lao PDR, and in collaboration with WHO, the London School of Hygiene and Tropical Medicine (LSHTM) and the Ministry of Health (MOH). Core members of the study team included Sarah Alkenbrack (LSHTM), Magnus Lindelow (WB), and Bart Jacobs (Lux-Development, previously WHO). Phetdara Chanthala and Sophavanh Thisty assisted with the study design and implementation arrangements. Field work was implemented by Indochina Research. Helpful comments on the draft versions of the note were received from Bayar Bayarsaikhan, Alexis Bigeard, Genevieve Boyreau, Kara Hanson, Christoph Kurowski, Anne Mills, Jean-Marc Thomé and Adam Wagstaff. The authors would like to thank Dr. Bouaphat Phonvisay (Deputy Chief of CBHI team in Ministry of Health) and her team for their collaboration on this study. Finally, the team is extremely grateful to the interviewees who took the time to participate in this study. The note summarizes findings from the study; further analysis and details will be disseminated in a separate research report.

Background

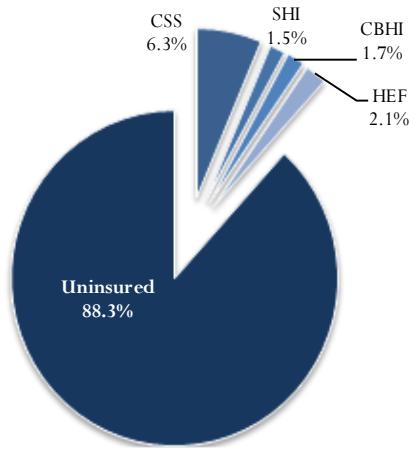
Health care in Lao P.D.R. is primarily financed through direct out-of-pocket payments by households. These payments include expenditures on services and drugs from public health facilities, pharmacies, private providers, traditional providers, and facilities outside the country. As in other countries, high reliance on out-of-pocket financing in Lao PDR forces individuals to either reduce utilization of health care, ultimately prolonging or worsening health, or make out-of-pocket payments to cover medical-related costs, leading to risk of impoverishment [1, 2].

In an effort to increase health service utilization, decrease health-related out-of-pocket expenditures, improve health outcomes and generate resources for the health sector, the Government of Lao PDR is trying to expand coverage of health insurance and risk protection schemes [3]. CBHI is one of the main risk-protection schemes in the country and targets the informal workforce. Other health protection schemes operating alongside CBHI are the Civil Servants' Scheme (CSS), Social Health Insurance (SHI) for

private and state-owned enterprises and health equity funds (HEFs) for households living in extreme poverty. Together, the four risk-protection schemes are considered the main building blocks of health financing in Lao PDR and the government is considering various options for scaling up coverage to achieve universal coverage by 2020.¹ However, outside the Civil Servants' scheme, coverage rates are low, with approximately 1.7% of the population enrolled in CBHI, 1.5% enrolled in SHI and 2.1% enrolled in HEFs in 2009 (See Figure 1).

¹ A decree is in process to merge all social health protection schemes. While a merging of schemes may result in increased efficiencies, on its own it is unlikely to increase coverage in the population.

Figure 1. Insurance coverage in Lao PDR



MOH, 2009; SSO database, SSO Jan 2009; CSS/SASS databases, 2009; HEF 2009 annual report, MOH 2010

Given that CBHI occupies a prominent position on the health financing agenda, a study was conducted to better understand the status of the CBHI program and identify challenges and opportunities to expand enrollment. The study also examined the impact of the scheme on health care utilization, source of care, and out-of-pocket expenditures.²

Key policy questions addressed by the study

The study addressed the following research questions:

Enrollment

- Who is enrolling in CBHI? How are insured households different from the uninsured?
- What are the most important factors affecting enrollment?
- What are the most important reasons for not enrolling in CBHI?
- How do households perceive CBHI? What has been members' experience with the scheme?
- What percentage of targeted households intends to enroll/maintain enrollment in CBHI in the future?

Impact

- Are CBHI households more likely to use health care services than uninsured households?

- Does CBHI membership influence the source of health care?
- Do CBHI households incur lower out-of-pocket payments for health care than the uninsured?

Overview of CBHI

CBHI has become one of the key risk-protection schemes and is expected to play an important role in helping the country move toward universal coverage in the health sector. Introduced in 2001 as a pilot project by the Ministry of Health (MOH), the scheme has received technical assistance from WHO and financial support from the United Nations Human Security Fund. Currently, Agence Française de Développement (AFD) supports the MOH with scheme expansion in 2 provinces. The office responsible for managing the scheme is the Health Insurance Program, within the Department of Planning and Finance, MOH. The MOH contracts hospitals to provide services for CBHI members³ and a gatekeeping system requires CBHI members to first seek services at the contracting facility in their district. The benefit package for CBHI members is similar to the health care benefits in the two formal schemes: it covers outpatient and inpatient services including primary health care, specialist services, diagnostic tests, and prescribed drugs that are available at the hospitals.⁴

The main target group for the CBHI scheme is defined as households who are self-employed or working in the informal economy and are not covered by other social protection schemes. This group comprises approximately 52 percent of the population.⁵ Enrollment in the scheme takes place at the household level and the cost of premiums varies according to urban or rural residence, and number of household members. The contribution collection rates (see Appendix 1) were originally set at between 2.5 to 3% of average household income [4]. However, the contribution rates have not been updated since 2005, despite average inflation rates of 5.5% per year since that time [5].

Household contributions to the scheme are collected on a monthly basis by the village collector, who receives LAK 2,000 (US\$ 0.25) for each newly enrolled household and LAK 1,000 for each monthly contribution. However, a recent study noted several problems with the fee collection system: insured households complained that

² The study was designed and carried out by a team of researchers from the World Bank and London School of Hygiene and Tropical Medicine (LSHTM), with assistance from the World Health Organization (WHO). A local research team was hired to carry out data collection under the supervision of the World Bank/LSHTM team. The study was funded by the World Bank.

³ In most districts, the MOH contracts with the district hospital to provide services. However, in Luang Prabang and Vientiane Province there is no district hospital and the MOH instead contracts with a provincial hospital.

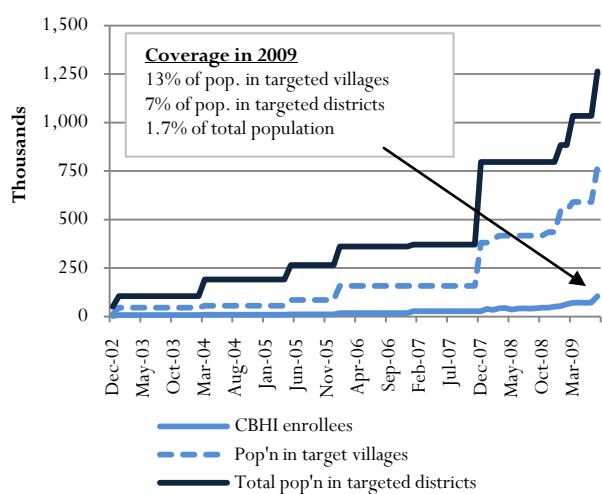
⁴ The benefit package excludes treatment of injuries, drugs purchased in pharmacies, and services outside the country.

⁵ This figure is an approximation made by taking the total population and subtracting the formal sector and their dependents, the military, and the poor.

collectors stopped collecting fees or did not come on a consistent basis, and village collectors reported that fees were too low to cover the costs of travel [6]. As a result of these problems, some villages have moved to a system whereby villagers make their payments directly to the CBHI account manager at the district hospital.

To date, CBHI has been implemented mainly in urban and semi-urban areas, but the MOH intends to expand to more remote areas in the future. The rationale for starting in urban/semi-urban areas was that health care services are of a reasonable quality and the socioeconomic status of the target population was deemed high enough that households could afford the premiums.⁶ However, after 9 years of piloting, CBHI in Lao PDR continues to face the same challenges that most other countries implementing CBHI have experienced. One of the main challenges is the low coverage rates. Figure 2 shows that rolling out the scheme to new districts has not resulted in substantial increases in enrollment. By July 2009, the schemes were operating in 19 districts but reached only 7% of the population in the targeted districts (and 13% of the population in the targeted *villages* within those districts). This is the equivalent to 1.7% of the total population. It is expected that scale-up of the scheme to more remote areas will pose further challenges due to low population density, poor geographical access to contracting facilities, and limited acquaintance with modern health care among ethnic minorities.

Figure 2. Expansion of CBHI, 2002-2009



Source: CBHI office, Department of Planning and Finance, MOH

Another challenge facing the CBHI scheme is financial sustainability: the scheme is currently not generating enough revenues to cover the cost of services and drugs offered to CBHI members. Only the salaries of health

⁶ Risk-pooling is at the district level but CBHI is not always rolled out across all villages in a district because some villages are too remote or do not have good access to the hospital.

care workers are subsidized by the Government; all other costs incurred by CBHI members are expected to be covered by the household premiums. Ninety percent of the amount collected through premiums is paid to the contracting hospitals regardless of actual use by beneficiaries, and the remaining 10% covers administrative costs. In Vientiane Capital, this capitation payment amounted to between LAK 40,000 to 45,000 (US\$4.70 - \$5.30) per insured person in 2009 [4]. The capitation is split between the district and the referral hospitals, according to need. However, in the absence of additional subsidies, the capitation payments are insufficient to cover the cost of services. As a result, several central hospitals in Vientiane Capital have refused to contract with the CBHI scheme [4].

In addition to the problems of low coverage and insufficient funding, high drop-out rates⁷ and late payments have been reported as challenges affecting the scheme. For example, an average of 40 percent of members made their payments during the two month warning period that is imposed after payment is due [7]. Anecdotal evidence also claims that the scheme suffers from *adverse selection*, the phenomenon by which high-risk individuals (e.g. the chronically ill) have an incentive to enroll in health insurance at a certain premium when they have a known need for services [8]. A recent study also describes various management challenges of the scheme, including insufficient staffing, insufficient technical capacities and scarce financial resources at all levels [9].

Study Approach

The study was designed with reference to the international literature on CBHI and previous studies on CBHI in Lao PDR [6, 10, 11]. The primary method of the study was a household survey, which was administered from January through April 2009, using a cross-sectional case-comparison design of 1000 CBHI-enrolled households and 2000 comparison households, amounting to a total of 14,804 individuals for which information (about individuals and the household) was collected. A village survey was administered to the village chief in the 87 villages where the study was conducted.⁸ Information from the two surveys was merged to permit analysis of variables at three levels: individual, household and village. Six focus group discussions with members, non-members

⁷ The drop-out rate at a given time includes both temporary (late payers) and permanent drop-outs. Although drop-outs are reported to be a problem by the CBHI office, it is not possible to calculate the drop-out rate because the administrative data only includes numbers enrolled and not the numbers joining and leaving the scheme.

⁸ The MoH approved the implementation of the survey. Ethical approval for the study was granted by the ethics committees at the National Institute of Public Health in Laos and at LSHTM in the United Kingdom.

and drop-outs were also conducted to better understand factors affecting enrollment.⁹

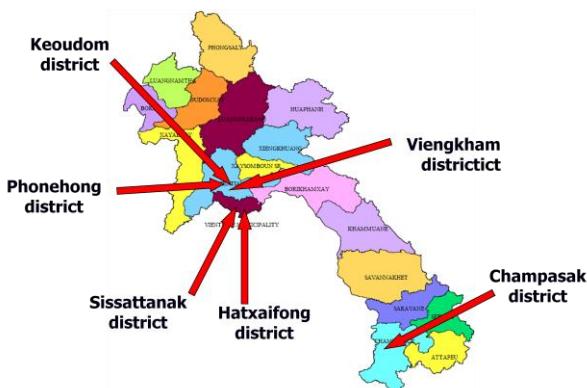
Data collection

Through preliminary focus group discussions, efforts were made to understand potential factors affecting enrollment in CBHI prior to survey design. Survey instruments were then designed to capture self-selection into the scheme. For example, the voluntary nature of the scheme makes it prone to adverse selection. “High-risk” characteristics such as chronic illnesses, disabilities, or even different attitudes and preferences for health care, have a direct effect on an individual’s use of health services. Therefore, if these variables are not taken into account in the analysis, the results of the impact evaluation could be misleading. For example, a higher utilization rate among the insured could be the result of a *greater need* for services (due to more sick family members or a chronic disease in the family), rather than improved access due to insurance. Controlling for the differences in these risk and health factors gives a more reliable estimate of the effects of insurance on utilization, expenditures, and other outcomes. Because perceptions of “illness” and “poor health” differ across households, this study used multiple measures of health status to adequately capture factors affecting enrollment.

Study location and sample selection

The study took place in 87 villages across 6 districts from Vientiane Capital, Vientiane Province, and Champasak Province (See Figure 4). The majority of the sample was drawn from urban and semi-urban areas, reflecting the areas where the majority of the schemes have been implemented to date.

Figure 3. Location of study districts



The survey team selected CBHI and comparison households from villages where CBHI had been in place for at least two years. Households were randomly selected using a two-stage cluster sample approach. For every CBHI household recruited to the sample, two comparison

⁹ Further details of the qualitative methodology, analysis and results are presented in the full report.

households were selected.¹⁰ The response rate for the CBHI and comparison populations was 99.7% and 96.9%, respectively.

Data analysis

To determine the factors influencing enrollment in CBHI, probit analysis was undertaken. Results from this analysis are presented as predicted probabilities, which represent the probability that a household will enroll in CBHI when all other factors are held constant at their mean value. When we compare predicted probabilities for “representative individuals”, we can see how the probability of enrollment changes as the variable of interest (e.g. education level) changes [12].

To measure the impact of insurance, we used a method known as propensity score matching (PSM) – a method that has been used to evaluate the impact of social programs [13], including job training programs [14-17], education programs [18], and more recently, health insurance schemes [19-23]. PSM uses a range of variables to construct a single variable known as the “propensity score” for each observation. The propensity scores represent the predicted probability of being enrolled in CBHI and the scores are used to match CBHI observations to comparison observations. This type of matching, which is further explained in the technical report, seeks to control for observable differences in characteristics between the CBHI and comparison populations. After matching, the differences in outcomes (e.g. utilization, expenditures) between the groups should then represent the impact of being enrolled in CBHI. The impact evaluation was conducted at the individual level, rather than the household level, given that individuals within a household have different rates of utilization and out-of-pocket expenditures.¹¹

Study Findings

Which households are enrolling in CBHI and how are they different from households without insurance?

A comparison of background characteristics between CBHI and comparison households allows us to identify both who is enrolling in CBHI and how insured households differ from the uninsured. Comparisons between the two groups on various household-level

¹⁰ CBHI member households were randomly selected from member lists in villages. Comparison households were randomly selected from the village registry.

¹¹ The comparison group was constructed using kernel matching, with a Gaussian (normal) kernel and bandwidth of 0.02. The matching for one outcome was done using “psmatch2” in Stata and standard errors were bootstrapped with 100 replications. Additional outcomes were estimated using a weighted regression, with kernel weights constructed using the propensity score.

characteristics (without controlling for other variables) are presented in Appendix 2 and are summarized below:

- CBHI households are larger, more likely to be married, and more educated than non-CBHI households. On average, the household head in CBHI households is older than in comparison households.
- CBHI households have significantly higher household consumption levels than comparison households but similar *per capita* consumption rates. Among those who are employed¹², CBHI households are more likely than comparison households to hold a long-term contract.
- CBHI households are less healthy, have more elderly household members, more women of reproductive age and more pregnant women, relative to comparison households. CBHI households are also relatively more risk averse (i.e. less likely to take risks).¹³
- Attitudes toward different sources of care are similar among CBHI and non-CBHI households. However, CBHI households report a higher perception of quality of health care at the district hospital.
- CBHI members are more likely to have attended a CBHI campaign (See Appendix 3). (However, the effectiveness of the campaign in improving awareness seems to vary, according to reports from qualitative data.)

What are the most important factors affecting enrollment?

Although the comparison of the two groups discussed above is useful for understanding the sample, it is only possible to determine whether a variable is associated with enrollment when we control for differences in other characteristics. As described under “Study Approach”, the predicted probabilities shown in Figures 4 and 5 examine the relationship between CBHI enrollment and the variable of interest (at the household and village level, respectively), while holding all other independent variables constant at their mean value. Only variables that are significantly associated with enrollment are presented here. (A description of the relationship between enrollment and the full set of variables in the model can be found in the technical report).

Household level determinants

Age and education of household head. At the household level, age of the household head influences enrollment in CBHI, such that households in which the household head is older are significantly more likely to enroll. Although households with primary or secondary education are no more likely than those with no education to enroll, the

probability of enrollment increases for those with vocational training or post-secondary education.

Household size. The findings on household size indicate that households with six or more family members are significantly more likely to enroll in CBHI. This makes sense given that the scheme’s premium structure provides an incentive for larger households to enroll: as family size increases, the cost of the premium per person decreases. Although the probability of enrollment is higher for households with 4 to 5 household members than for 1 to 3 household members, this difference was not significant. It is possible that the incentive structure is only strong enough to attract households with at least six family members.

Health status and risk perceptions/attitudes. The findings show that having worse than average (self-assessed) health does not significantly increase enrollment. However, households in which a family member has either a chronic illness or had difficulty performing regular activities in the past three months (an indicator of illness) were significantly more likely to enroll in CBHI than households with no signs of illness. Moreover, households with multiple signs of illness (either within the same family member or across family members) were even more likely to enroll in CBHI than households with just one sign of illness in the household. These findings confirm that adverse selection is present in the scheme. From a public health perspective, these results are positive in that they indicate that people who most need health care services are purchasing insurance. However, adverse selection can drive up the cost of health care per insured member, thereby threatening the sustainability and financial viability of the scheme.

According to insurance theory, people who do not like to take risks will be more likely to enroll in health insurance due to the desire to protect themselves from health-related financial loss in the future [24]. However, the study found that people who are very risk averse are actually *less* likely to enroll in CBHI. Qualitative interviews shed some light on why this may be the case. Although the majority of the respondents in the qualitative interviews reported that enrolling in CBHI allows people to minimize their risk, some felt that enrolling in CBHI is a risky venture and that enrollment actually *increases* risk (because one can’t be sure that benefits will be delivered when they are needed).

Other types of risks at the household level are associated with enrollment: having a pregnancy in the household and having more women of reproductive age. However, having an older family member or children under the age of five (results not presented here) does not significantly increase the probability of enrollment, when all other factors are held constant.

¹² “Employment” excludes unpaid household duties but includes subsistence farming.

¹³ See Appendix 1 for more details on risk measurement.

Figure 4. Predicted probability of enrollment by household characteristics

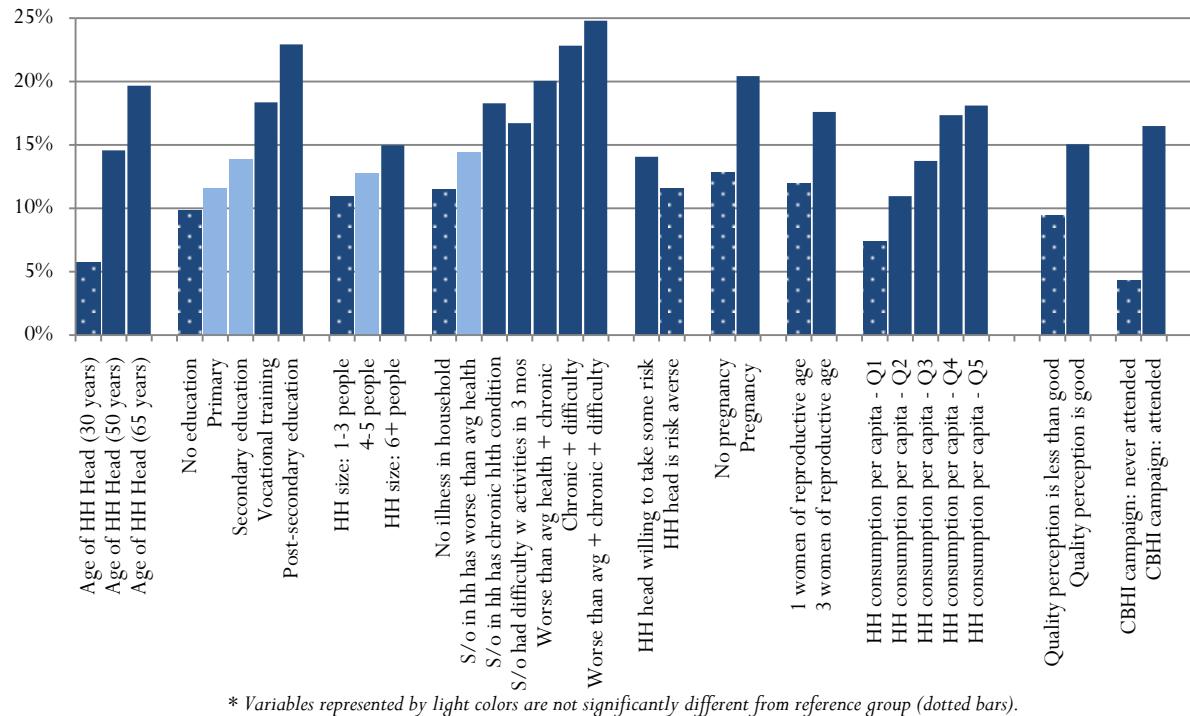
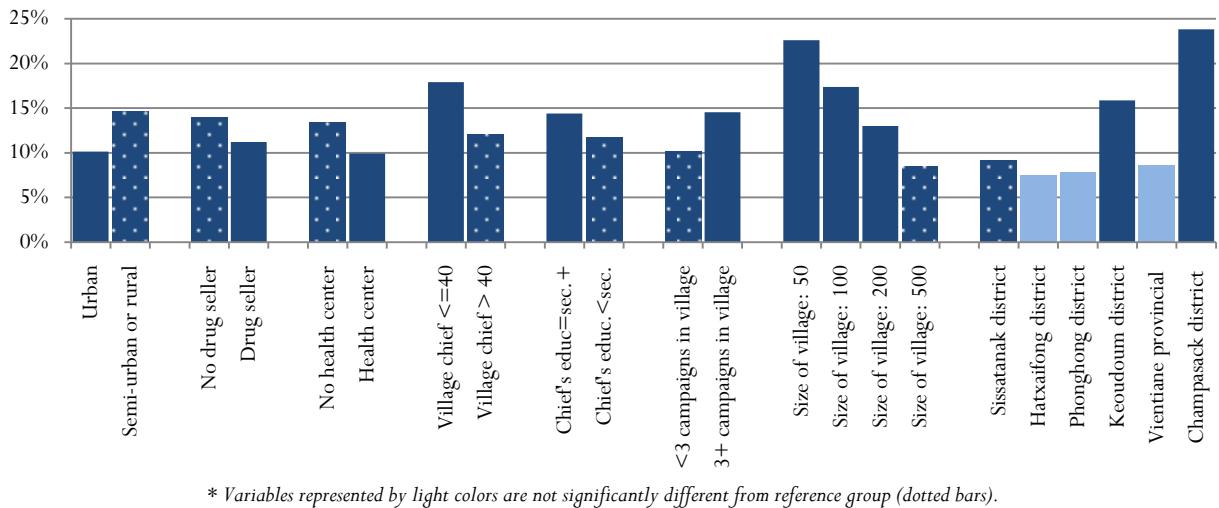


Figure 5. Predicted probability of enrollment by village characteristics



Economic situation of the household. When other factors are held constant, households that are better-off financially (measured by per capita consumption) are significantly more likely to enroll in CBHI. However, the effect of consumption on enrollment diminishes as consumption increases. Households in the highest quintile are not much more likely to enroll in health insurance than those in the fourth quintile. Thus, increases in consumption among relatively poorer households will have a bigger impact on the probability of enrollment than will increases in consumption among better-off households.

The relationship between enrollment and consumption shows that even though CBHI in Lao PDR does not specifically target the poorest households (this is the task of health equity funds, which also suffer from low coverage), the fact that the poor are less likely to enroll in CBHI is a concern from an equity standpoint [25]. Furthermore, the poor are most vulnerable to catastrophic health payments [26, 27]. Although plans are underway in Lao PDR to eventually link health equity funds with CBHI, so that the fund will pay the premium on behalf of the poor, these linkages have only been implemented on a small scale. Thus, CBHI may continue

to exacerbate inequities in areas where subsidies for the poor are not available.

Factors affecting preferences for modern care. In designing this study, we recognized that the decision to enroll in CBHI could be linked to factors such as ethnicity, preferences for modern health care (e.g. whether a household uses traditional or modern care), and perceptions of quality of care. The study found that almost all households in the sample belong to the Tai-Kadai ethnic group¹⁴, and almost all households have a preference for modern health care over traditional care (See Appendix 2 for these results). Therefore, these factors do not explain differences in enrollment in this sample and are not shown here.

The two groups differ on their perceptions of quality of care at the district hospital. As shown in Figure 4, a higher perception of quality of health care is associated with enrollment in CBHI. However, given the cross-sectional nature of the data, these findings should be interpreted with caution: although it is plausible that a higher perception of quality influences whether a household enrolls in CBHI, it is equally plausible that higher quality reported by CBHI members is a *result* of being in the scheme. For example, CBHI members may have more contact with the district hospitals or a better experience overall because they don't have to pay for health care, leading them to report better quality. Given the difficulty of measuring the direction of this relationship, we tried to further control for quality using a village-level measure.

Exposure to CBHI. Exposure to CBHI may positively influence households to join CBHI. People who attended a campaign were more likely to enroll in CBHI than people who did not attend. However, it is possible that CBHI members were interested in joining CBHI and therefore attended the campaign in anticipation of joining the scheme. Qualitative data therefore helps to explain the results. Focus group discussion participants confirmed that the campaigns were effective in encouraging people to enroll, but that the information presented in the campaigns was sometimes unclear, incorrect, or both.

Village level determinants

Location. At the village level, the factors that are significantly associated with enrollment are shown in Figure 5. Households in urban villages have a significantly lower probability of enrolling in CBHI than households in

¹⁴ The official ethno-linguistic groupings, recognized by the Lao Front for National Construction (LFNC), include 49 distinctive ethnic groups and four main groupings. However, 98% of the sample belongs to the Tai-Kadai group. This group dominates the cities and other semi-urban areas where the study was conducted.

semi-urban villages. During focus group discussions, participants explained that people in urban areas have many options for health care and prefer to use the central hospital, private care or seek medical care in Thailand. Enrolling in CBHI, which requires households to use services at the district hospital, is therefore less attractive in urban areas. In contrast, there are fewer options for care in semi-urban areas, explaining the higher enrollment rates in these areas.

Availability of care in village. The results show that CBHI enrollment is influenced by the availability of care in the village. Households living in villages with a drug seller are less likely to enroll in CBHI. This is likely because self-treatment (from both registered pharmacies and private, unregistered drug sellers), is relatively common in Lao PDR [7, 28]. The findings also showed that households living in villages with a health center are less likely to enroll in CBHI, most likely because CBHI – which requires people to leave their villages to attend the district hospital for their first point of care – is less attractive when a health center is readily available in the village. On the other hand, distance is not a significant factor affecting enrollment, but this finding may have more to do with the fact that most villages where CBHI has been implemented are located relatively close to the district hospital. Distance may pose a barrier once the program is scaled up to more remote villages.

Age and education of chief. The probability of a household joining CBHI is higher among villages with younger, more educated chiefs. It is possible that younger chiefs are more active in their communities and are more likely to promote CBHI among members. Similarly, higher education may lead to a better understanding of the benefits of health insurance, making better educated chiefs more likely to encourage enrollment.

Village size. The probability of enrolling in CBHI decreases as the size of the village increases. It is possible that smaller villages have stronger solidarity with the community, making it easier for village chiefs and other groups to influence villagers to enroll in CBHI.

Exposure to CBHI. Households in villages that have had at least three campaigns are significantly more likely to enroll in CBHI than households in villages with less than three campaigns.

Contracting hospital. Although the CBHI scheme usually contracts with the district hospital, in Viengkham, the scheme contracts with the Vientiane provincial hospital.¹⁵ The results show that households using the Champasak hospital are approximately three times more likely to

¹⁵ The scheme run out of the Vientiane provincial hospital also serves 4 villages in Phonghong and these villages have been grouped under the Viengkham scheme in the analysis.

enroll in CBHI than households using services in Sissatanak, Hatxaifong, Phonghong and Viengkham. Discussions with CBHI and WHO staff made it clear that the two schemes in Vientiane Capital (Hatxaifong and Sissatanak) have had difficulty increasing enrollment due to competition with several other health care options in the capital city, as described earlier. It is possible that the relatively higher probability of enrollment in Champasak is a response to high prices charged for drugs at the Champasak district and provincial hospitals, as one study suggests [29]. In Phonghong and Viengkham, a problem with coordination between the provincial and district CBHI teams and the hospitals is believed to be the main reason for low coverage [30].

What are the most important reasons for not enrolling in CBHI?

In addition to identifying factors affecting enrollment through multivariate analysis, we asked non-members to rate their reasons for not enrolling. Not having enough money and not understanding how the scheme works were the first and second most important reasons for not enrolling, respectively. However, it is interesting to note that the majority of those reporting a poor understanding of the scheme actually attended CBHI campaigns, suggesting that the campaigns were not effective in increasing individuals' understanding of the scheme. Establishing linkages with health equity funds to cover the cost of premiums for the poor, and disseminating information about CBHI more effectively through campaigns and other channels, are two possible strategies that could help to bolster enrollment rates in the short to medium term.

What are the perceptions of and experiences with CBHI?

The survey gathered information about perceptions of, and experiences with, the CBHI scheme. However, these results should be interpreted with caution for a few reasons: *First*, comparing perceptions and experiences with CBHI between the two groups is difficult because CBHI households are more familiar with the scheme and this familiarity can influence opinions about the scheme; *second*, reports on satisfaction and perceptions are often positively biased when reported in household surveys [31-33]; *third*, the fact that the CBHI scheme is run by the Government may discourage people from expressing their true opinions about the scheme. Nevertheless, the following findings are noted:

- CBHI members reported a high level of satisfaction with the scheme (95% rated their satisfaction level as 4 or higher, on a scale of 1 to 5).
- Both CBHI and comparison households reported that CBHI was good value (or somewhat good value) for money (98% of CBHI households and 80% of comparison households).

- Trust in CBHI is high across both groups but is significantly higher among the CBHI population (see Appendix 3).
- 72% of the CBHI group and 55% of the comparison group reported that CBHI members are treated the same or better than uninsured households. However, in focus group discussions almost all respondents agreed that non-members receive faster and better treatment than members.
- CBHI members consistently report significantly higher perceptions of quality on various dimensions of care than do the uninsured (See Appendix 4). However, in qualitative interviews both groups expressed concerns about poor quality of care, including long waiting times, limited skills of providers to diagnose illness, poor availability of quality medicines, poor attitudes of staff members, and poor quality of equipment.

What percentage of targeted households intends to enroll/maintain enrollment in CBHI in the future?

According to study findings, intentions to maintain enrollment in the CBHI group are high: 98% of CBHI members and 65% of the uninsured said they plan to be enrolled in one year from now. However, these estimates are likely biased upwards for reasons discussed above. Most members and non-members reported in focus group discussions that they would only enroll or re-enroll if quality improves. To a lesser extent, members were concerned that the scheme excluded accidents and that the referral system prevented members from using higher-level facilities.

The Impact of Health Insurance

Are CBHI members more likely to use health care than the uninsured?

After matching the CBHI and comparison individuals¹⁶, the differences between the groups represent the impact of the insurance scheme.¹⁷ Figure 6 reports the estimates of the impact of being enrolled in CBHI on utilization. (More detailed results are included in Appendix 5). The results show that the scheme has significantly increased utilization of both inpatient and outpatient services. In fact, CBHI members are almost twice as likely as non-

¹⁶ Although enrollment in CBHI is at the *household* level, we use individual level outcomes to determine impact. The sample includes 14,804 individuals across 3000 households.

¹⁷ Before matching, the propensity scores for CBHI and comparison observations were found to be very similar. Matching reduced the bias between the two groups by 89% and eliminated all statistically significant differences (at the .01 level) on all 26 variables. Thirty-eight CBHI observations were outside the region of common support and were therefore dropped from the analysis, leaving 5,298 and 9,468 CBHI and non-CBHI observations respectively.

members to have an inpatient visit in a one year period. In Lao PDR, where utilization rates are very low, improved access to care is an important step forward. Results show that of those who had at least one inpatient visit, there was no significant difference between the insured and uninsured in the number of visits over the course of the year. Similarly, there was no significant difference in number of outpatient visits for those with any outpatient visit.

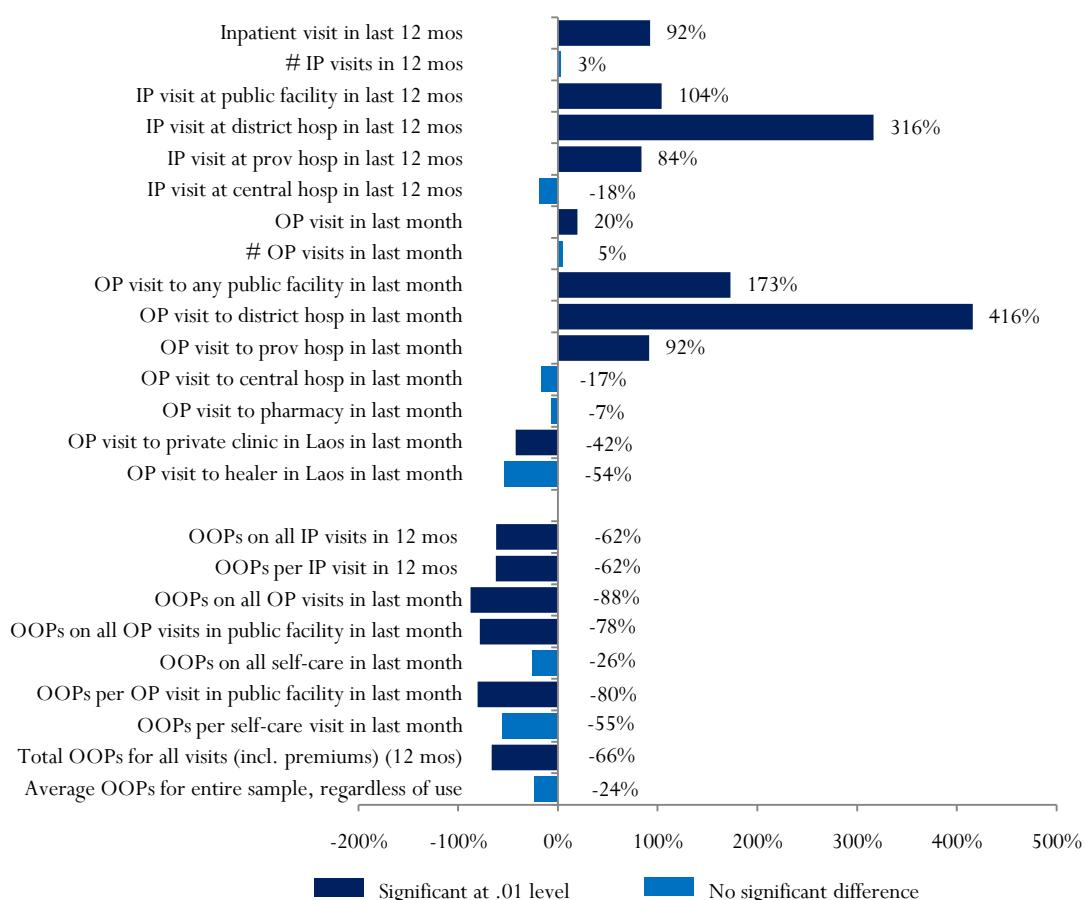
How does CBHI membership influence the source of health care?

Although increased utilization is an important policy objective, influencing source of care is also important. The findings in Figure 6 indicate two patterns with respect to source of care. First, insurance is influencing use of the referral system. CBHI members are more likely than non-members to visit both district and provincial hospitals, for both inpatient and outpatient care. The greater use of lower-level facilities by CBHI members is not surprising given that the scheme contracts with the district (and in some cases provincial) hospitals for first line care, but nonetheless shows that insurance is encouraging use of the referral system. Although the results do not indicate whether greater use of services at lower levels of care represents a shift from

the central level (because of the cross-sectional nature of the study), it is possible that insurance can encourage users to move from the central level to the district or provincial level for their care. Such a shift can bring about cost savings to the government in the long term.

The second trend relating to the source of care is that insurance is encouraging use of public sector facilities, and decreasing the likelihood that members will use private clinics. Although availability of private services in some countries can help to increase access to services that are often of higher quality, most often individuals using the private sector in Lao PDR are limited to services and drugs that they can pay for, and for which quality is poor. According to one study in Lao PDR, the poor who use the private sector in Lao PDR usually receive drugs, but no examinations, no diagnoses, and limited advice. Furthermore, limited resources can result in inappropriate and insufficient medicines being prescribed [34]. Therefore, the fact that CBHI is encouraging use of services in the public sector – and at lower levels of care – should result in not only enhanced financial protection, but also better quality of care, although quality in the public sector is also reportedly low.

Figure 6. Differences in utilization of health services and out-of-pocket expenditures, CBHI relative to non-CBHI



With the exception of the last two estimates, all OOP estimates exclude the cost of the monthly premium for CBHI members, and therefore represent the differences in cost at the point of service delivery.

Do CBHI households spend less money on health care than the uninsured?

The findings on out-of-pocket expenditures, shown in Figure 6, indicate that CBHI has a protective effect for its members by decreasing out-of-pocket expenditures. Despite the fact that they are using more services, CBHI enrollees incur lower out-of-pocket expenditures for both inpatient and outpatient services than do the uninsured. In fact, out-of-pocket expenditures on inpatient visits for the insured were less than half of those of the uninsured, while inpatient expenditures for the insured were one eighth of the amount spent by the uninsured. When the cost of monthly premiums is included, CBHI members' total payments, for those using services, are still only one third of the amount incurred by the uninsured. But while CBHI can reduce financial barriers for the insured who use services, it is important to note that the group of individuals using services is limited. When total expenditures (including the monthly premiums) are averaged across the entire sample (i.e. including those without a visit), there is no significant difference in out-of-pocket expenditures between the insured and uninsured.

Summary of impact findings

The impact findings suggest that the scheme is having its intended impact by increasing utilization, promoting use of the referral system, and decreasing out-of-pocket expenditures for those who use services. The findings on expenditures stand in contrast to the situation in neighboring China, where out-of-pocket payments are actually higher among the insured, due to restrictive benefit packages, high co-payments, supplier-induced demand (as a result of fee-for-service plans) and a demand for expensive care among the insured [35]. Although Lao's capitation payment discourages supplier-induced demand, it is possible that a future demand for expensive services, combined with poor regulation of utilization, could lead to higher expenditures for the insured.

The results of the matching show that all significant differences on observable characteristics were eliminated through the matching. Although bias is eliminated on all *observable* characteristics, it is important to note the limitations of these findings. The main limitation relates to the potential unobservables: there may be factors affecting enrollment that are not accounted for in the analysis and these variables could be distorting the impact findings. Given the effort to account for selection into the scheme (through the pre-survey work and the design of the questionnaires), and the closeness of the two groups

on observables even before matching, any distortion is expected to be minor.¹⁸

Looking Forward: Challenges and Opportunities

The findings generated from this study reveal useful information about CBHI, its members, and their experiences. The decision to enroll in CBHI in Lao PDR is influenced by a range of factors at the household and village levels, including health status, socioeconomic status, family size, and exposure to CBHI. With respect to its impact, the study confirms what other studies have found: CBHI can increase utilization of health services and provide financial protection for members [36-44]. CBHI in Lao PDR also encourages use of the referral system by directing members to lower levels of care. In addition to the outcomes measured by this study, it is also possible that CBHI has helped to lay the groundwork for a universal coverage scheme by building management capacity within the MoH and sensitizing communities and providers about health insurance, although the evidence to suggest this is beyond the scope of this study.

Despite the positive results generated from this study, the findings must be viewed in a broader context. After 9 years of pilot projects, CBHI is reaching only a fraction of the population (less than 10% in the targeted districts). The low coverage is consistent with the majority of CBHI schemes documented in the literature [36, 41, 45, 46]. Moreover, the scheme may be exacerbating inequities. With the exception of a few villages where health equity funds are operating alongside CBHI schemes, there are no subsidies in place to cover the cost of CBHI premiums for the poor. Nor is a systematic targeting scheme in place for identifying poor households.¹⁹ Therefore, while the impact has been mainly positive for members, on a population level the impacts are almost negligible.

With respect to strengthening the CBHI scheme, previous studies in Lao PDR provide useful recommendations for strengthening management functions [4, 6, 9]. This study also points to some immediate program changes that could be taken by the

¹⁸ It is possible that any unobserved factors affecting enrollment also lead to an increase in service utilization, in which case the effect of insurance on utilization and OOPs will be overestimated. However, given the magnitude of the impacts in the current analysis, the direction and significance of the true impacts are likely to be similar to results presented here.

¹⁹ Although the government has drafted guidelines to assist local authorities in identifying and monitoring poor households, there is presently significant variation in the criteria used by villages, as this study showed. Moreover, the list of poor households is not consistently maintained across villages.

MOH to bolster enrollment rates and improve the scheme. These include:

- *Reach out to households that are least likely to enroll in CBHI.* Data generated from this study shows that the poor, households with little or no education, and households in urban areas are the least likely to enroll in CBHI. Targeting promotional campaigns (in addition to the awareness campaigns conducted prior to launching the scheme in a village) could sensitize these groups to CBHI and encourage enrollment.
- *Improve quality of information dissemination regarding CBHI during awareness campaigns.* Many non-members who attended the campaigns claimed that they are not enrolling in CBHI because they do not understand how the scheme works. Improving campaigns or designing new, innovative channels of communication can help to bridge these information gaps. Furthermore, building capacity of CBHI staff to deliver clear, consistent information about CBHI will help to increase enrollment.
- *Update contribution rates and improve collection.* As a recent report suggests, contribution rates should be adjusted on a regular basis, at least to keep up with inflation [4]. Although subsidies for the poor will be necessary to make the scheme inclusive, the options for subsidizing the poor should be considered in a larger context, rather than just within the CBHI scheme (see following discussion).

It is possible that creating stronger incentives for collectors could lead to more reliable payments and possibly higher enrollment, but it may be costly and administratively burdensome and the impact of such an investment is unknown. Other approaches, such as involving community groups in the collection process, or offering a discount in exchange for advance payments of 12 or 6 months, should be considered.²⁰

- *Strengthen the CBHI management and information system.* It is worth noting that the current management and information system, which is only computerized in some districts, will need to be upgraded if CBHI management functions are to function effectively. A simple, computerized system will facilitate improvements in registration, contribution collection, and the monitoring of enrollment rates, funding flows and use of services.

But while programmatic adjustments to CBHI may strengthen the scheme, the magnitude of the impact of these changes is likely to be modest. The majority of voluntary CBHI schemes that have been documented in the literature have failed to reach a large share of the target population. Moreover, the findings from this study indicate that quality of care in Lao PDR is a big concern that will limit future enrollment of both members and non-members. Thus, it is likely that even sufficient investments in CBHI will be inadequate to overcome the challenges facing the scheme in the long-term. If that is the case, what options are there for building on the experiences to date to make broad-based progress towards universal coverage?

The limits of CBHI and the need for increased government spending

CBHI represents an effort to mobilize additional resources for the health system and provide financial protection for households through contributory financing. It is targeted on the informal sector, and is intended to complement payroll-based contributory schemes for the formal sector (social security and civil service schemes). However, the focus on households in the informal sector—the majority of households in the Lao context—represents one of the key challenges for the scheme. For these households, it is virtually impossible to verify income and relate contributions to ability to pay. Instead, households are asked to make flat-rate contributions, regardless of the economic situation of the household. This creates a real dilemma. For the scheme to be affordable and inclusive, contribution rates need to be kept low. But this also means that the benefit package has to remain either narrow or shallow. Alternatively, contribution rates can be set at a higher level to offer more generous benefits, but that risks excluding a significant share of households in the target population.

Currently, government spending on health in Lao PDR is very low by international standards, making efforts to mobilize resources through CBHI and direct out-of-pocket payments understandable. Current government expenditure patterns—salaries of most facility staff and some of the non-wage recurrent costs—allow CBHI contribution rates to be lower than they would otherwise be. But even with these indirect subsidies, uptake of the scheme is low and adverse selection is a serious concern for the financial sustainability of the scheme.

Fortunately, however, there are good prospects for government spending on health to increase over the coming years: hydropower and other natural resource revenues have gained importance, and improved tax administration is contributing to increased revenue collection. Both these factors will help generate increased fiscal space over the medium term, and provide an

²⁰ These recommendations for strengthening contribution collection were recommended by the study by GRET, 2010 and are outlined in more detail in the study report.

opportunity to significantly increase government health spending.

But where should increased government spending be directed? There are a number of options. Government could increase investment spending to improve facilities and equipment; it could invest in human resources for longer-term improvement of service quality; it could increase financing of non-wage recurrent costs at facility level, and in that way reduce reliance on out-of-pocket payments (at least for some priority services); and it could provide direct subsidies to CBHI and Health Equity Funds to increase enrollment and expand benefits of these schemes. And alongside these investments, cost-containment and measures to increase efficiencies in the health system will need to be considered.

Arguably, these options are not mutually exclusive; in some cases they may even be complementary. It is beyond the scope of this note to discuss in detail the merits of different options, but it is worth considering the experiences of other countries that have faced similar challenges. For example, Rwanda is one of the few countries that have achieved relatively high coverage through a voluntary CBHI scheme, which has recently become mandatory. This success can be attributed to good administration, strong political leadership, financial backing by the government and donors, and linkages with microfinance institutions and formal health insurance schemes [47]. China has also recently achieved high levels of coverage of a new voluntary scheme for the formal sector (the Rural Cooperative Medical Scheme). Again, political leadership and substantial government subsidies were critical to the rapid expansion and high uptake[48]. However, it is important to note that in both Rwanda and China, there has been strong pressure from officials to enroll [49].

Other countries have extended social health insurance to the informal sector. In Vietnam and the Philippines, the poor are enrolled using taxation, while the non-poor are served through a voluntary social health insurance scheme at their own expense [50-52]. Colombia has a similar program except that enrollment for the non-poor is mandatory, although evasion of contributions remains a problem [53]. Mexico has also made considerable effort in expanding insurance by offering households not covered by the formal sector, the option of enrolling in a separate subsidized public health insurance program known as *Seguro Popular* (SP). The contribution is fully subsidized for the poor, while the non-poor make a contribution according to their ability to pay [54].

Although CBHI was a feature of the Thai health system for several decades, the scheme was eventually rolled into a tax-financed scheme, which covers the poor and non-poor informal sector and all those not covered by the

formal sector schemes. Thailand's new (mandatory) tax-financed scheme, known as the Universal Coverage scheme, has proven to be a much more effective, equitable and efficient means of covering the informal sector and administratively is much less complex [55, 56].

In summary, experiences from a wide range of countries suggest that CBHI can have benefits in terms of increasing utilization of health care and reducing out-of-pocket expenditures for members, but that it is very difficult to expand coverage to a point where benefits reach a significant segment of the population. Recognizing the limitations of CBHI, it is important to also consider alternative or complementary financing mechanisms, such as taxation or extension of social health insurance. These are by no means easy options: universal tax-financed schemes require adequate and sustained government financing; targeted schemes require effective targeting mechanisms; expansion of social security depends on increased formalization of the labor market and effective enforcement mechanisms; and contributory schemes require effective and efficient collection systems. Moreover, regardless of the financing approach, mechanisms for promoting quality and efficiency in service delivery are needed. The new health financing strategy that is currently under preparation provides a good opportunity to stake out a clear and realistic path to achieve broad coverage of key health services and improve financial protection in Lao PDR, and to address some of the challenges that will inevitably arise during the implementation phase.

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Appendix 1. Monthly contributions for CBHI (LAK)

	Urban CBHI	Rural CBHI
Single person	14,000	12,000
Family 2-4 persons	24,000	20,000
Family 5-7 persons	30,000	25,000
Family >8 persons	33,000	28,000
Monks, nuns, dormitory students	5,000	5,000

Appendix 2. Background characteristics of CBHI and non-CBHI households

	CBHI (n=1000)	Comparison (n=2000)	p-value
Sociodemographics			
Mean household size (persons)	5.32	4.71	<0.001**
Marital status of household head (% married)	84.17%	80.39%	0.027*
Education			
Highest level=any primary	43.10%	42.70%	0.866
Highest level=any secondary	31.65%	37.23%	0.028*
Highest level=university/institute	5.08%	2.30%	0.002**
Highest level=vocational	11.82%	8.41%	0.020*
Age of HH head (mean years)	52.44	48.44	<0.001**
Ethnic majority (1=Kai-Tadai; 0=other)	98.56%	98.16%	0.404
Total annual household consumption (\$US)	\$3,161.97	\$2,729.33	<0.001**
Total annual per capita consumption, mean (\$US)†	\$753.81	\$741.12	0.531
% HHs below the national poverty line	19.68%	20.19%	0.757
Employment status			
Not working for money	21.10%	17.17%	0.009**
Family farm-based agriculture	24.05%	22.85%	0.644
Small-scale trading or family business	26.43%	31.21%	0.039*
Work for someone else	28.42%	28.77%	0.878
Total (employment)	100%	100%	
% HH heads with long-term employment contract (12 mos +)	17.19%	11.58%	0.002**
Health status and risk aversion			
% HHs in which average self-rated health is below average (<3 on scale of 1 to 5)	19.43	14.93	0.023*
% HHs in which someone has disability or chronic condition	23.45	14.54	<0.001**
% HHs in which someone had difficulty performing daily activities in past 3 months	16.29	10.98	0.008**
% HHs in which someone has experienced deterioration of health in past year	11.89	8.51	.034*
Risk preferences ²¹ : head of household is risk-averse	37.13	41.6	0.041*
Other risk variables			
% of HHs with any member age 65+	28.05	21.9	.001**
% of HHs with any member age 0-5	37.01	37.65	0.754
Mean # of females 15-49	1.57	1.36	<0.001**
% HHs in which a woman has given birth in past 2 years	15.74	13.9	0.261
% of HHs in which a woman is pregnant	4.43	2.32	.004**
Attitudes toward sources of care and quality perceptions			
% respondents recommending a government hospital for an uninsured friend.....)			
a severe condition/emergency?	99.38	99.54	0.669
a moderate condition?	94.55	92.58	0.138
a minor condition?	97.5	96.82	0.420
% of respondents stating that services at district hospital are good	75.44	64.77	<0.001**

[†]Per capita expenditure was calculated using adult equivalents but yields similar results when calculated using equal weights for all household members. There was no empirical basis from Laos on the choice of the adult equivalent parameter.

**Difference is significant at the .01 level. *Difference is significant at .05 level. A p-value is a statistical term that measures the likelihood that a difference observed in the sample is due to chance. A result that is significant at the 5% level has a p-value of less than .05. Reported results are based on t-tests of means for continuous variables and chi-squares for proportions/ categorical variables. All estimates account for sampling weights and village-level clustering.

²¹ This question presents the respondent with a gamble in which he/she must guess which hand contains money. The first pick is the same regardless of the hand selected but in the next bets, the stakes become increasingly higher. The variable was dichotomized to differentiate those who were completely risk averse from those who will take at least some risk.

Appendix 3. Exposure to CBHI and Trust in Schemes

Exposure to CBHI/Trust	CBHI (n=1000)	Comparison (n=2000)	p-value
% attended CBHI campaign	92.52%	66.24%	<0.001**
How many of your close relatives/friends had joined CBHI prior to enrollment? (or how many are enrolled now?)	None 4.49% Some 49.18% Many 46.33%	None 30.74% Some 48.89% Many 20.37%	<0.001**
% of HHs reporting that they trust that the money contributed to CBHI will be used in the right way	92.54%	69.72%	<0.001**
% of HHs reporting that members will get the benefits they pay for when they need them	95.84%	69.44%	<0.001**

**denotes statistical significance at the .01 level. Reported results are based on Chi-square tests. All estimates account for sampling weights and village-level clustering.

Appendix 4. Quality ratings of district hospital

Quality ratings (1 to 5)	CBHI (n=1000)	Comparison (n=2000)	p-value
The way staff act towards patients	3.65	3.46	<0.001**
The quality of the facilities and equipment	3.67	3.54	0.005**
The skills/competence of staff	3.74	3.58	0.001**

**denotes statistical significance at the .01 level. Reported results are based on t-tests of means. All estimates account for sampling weights and village-level clustering.

Appendix 5. Utilization of health services and out-of-pocket expenditures, for matched observations

	CBHI	Comp	% diff	T-stat	N(CBHI)	N(comp)
Inpatient (IP) visits						
IP visit in last year (%)	0.0812	0.0422	92%	8.81**	5298	9468
Number of IP visits in last year (for those with visit)	1.1615	1.1267	3%	0.94	422	368
IP visit at any public facility in last year (%)	0.0809	0.0396	104%	9.31**	5298	9468
IP visit at district hospital in last year (%)	0.0379	0.0091	316%	10.61**	5298	9468
IP visit at prov. hospital in last year (%)	0.0315	0.0172	84%	5.08**	5298	9468
IP visit at central hospital in last year (%)	0.0112	0.0137	-18%	-1.05	5298	9468
OOPs on all IP visits in last year (incl. transport and food) (LAK)	610,000	1,600,000	-62%	-6.53**	422	368
OOPs per IP visit in last year (incl. transport and food) (LAK)	530,000	1,400,000	-62%	-7.15**	5298	9468
Outpatient (OP) visits						
OP visit in last month (%)	0.1589	0.1329	20%	4.22**	5298	9468
Number of OP visits in last month (for those with visit)	1.23	1.17	5%	1.72	802	1279
OP visit to any public facility in last month (%)	0.068	0.025	173%	10.97**	5298	9468
OP visit to a district hospital in last month (%)	0.047	0.009	416%	12.7**	5298	9468
OP visit to a provincial hospital in last month (%)	0.015	0.008	92%	3.46**	5298	9468
OP visit to a central hospital in last month (%)	0.004	0.005	-17%	-0.52	5298	9468
OP visit to a pharmacy in last month (%)	0.086	0.092	-7%	-1.3	5298	9468
OP visit to a private clinic in last month (%)	0.007	0.013	-42%	-2.78**	5298	9468
OP visit to a healer in Laos in last month (%)	0.000	0.001	-54%	-1.02	5298	9468
OOPs on all OP visits in past month (LAK)	8,596	69,598	-88%	-3.42**	802	1279
OOPs on all OP visits in public facility in last month (LAK)	8,424	38,981	-78%	-3.36**	802	1279
OOPs on all self-care in last month (LAK) (for all individuals)	220	298	-26%	-0.65	802	1279
OOPs per OP visit public facility in last month (LAK)	6,374	32,586	-80%	-3.08**	802	1279
OOPs per self-care visit in last month (LAK)	651	1,457	-55%	-1.74	802	1279
OOPs per individual (all IP and OP costs + premiums)	370,000	1,100,000	-66%	-4.00**	1138	1573
Average OOPs for entire sample, regardless of use	130,000	170,000	-24%	-1.29	5298	9468

**denotes statistical significance at the .01 level ; * denotes statistical significance at the .05 level