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COSTING OF HEALTH INSURANCE PREMIUM COLLECTION IN CAMBODIA'S INFORMAL SECTOR

A Case Study of Community-Based Health Insurance



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This publication was prepared by Robert Kolesar (Health Policy Plus project) and Sam On Phuong (Association of Community Health Protection).

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Abbreviations

CBHI	community-based health insurance
CC	commune council
HEF	health equity fund
HP+	Health Policy Plus
USAID	U.S. Agency for International Development

Introduction

The Royal Government of Cambodia has developed a *National Social Protection Policy Framework* that envisions a universal healthcare system to provide every Cambodian citizen with affordable, high-quality healthcare. Presently, the Cambodian healthcare landscape includes social health insurance schemes for civil servants and formally employed workers, and a health equity fund (HEF) that was established to provide free access to healthcare for the poorest of the poor.

Over the past few years, Cambodia phased out its community-based health insurance (CBHI) schemes, which were limited in number and geographic coverage. CBHIs offered health insurance to people who were not covered under any other scheme—primarily the informal sector. As CBHIs address some of the challenges that confront provision of health insurance to the informal sector, they can serve as a stepping stone to extend health insurance to this difficult-to-reach population (Ozawa and Walker, 2011).

One of the primary challenges to extending healthcare coverage to informal sector workers, particularly in developing countries, is the logistical burden and associated administrative costs of premium collection (RESYST, 2014). Evidence suggests that national household premium collection programs, especially those that are voluntary, are administratively costly and have the potential for regressive effects (Lagomarsino et al., 2012; Mills et al., 2012). Informal workers are occupationally and geographically dispersed. In addition, their use of formal banking is limited and they generally do not pay income taxes—thwarting the potential for automated payments or deductions for premium collection (Wilwohl, 2013). Theoretically, mobile payments, either using airtime or mobile money, can be used to collect premiums through payment reminders and self-payments via mobile devices (Saunders and Tappendorf, 2014). However, the feasibility of such a system has not yet been demonstrated in Cambodia. At least seven voluntary CBHI schemes in Cambodia have successfully administered “manual,” or door-to-door, promotions and premium collection drives.

To inform decision making about premium collection to expand social health protection in Cambodia, the U.S. Agency for International Development (USAID)-funded Health Policy Plus (HP+) project undertook a case study of a CBHI scheme to assess the cost of premium collection vis-à-vis the amount of cash collected. The study adopted the Cambodian government perspective (i.e., all costs that can be allocated to the government, either directly or indirectly). HP+ also examined the total cost of the scheme, including user fee payments, to estimate the gap in premium payments that would have been required to fully cover the scheme's costs.

Scheme Background

The Angkor Chum operational district covers 26 communes. The district includes 21 public health centers that provide a minimum package of activities and two referral hospitals offering specialized services. The district is linked to the Siem Reap provincial referral hospital that offers surgery and more specialized services (MOH, 2016). The Association of Community Health Protection, a small, local non-governmental organization, ran a voluntary health insurance program in the district from January 2014 to June 2016 that targeted people not covered under other health insurance schemes. The scheme's benefit package included all referral hospital and health center services, exempting high-cost procedures, dental cleaning, eyeglasses, food, and transport reimbursement. Chronic disease treatment was initially included, but subsequently excluded due to the high cost of patient care. The scheme initially achieved enrollment of approximately 36,000 of 225,000 people, or 16 percent of the total population.

To promote enrollment, the scheme adopted a premium schedule with decreasing rates relative to increased enrollment. For example, if between 30 and 39 percent of a village enrolled in the scheme, the per person cost per year was about US\$5.85, compared to a US\$2.44 per person cost per year for villages that achieved at least 80 percent enrollment. After the first year, this system was modified to improve the efficiency of premium collection—a minimum village enrollment level of 50 percent was established. This resulted in 54 percent of (135 of 250) villages participating in the CBHI scheme.

An ongoing, rolling process was used for promotion, registration, and premium collection in two to three communes at a time. This cycle lasted approximately one month, which enabled outreach to all 26 communes over the course of a year. A total of 89 commune council (CC) members were provided with a two-day training and responsible for promoting membership enrollment through village meetings and individual follow-up. CC members reported back on the number of people registering or planning to enroll/purchase the insurance. In villages in which at least 50 percent of the population planned to enroll in the scheme, the CC members were then tasked with collecting the premiums.

Promotion and premium collection for the CBHI scheme was indirectly subsidized as it relied heavily on in-kind labor from HEF operators—paid under contract with the Ministry of Health with support from the University Research Corporation under a USAID grant—and CC members, paid by the local government¹. HEF operators provided the training and ongoing technical assistance to support CC members. HEF operators support was provided in-kind as it was integrated with other tasks related to the HEF and a safe childbirth conditional cash transfer program. As an incentive, HEF operators were paid five percent of the total premium payments. CC members, who are government employees, retained their regular salaries and were paid 10 percent of the total premium payments as an incentive.

The CBHI employed a mixed reimbursement scheme with monthly average capitation rate payments to the health centers, case-based reimbursement to the Angkor Chum and Pouk referral hospitals, and lump sum payment to the Siem Reap referral hospital.

The scheme was discontinued in June 2016 when the HEF operators contract ended² and the premiums collected were insufficient to cover total costs. To compensate for resource gaps, the CBHI attempted to reduce costs by excluding coverage for chronic disease treatment (implemented after the first year) and increase the premium payment (implemented after the second year). However, these measures resulted in a drop-off in re-enrollment which, along with other issues cited—particularly quality of healthcare—ultimately undermined the financial viability of the scheme.

Methods

For this case study, retrospective unit cost data, including direct and indirect fixed and variable costs, was compiled from budget documents and financial reports. In-kind labor provided by HEF operators and CC members was valued using salary and benefit estimates. Period enrollment data and premium receipts were retrieved from programmatic reports from January 2014 to March 2016.³ Promotion and premium collection costs were compared with actual premiums collected to calculate the break-even point for premium

¹ HEF operators were primarily responsible for the daily monitoring of healthcare provision to identified poor patients, interfacing with the facility to improve access and care (Annear et al., 2016).

² The primary role of HEF operators was transitioned to health facilities as part of a larger move from donor to government funding and management.

³ The final quarter was omitted from analysis as new enrollment and re-enrollment rates were very low, attributable to uncertainty about the future of the insurance scheme.

collection. Finally, the premium income was compared with total costs (i.e., inclusive of user fees paid to the health facilities) by quarter.

Break-Even Point

The break-even point is the quantity of premiums that need to be sold to recover the costs, both fixed and variable, of producing a product or service. In this case, we limited the service to be the collection of premiums. The break-even point was calculated as fixed costs divided by unit selling price, minus variable costs (Ward, 2018). This can be expressed as the following equation:

$$\text{Break-Even Point} = \text{Fixed Costs} / (\text{Unit Selling Price} - \text{Variable Costs})$$

Every additional premium sold beyond the break-even point increases profit by the amount of the unit contribution margin, or the amount each unit contributes to covering fixed costs and increasing revenue. This can be expressed as the following equation:

$$\text{Unit Contribution Margin} = \text{Sales Price} - \text{Variable Costs}$$

Unit Costs

Because CBHI scheme promotion and premium collection are integrated with other tasks, the time/cost allocated to these activities was estimated based on an average of 10 days per month that HEF operators spent in the community, multiplied by three hours per day: the average time that they were estimated to work on CBHI activities. This attributable proportion equates to 17.4 percent. The total unit cost per motorcycle (US\$1,300.00) was divided by its useful life of 72 months and a flat monthly maintenance cost of US\$45.00 was applied; this amount was then multiplied by the attributable proportion. Fuel costs were calculated by multiplying the number of motorcycles (four) by the liters of fuel used per month (25) by the cost per liter (US\$0.93) by the attributable proportion. Per diem was calculated by multiplying the number of HEF operators (five) by the number of days (10) by the rate (US\$5.00) by the attributable proportion. Monthly direct and indirect fixed costs are detailed in Table 1. The total fixed costs amount to US\$1,682.78 per month, or US\$5,048.33 per quarter.

Finally, variable costs, defined as a function of the quantity of product multiplied by the variable cost per unit of output, were also compiled ("Variable Cost," n.d.). CBHI variable costs relate to incentive payments to HEF operators (five percent per premium paid) and CC members (10 percent per premium paid).

Table 1. Monthly Direct and Indirect Fixed Costs, in US\$

Category	Units	Unit cost	Monthly cost	Allocation	Proportional cost
Direct Costs					
Director	1	\$650.00	\$650.00	50%	\$325.00
Program coordinator	1	\$433.33	\$433.33	50%	\$216.67
Database officer	1	\$411.67	\$411.67	50%	\$205.83
Admin	1	\$390.00	\$390.00	50%	\$195.00
Office supplies and misc. (lump sum)	1	\$216.67	\$216.67	50%	\$108.33
Phone card (monthly)	12	\$5.00	\$60.00	17.4%	\$10.47
Motorcycles and maintenance	4	\$1,300.00	\$117.22	17.4%	\$20.45
Fuel (in liters)	25	\$0.93	\$92.68	17.4%	\$16.17
Per diem (daily)	10	\$5.00	\$250.00	17.4%	\$43.60
Sub-total direct costs			\$2,621.57		\$1,141.51
Indirect Costs					
HEF operators	5	\$270.83	\$1,354.17	17.4%	\$236.19
CC members	89	\$170.00	\$1,260.83	8%	\$105.07
District office space (6x11 meters)	1	\$200.00	\$200.00	100%	\$200.00
Sub-total indirect costs					\$541.26
Total monthly fixed costs					\$1,682.78
Total quarterly fixed costs					\$5,048.33
Summary: Quarterly Direct Costs					
Administrative					\$941.40
Salaries					\$2,242.50
Transport					\$240.65
Total					\$3,424.54

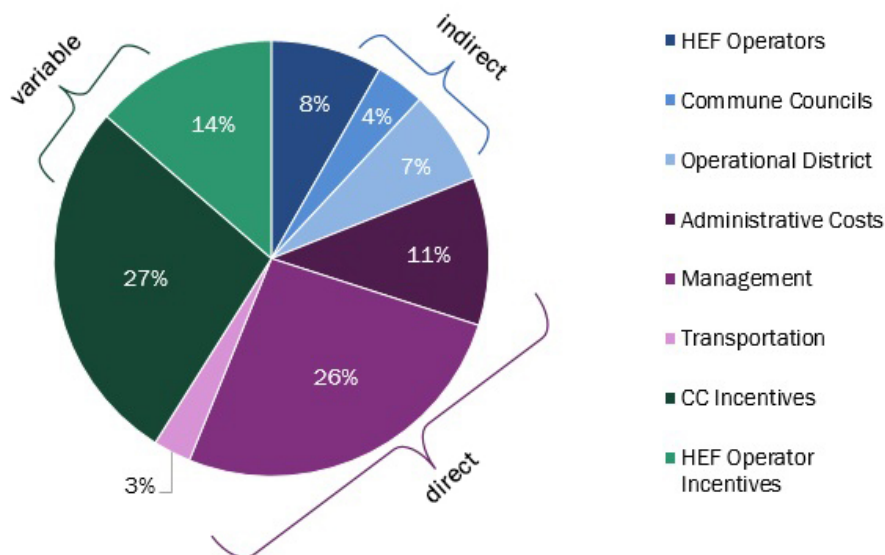
Notes: Economies of scale due to "task sharing" with HEF promotion, conditional cash transfers, and CBHI. Motorcycles were donated equipment and categorized as a direct cost.

Results

Premium Collection

A total of 74,268 individual premiums (including renewals) were paid, which generated US\$210,798 over the nine-quarter period. By contrast, the total fixed and variable costs relating to promotion and premium collection over the same period were estimated to be US\$77,054.65. The average weighted annual premium payment was US\$2.84. The estimated cost of promotion and premium collection was US\$1.04 per premium payment, or 36.6 percent of the total premium collected. Of that amount, management, administrative, and transport costs accounted for US\$0.41, incentive payments for US\$0.43, and in-kind contributions (e.g., HEF officers, CC members, and operational district office space) for US\$0.20. A breakdown of these costs is shown in Figure 1. Only 2,080 enrollees are required per quarter to break-even on scheme promotion and premium collection costs. The unit contribution margin was estimated at US\$2.41 per premium.

Figure 1. Breakdown of Promotion and Collection Costs for Each Premium



Total Costs

The total cumulative costs were estimated to be US\$311,412, inclusive of payments to health service providers for patient user fees, and fixed and variable costs. Figure 2 shows the proportional breakdown of these costs. User fees account for about three-quarters of the total costs. Total costs exceed the total premiums collected (US\$210,798) by US\$100,614. This equates to a per premium deficit of US\$1.35 (US\$100,614 total shortfall, or 74,268 individual premiums).

An examination of the total revenue generated through premium collection and total costs (inclusive of user fees, and fixed and variable costs) by quarter further reveals that the scheme operated at a net loss beginning from the second quarter (2014 Q2) of the program (see Figure 3). The drop off in premium collection during the fourth quarter (Q4) of each year is attributable to rice harvesting season, when promotion and collection activities slowed significantly.

Figure 2. Total User Fees, and Fixed and Variable Costs

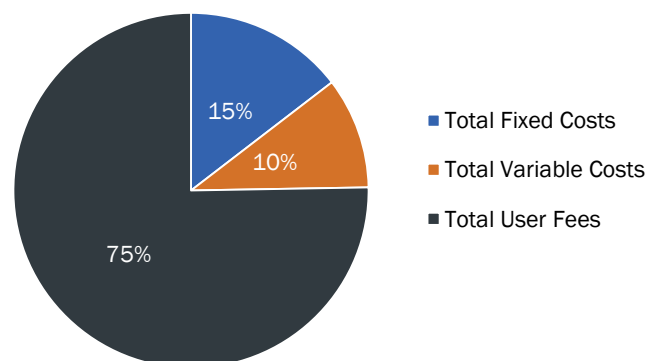
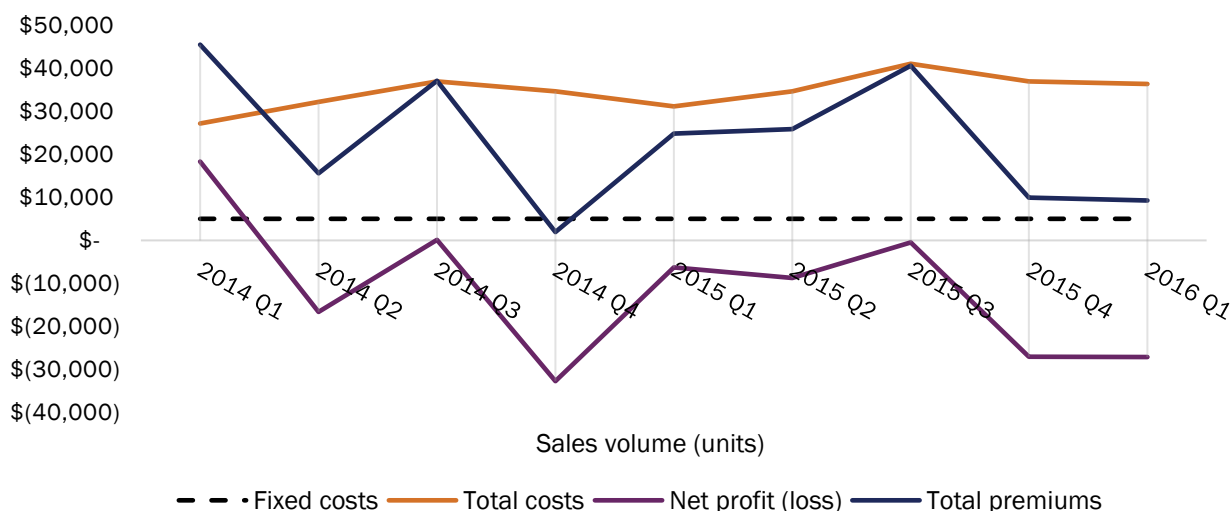


Figure 3. Break-Even Analysis of Total Costs Inclusive of User Fees, and Fixed and Variable Costs (US\$)



Discussion

The average weighted premium payment for the Angkor Chum CBHI was US\$2.84 per person per year. The initial premium schedule was calculated with the dual objectives of (1) covering the costs of health provider user fees to reduce out-of-pocket payments at the time of care-seeking,⁴ and (2) minimizing the premium cost to incentivize/maximize enrollment. Premiums were not calculated to cover the real cost of health service provision, nor did they include promotion and premium collection costs. We estimate the promotion and premium collection costs to be US\$1.04 per premium payment, or, assuming an average household size of five, US\$5.19 per household per year. Although this cost is considered reasonable, it represents 36.6 percent of the premium payment.

It is worth noting that the explicit inclusion of these costs in the premium calculation may have mitigated the cumulative deficit of the scheme. Assuming no change in enrollment, the increased revenue would have covered 77 percent (US\$1.04 promotion and collection costs per premium, or US\$1.35 deficit per premium) of the financing shortfall. Finally, in-kind contributions of labor and office space, equal to US\$0.20 per premium payment, acted as a small subsidy. However, this was insufficient to compensate for the resource gap.

⁴ Health user fees were last updated in 2011.

Finally, it is important to note that the cost estimates in this case study do not reflect the full costs of premium collection. First, as noted above, the underlying unit costs are calculated as an attributable proportion due to integrated, direct, and indirect cost-sharing. Although this is a cost-saving approach, premium collection is reliant on other financing that may not be replicable beyond the case study context. Second, the estimates reflect only local (i.e., sub-provincial level) administrative and management costs, including supervisory costs. A national system would require such costs at each administrative level. Given these limitations, the estimates in this report can only provide a partial understanding of the resource requirements related to premium collection. Finally, we note that the scheme established a 50 percent enrollment threshold (at the village level). This was done to reduce costs of premium collection. However, this approach yielded a significant geographical coverage gap, as 46 percent of villages did not meet the threshold, and therefore households in those communities were not able to enroll. The cost of premium collection to all communities would be expected to exponentially increase costs inversely proportional to the number of enrollees per community.

Conclusion

This case study of the Angkor Chum CBHI scheme highlights several challenges and limitations of voluntary enrollment and premium collection related to health insurance schemes among the informal sector in Cambodia. First, the results show that the shared, local costs of promotion and premium collection are not substantial, and that the revenue exceeds the costs, which generates a profit to pay user fees. However, as noted above, the cost estimates in this case study do not reflect the full costs of premium collection as they are highly contextual—dependent upon cost-sharing arrangements and not inclusive of national- and provincial-level administrative and management costs. Beneficiary premium contributions should be viewed from an equity lens in relation to capacity to pay, particularly as informal workers are concentrated among the lower wealth quintiles. Premium contribution estimates should be compared with the hypothetical application of a low, flat user fee that is commonly applied in a tax-based health insurance system. Such a system would eliminate the need for premium collection altogether. Finally, by prioritizing low premium rates to encourage enrollment, the scheme was unable to support its operating costs, which undermined its financial solvency. To ensure the financial solvency of future health insurance schemes, premium collection costs should be explicitly incorporated into premium calculations.

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For more information, contact:

Health Policy Plus

Palladium

1331 Pennsylvania Ave NW, Suite 600

Washington, DC 20004

Tel: (202) 775-9680

Fax: (202) 775-9694

Email: policyinfo@thepalladiumgroup.com

www.healthpolicyplus.com

