〔Refereed Article〕

Community-based Charity-type Safety Nets against Health Shock: The Case of *Sangkeaha* in Rural Cambodia

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ABSTRACT

Previous studies have revealed that rural households in developing countries attempt to cope with adverse shocks by dyadic risk-sharing with other households or by membership-based insurance arrangements at community level. This article examines another type of risk-sharing arrangements, community-based charity-type safety net, where people give a donation to other members in their community who suffer from hardship, using the case of ***sangkeaha*** in rural Cambodia. Specifically, this study examines the extent to which ***sangkeaha*** protects people against health shocks, with what motives people participate in it, who benefits more from it, and the effect of rules on people's participation in ***sangkeaha***. The analysis of primary data collected in Takeo province provides the following findings.

Even though participation is voluntary, ***sangkeaha*** can collect large amounts of donations from people in light of the economic situation of rural Cambodia, but the amounts are nonetheless often insufficient to cover the medical costs that recipients incur. In addition, many cases of severe illness and injury are left unprotected even by ***sangkeaha***.

Nonetheless, various motives besides simple altruism seem to encourage them to make donation in ***sangekaha***. Normative altruism is manifested as a motive by people's perception of merit-making in making donation. Because relationships of mutual help are created among villagers through ***sangkeaha***, people seem to participate in it to conform to the norm of returning favors in the context of both dyadic and general reciprocity. Furthermore, because of the reciprocal relationship between villagers, insurance motive also seem to induce people to make donation.

In line with the expectation for the charity-type safety net, poor people are not discriminated against in ***sangkeaha***. On the other hand, the amount of donation collected and the asset size of recipient has U-shaped relationship, indicating that donation in ***sangkeaha*** is induced not only by altruism.

The extent to which people participate in ***sangkeaha*** is influenced by rules adopted. In the surveyed villages, the unconditionality rule that any villager is eligible to receive donation increases the participation rate especially in large villages, which indicates that people's participation can be promoted by making them have the sense of general reciprocity.

These findings reveals the potential of community-based charity-type safety-net schemes for providing protection to rural populations in developing countries, with its advantages of not excluding poor people and marked sustainability. In this connection, the case of ***sangkeaha*** indicates

that reported problems of CBHI such as the exclusion of the poorest segment of population and the high rate of drop-out would be alleviated by making the members of a CBHI scheme perceive it as a mechanism of mutual help among them.

However, the charity-type safety net scheme would be introduced only in cohesive communities in which its members have intimate relationships with dedicated voluntary organizers. Because the voluntary nature is its key, what the government and outside NGOs can do to promote the charity-type safety net would be also limited.

Ⅰ. Introduction

For rural households in developing countries, how well they can cope with adverse shocks such as crop failure and illness of family members is extremely important in avoiding descent into poverty. Because safety nets are scarcely provided by the public sector in developing countries, people must cope with shocks by themselves through measures such as drawing on savings, selling assets, and through migration of household members. Dyadic risk-sharing with other households in the form of loans or gifts is often adopted. The effectiveness of such informal risk-coping strategies has been examined extensively (Alderman, 1996; Fafchamps and Gubert, 2007; Fafchamps, Udry, and Czukas, 1998).

In addition to these self-insurance and risk-sharing arrangements, group-based or community-based risk-sharing arrangements also exist. For example, community-based health insurance (CBHI) has been introduced by NGOs in many countries in recent years (Ekman, 2004; Carrin, Waelkens and Criel, 2005). Funeral associations in some African countries can be called semi-formal insurance schemes that provide a certain level of protection to their members without the involvement of government or NGOs (Dercon, et al., 2006; Mariam, 2003).

A salient issue of concern related to these risk-coping mechanisms is that they are often unavailable to poor people. Self-insurance is an unsuitable option for asset-poor households (Jalan and Ravallion, 2001; Zimmerman and Carter, 2003). Forming a risk-sharing network with other households is also difficult for those who lack the resources necessary to lend help to the partner. In fact, some studies have revealed that poorer households tend to be excluded from such networks (De Weerdt, 2004; Goldstein, de Janvry, and Sadoulet, 2004). Evidence also shows that poorer people are less likely to participate in CBHI and group-based semi-formal insurance (Ekman, 2004; Jütting, 2004; LeMay-Boucher, 2007, 2009; Mariam, 2003) probably because they cannot afford to pay premiums or member fees.

An alternative to these risk-sharing arrangements is community-based "charity-type" activity for those who confront adverse shocks. Unlike CBHIs and funeral associations described above, this is not membership-based; people donate money or food to other members in their community who suffer from hardship. For instance, some rural villages in Cambodia have such a charity-type activity called ***sangkeaha***, or "aid" in Khmer (Yagura, 2005), which is generally organized for those who become severely ill. This kind of charity-type safety net is expected to provide protection even to the poorest people in a community because no member fee or contribution is necessary to receive a donation through it.

To the author's knowledge, charity-type safety net has not been studied in the context of development studies. First of all, this type of safety net seems to be rarely found in the contemporary developing world, as the author could find no reported case in neighboring Laos, Thailandand Vietnam.[1)] Nevertheless, charity-type safety net is worth promoting if it is pro-poor and can provide sufficient protection for people.

A fundamental question in charity-type safety net is how people are motivated to participate in it, or make donation, when receiving protection is not linked with making donation. In other words, in charity-type safety net, people would not have "insurance motive" or expectation of protection for future adverse shocks, which is supposed to be the major motive for participation in membership-based insurance programs. Naturally, altruistic feeling toward recipients who suffer from hardship can be the major motive, but people may have such feeling only with those who are close to them, not with community members in general.

This argument indicates that charity-type safety net can provide sufficient protection, or attract people's participation, when people can also have motives other than altruism. As discussed later, people's motive to make donation in charity-type safety net can vary according to its rules and the way it is implemented, which can change the meanings people attach to their donation and the type and the size of benefits (in a broad sense) they expect to receive by making donation. Therefore, the potential of charity-type safety net can be explored by examining its rules and the way it is implemented as well as people's motives to participate in it.

Against this backdrop, using the case of ***sangkeaha*** in rural Cambodia, this paper examines the performance and the potential of charity-type safety net by linking them with people's motive to participate as well as its rules and the way it is organized. Concretely, this paper is aimed at examining the followings questions: (1) does ***sangkeaha*** provide people with sufficient protection? (Section IV) (2) what kind of motives can be aroused by the rules and the way ***sangkeaha*** is organized and(3) with what motives do people actually make donation in ***sangkeaha***? (Section V); (4) do poor people benefit through ***sangkeaha*** on an equality with non-poor people?(Section VI); (5) under what kind of rules is people's participation in ***sangkeaha*** promoted? (Section VII). To tackle these questions, Section II presents theoretical analysis on factors evoking various types of motives to make donation and the effect of motive on the participation and the amount of donation in charity-type safety net. Section III describes how the data used in this paper was collected, the situation of the research site, the history of ***sangkeaha*** and how ***sangkeaha*** is organized in the surveyed villages. Finally, in Section VIII, the findings of this study are summarized and some policy implications are presented.

There have been few studies of ***sangkeaha***. Yagura (2005) only briefly describes the operation of ***sangkeaha*** and its effectiveness as a safety net. Using econometric analysis, Chhair (2012) examines the determinants of the amount of donations to ***sangkeaha*** and argues that people make donation more as obligation than charity when the recipient is their relative. But, obligation-charity dichotomy is too simplistic as the motive to donate. Furthermore, questions mentioned above except question (3) are not addressed in Chhair (2012).

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Ⅱ. Motive to Donate in Charity-type Safety Net: Theory

1. Types of motives and factors evoking them

A Safety net scheme needs contribution from its participants (members) to provide them with protection when they suffer adverse shocks. Especially, in insurance-type schemes, making a contribution (i.e. paying premium) is the condition to receive benefits. In charity-type schemes, however, making contribution (or donation) is not the prerequisite for receiving benefits. Nevertheless, providing benefits to members is only possible when people make sufficient contributions.

As making contributions entails cost, people need to have some motives to do so. It is important to understand people's motives to make contributions because they can have a large impact on the performance of the scheme. For example, in a dyadic risk sharing arrangement, if altruistic feeling is the motive to make a transfer to a risk sharing partner, transfers would be made to the partner whenever he suffers a negative shock even if transfers between partners are unbalanced (De Weerdt and Fafchamps, 2011; Foster and Rosenzweig, 2001). This is a property beneficial to those who are more vulnerable to shocks.

The type of the motive of people to make contributions would depend on the rule of the scheme and the way the scheme is implemented. For instance, people would be more likely to have "insurance motive," or making contributions in order to have protection against future negative shocks, when making contributions is the condition of receiving benefits. When those who fail to make a contribution face sanctions of any kind (including informal ones), avoidance of sanction can become a motive to make contributions. In this case, the contribution can be rather regarded as tax.

In charity-type safety net, people are less likely to have insurance motive because receiving benefits is not conditional on making contributions, and therefore other motives would play an important role. Among such "non-insurance motives," altruistic feeling toward those who suffer negative shocks would be the major motive.

Altruism can be classified into hedonic altruism and normative altruism (Kolm, 2006). For people with hedonic altruism, the improvement of the welfare of the recipient makes them happy. People would be more likely to have hedonic altruism when recipients are identified and when people have close relationship with the recipients. Making transfer directly to recipients, by which people feel that their contributions really help the recipient, would also evoke hedonic altruism. People make contributions out of normative altruism when they find normative values in doing so. Characterizing (explicitly or implicitly) contributions as having normative value would induce people to have such a motive.

When people perceive reciprocal relationship with other particular members through the safety net scheme, the norm of reciprocity, or the norm of returning a favor, can motivate people to make contributions. This motive explains cases in which a person D makes a donation to R to return the favor R gave to D in the past. The dyadic reciprocity is perceived when those who make a contribution can identify the recipient and vice versa.

Under situations where dyadic reciprocal relationships are perceived by members, people can also have insurance motive. Because of dyadic reciprocity, the amount of benefits one expects to receive

from other members when she suffers a negative shock would depend on whether and how much she gave to other members in the past. Therefore, expectation of receiving larger benefits would motivate people to make contributions. Nevertheless, a large part of members can have such an insurance motive only when the probability of receiving benefits is not too low for them; in other words, when benefits are provided for shocks that are not so rare and when all members irrespective of their attributes such as age and the economic status can receive benefits.

Furthermore, people might be conscious of "general reciprocity" (Kolm, 2008), or norm of returning a favor to others in general, when any members can receive benefits with a certain level of probability. Under such a condition, one can believe that other members will help her once she suffers a negative shock, and therefore she would feel obliged to make contributions in return for other members, even for those who do not have dyadic relationship with her.

As given above, there can be many motives, and we must recognize that a person can have different motives at one time.

2. Effect of motive on the participation and the amount of donation

This subsection presents a theoretical model to examine the effect of people's motive on whether and how much people make a contribution in a charity-type safety net scheme—a scheme in a village through which villagers voluntarily make donation to those villagers who suffer a negative shock of some severity. Making donation is not a prerequisite for becoming the recipient of the donation. A special attention is paid to non-insurance motives, which are supposed to be a great importance in charity-type safety net.

For simplification, the model depicts the decision making of a villager k in two periods. In each period, k earns a fixed income y. In the first period, k does not experience a negative shock but is asked to make a donation d to other villagers $(0 \leq d < y)$. In the second period, k experiences a negative shock with a probability p $(0 < p < 1)$ which causes a monetary loss of l, $(0 < l < y)$ but other villagers are expected to donate r to her. Savings and borrowing are assumed to be impossible, and therefore k spends $y - d$ on consumption in the first period and $y - l + r$ in the second period if she suffers a shock and y if she does not experiences shock.

Her utility U in the first period is derived from consumption c as well as from "non-insurance benefit" denoted by m, which represents satisfaction felt by making a donation. The sense of security for the shock is not included in m but is reflected by the increase in consumption (by r) in the second period in case of suffering adverse shock. To capture the effects of non-insurance benefit on k's decision making, it is assumed that $m = \mu M(d, x)$, where μ is a parameter determining the magnitude of non-insurance benefit and M is a function linking the amount of donation to the magnitude of satisfaction, and x stands for any variable affecting the relationship between d and m. In the second period, because k is not assumed to make a donation, only c determines the utility.

In this setting, the expected utility in the two periods for k is given as below:

$$V = U(y - d, m) + \delta \{ p [qU(y - l + r) + (1 - q) U(y - l)] + (1 - p) U(y) \}$$

where, δ $(0 < \delta \leq 1)$ is a time preference factor, and q $(0 \leq q \leq 1)$ is the probability that the village organizes a charity for k when she experiences a negative shock. It is assumed that $r = R(d, y)$ so as

to take into consideration the possibility that other villagers decide whether and how much they donate to k based on how much she donates in the first period and her income level.

If derivatives of any differentiable function $F(a, b)$ is expressed as $F_a \equiv \partial F/\partial a$, $F_{aa} \equiv \partial F^2/\partial^2 a$ and $F_{ab} \equiv \partial F^2/\partial b \partial a$, then, it is assumed that $U_c>0$, $U_{cc}<0$, $U_m>0$, $U_{mm}<0$, and $U_{cm}>0$ under the decreasing marginal utility and the complementarity of consumption and non-insurance benefits.[2] $M_d>0$, $M_{dd}<0$, $R_d>0$ and $R_{dd}<0$ are also natural assumptions.

The optimal amount of donation d^* for k, which maximizes V, satisfies the following equation:

$$\frac{\partial V}{\partial d} = -U_c(c_1, m) + U_m(c_1, m)\,\mu M_d + \delta pq U_c(c_2)\,R_d = 0 \cdots\cdots (1)$$

where $c_1 = y - d$ and $c_2 = y - l + r$. The second order differential of V is negative and hence V has a maximum value. The first term of the equation (1) is negative and thus regarded as representing the cost of donation. The second term is positive and represents non-insurance benefits. The third term is positive when $R_d>0$ and thus represents insurance benefit in the sense that it shows the extent of increase in the amount of donation k will receive in response to the increase in donation she made in the first period. If $R_d=0$, or when r does not depend on d, she cannot perceive insurance benefit in the scheme.

We will now examine factors affecting the decision of k on whether she makes a donation or not. Given that V is a concave function, k voluntarily makes a donation ($d^*>0$) if $\lim_{d \to 0} \partial V/\partial d > 0$. In other words, the following inequality holds when d is close to 0:

$$U_m(c_1, m)\,\mu M_d + \delta pq U_c(c_2)\,R_d > U_c(c_1, m) \cdots\cdots (2)$$

This inequality is likely to hold when p, q, or R_d is large, which indicates a large insurance benefit. However, even when insurance benefit is not expected (that is, the second term of the left hand side of the inequation (2) is zero), k has incentive to donate as long as her utility is increased to a large degree due to non-insurance benefits, like when μ is sufficiently large. As is the effect of altruism shown theoretically by (De Weerdt and Fafchamps, 2011), existence of non-insurance motive would promote people's participation in a risk sharing scheme. Furthermore, based on the assumption that $U_{mc}>0$, the first term of the left hand side of the inequation (2) increases with income level, indicating that the larger the income level the stronger the incentive to make a donation. On the other hand, for low-income villagers to have the incentive to donate, μ should be large enough to compensate for the smaller U_m. This means that whether one makes a donation or not depend much on the magnitude of non-insurance benefits especially for poorer people.

We will next examine the effect of change in parameters on the optimal donation. As is apparent from the equation (1), d^* changes according to the value of parameters (y, μ, x, p, q). To examine the effect of the parameter change, a function $G(d, y, \mu, x, p, q) \equiv \partial V/\partial d$ is defined. Because $G=0$ when $d=d^*$, and because $\partial G/\partial d = \partial V^2/\partial^2 d \neq 0$, the implicit function theorem tells us that $\partial d^*/\partial t = -(\partial G/\partial t)/(\partial G/\partial d)$ for each of the parameters t. Notice that $\partial d^*/\partial t$ and $\partial G/\partial t$ have the same sign because $\partial G/\partial d<0$.

Based on this, the direction of the effect of an increase in k's own income y is represented by the equation (3):

$$\frac{\partial G}{\partial y} = -U_{cc}\ (c_1, m) + U_{mc}\ (c_1, m)\ \mu M_d + \delta pq U_{cc}\ (c_2)\ R_d + \delta pq U_c\ (c_2)\ R_{dy} \cdots\cdots (3)$$

The sign of the right hand side is undetermined because the first and the second terms are positive while the third term is negative. The forth term is also negative if $R_{dy}<0$, or when villagers are motivated by altruism with which they will make larger donation for poorer people (as discussed below). Nevertheless, the overall sign is more likely to be positive when the magnitude of non-insurance benefit, μ, is sufficiently large. In other words, income level of donors and the amount of donation they make are more likely to have positive relationship when they have stronger non-insurance motives.

The increase in μ is assessed by the equation (4):

$$\frac{\partial G}{\partial \mu} = -U_{cm}\ (c_1, m) M + U_m\ (c_1, m)\ M_d + \mu M_d U_{mm}\ (c_1, m)\ M \cdots\cdots (4)$$

The overall sign of the right hand side is undetermined as the first and the third terms are negative but the second term is positive. The larger magnitude of non-insurance benefit does not necessarily increase donation because larger μ means that one can gain a large utility with a small donation.

As is apparent from the following formula, an increase in the probability of experiencing a shock has positive impact on d^*:

$$\frac{\partial G}{\partial p} = \delta q U_c\ (c_2)\ R_d \cdots\cdots (5)$$

Similarly, an increase in q also leads to increase in donation (just replacing p with q in the equation (5)). This result indicates that a higher probability of receiving benefits, which provides people with insurance motive, induces people to make a larger donation.

What x in the function M represents varies according to the type of non-insurance motive. In case altruism is the motive, k's utility is increased by making donation because her donation increases the welfare level of the recipient, which, for example, can be assessed by recipient's income. Then, it is reasonable to assume that x represents recipient's income, z, and that $M\ (d, x) = M\ (z+d)$. The impact of an increase in z is assessed by the equation (6):

$$\frac{\partial G}{\partial z} = -U_{cm}\ (c_1, m)\ \mu M_z + \mu^2 U_{mm}\ (c_1, m)\ M_z^2 + \mu U_m\ (c_1, m)\ M_{zz} \cdots\cdots (6)$$

Apparently, $M_z = M_d > 0$ and $M_{zz} = M_{dd} < 0$, and therefore all the terms are negative. That is, as is indicated by previous studies on the effect of altruism on income transfer (such as Cox, 1987), people would make a larger donation for poorer recipients if they are altruistically motivated.

When dyadic reciprocity is behind k's motive to donate, making a donation increase her utility because it is an act of returning a favor to the partner of reciprocity who had helped her in the past. Therefore, h, the size of help given by the recipient to k in the past, determines the size of non-insurance benefit of making a donation. The impact of the increase in h on d^* is expressed by the equation (7).

$$\frac{\partial G}{\partial h} = -U_{cm}\ (c_1, m)\ \mu M_h + \mu^2 U_{mm}\ (c_1, m)\ M_h M_d + \mu U_m\ (c_1, m)\ M_{dh} \cdots\cdots (7)$$

The right hand side of the equation is positive as long as $M_h<0$ and $M_{dh}>0$. This condition is met in certain set of d and h if M has logistic-curve like shape with respect to d and if the increase in h magnifies the curve, as is depicted in Figure 1 (where $M_h<0$ and $M_{dh}>0$ when $d_1<d<d_2$). Such condition is not unreasonable. The logistic-curve like shape is plausible because marginal effect of donation would become almost zero after a donor wholly returns the favor to the recipient. With the size of donation being constant, an increase in h can increase psychological debt owed to the recipient and thus reduce the satisfaction level of the donor ($M_h<0$). Therefore, the positive correlation between the donation and the assistance the donor received from the recipient is a clear sign that dyadic reciprocity underlies donor's motive.

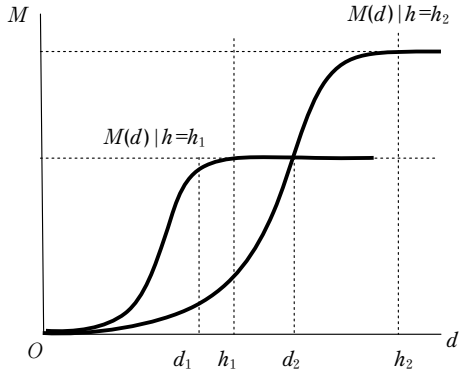

Figure 1. Relationship between donation (d) and non-insurance benefit (M) under varying size of help given by the recipient (h).

Source: Prepared by the author.

When k has in mind general reciprocity in making a donation, her making a donation is regarded as returning a favor to villagers in general, most of who are expected to help her once she suffers a negative shock. In this case, it is assumed that, the higher the probability that she receives donation ($=pq$), the larger the utility gain by increasing the amount of donation she makes. That is, with $s \equiv pq$, $M_{ds}>0$ is assumed. Using the same logic as for dyadic reciprocity mentioned above, with d being constant, an increase in s would reduce the satisfaction from making a donation ($M_s<0$). The effect of an increase in s is assessed by the following formula:

$$\frac{\partial G}{\partial s} = -U_{cm}\ (c_1, m)\ \mu M_s + \mu^2 U_{mm}\ (c_1, m)\ M_s M_d + \mu U_m\ (c_1, m)\ M_{ds} + \delta U_c\ (c_2)\ R_d \cdots\cdots (8)$$

All the terms are positive. As is the case when people make a donation with insurance motive, higher probability of becoming a recipient increase the amount of donation if general reciprocity induces their donation.

Ⅲ. Introduction to *Sangkeaha*

1. Research Site and Field Survey

Data were collected in Treang, a rice-growing district in Takeo province of the southern part of Cambodia. The farms, near the capital city Phnom Penh, are generally small (around one hectare per household). Therefore, an increasing number of laborers have migrated to Phnom Penh as well as other parts of the country to work in recent years.

The survey was administered by the author and assistants in two rounds. In the first round, all but three villages in the district, 151 in all, were visited during December 2009 – January 2010 ("village survey"). Through the village survey, we collected information from the village chief and the ***sangkeaha*** organizers of each village about ***sangkeaha*** as well as the general socioeconomic situation of the village. In the second round of the surveys conducted during August–September 2010, we visited 12 villages which practiced ***sangkeaha***. They were selected so that ***sangkeaha*** of various types in terms of rule were included in the sample. In these 12 villages, we visited 300 randomly selected households (25 households in each village) ("household survey") as well as 22 households for which ***sangkeaha*** was organized in 2010 ("recipient survey"). We also collected information from ***sangkeaha*** organizers in the 12 villages ("organizer survey").

2. Formal safety nets against health shocks

Most Cambodian people are not covered by formal safety nets against health-related shocks. For poor households, however, the Cambodian government introduced a scheme called the "health equity fund" (HEF) by which households identified as poor are exempted from payment of user fees at public healthcare facilities. Reportedly, HEF has a positive effect for improving poor people's access to healthcare (Jacobs and Price, 2006; Noirhomme et al., 2007). Actually, HEF is implemented in Treang district. Among the 300 households interviewed, 24 households were found to have an HEF beneficiary card.

Residents in Treang district can also join a health insurance program which has been managed by an NGO since 2008. By paying a premium every month, the insurance participants can receive healthcare at public hospital and health centers, principally for free. Although the beneficiaries of HEF are the poorest segment of population, this health insurance program is targeted at less-poor people who can afford to pay the premium regularly. Probably because the program has just started in the district, only 9 out of the 300 sample households had joined the health insurance at the time of the survey. Another 10 households had joined but withdrew from it for reasons such as inability to pay the premium and dissatisfaction with the quality of services at public healthcare facilities.

3. History of *sangkeaha*

According to the village survey, 126 villages among 151 villages surveyed have ***sangkeaha*** or a similar activity at the time of the survey, indicating that ***sangkeaha*** is widespread in Treang district.

It is not easy to trace the history of ***sangkeaha*** because most villages in Treang district were established during or before the French colonial period. Nevertheless, among the 126 villages with ***sangkeaha*** at the time of the survey, at least 30 villages had ***sangkeaha*** before the Pol Pot era (1975-

79). The other 50 villages started *sangkeaha* in the 2000s. Consequently, although *sangkeaha* is apparently a traditional activity, it has diffused most widely and rapidly among the villages in Treang district in recent years.

According to the village survey, the initiative to start *sangkeaha* was taken mostly by village chiefs and *achars*. *Achars* are male (generally elderly) lay persons who are involved in the management of the Buddhist temple (*wat*) as a member of the "wat management committee" (*achar wat*) or who perform ceremonies in the village (*achar phum*). In most cases, *sangkeaha* was started in the sample villages because the founders (village chief or *achars*) had seen many villagers falling into destitute circumstances as a result of illness or other cause.

As discussed later, people generally relate participation in *sangkeaha* to merit-making, which is highly valued under Theravada Buddhism, the religion followed by most Cambodians (ethnic Khmer). This observation suggests a certain link between *sangkeaha* and Buddhism. In fact, in about a half of the villages surveyed, Buddhist monks also sometimes participate in *sangkeaha* (making donations). However, the role of monks in the management of *sangkeaha* is extremely limited; monks took the initiative in starting *sangkeaha* in only seven villages.

No involvement in *sangkeaha* is made by local administration above the village level. In one village, the involvement of an NGO was reported. Therefore, *sangkeaha* is an activity that is initiated and diffused mostly by local people themselves without involvement of actors outside their own community.

To the author's knowledge, in Cambodia, *sangkeaha* or an activity of the same sort seem to be found only in limited part of the country, such as Takeo and Kampong Speu provinces (these are provinces neighboring each other). Yagura (2005) is also based on data collected in Treang district. Cases of *sangkeaha* examined in Chhair (2012) are also from these two provinces and they are operated in similar ways as *sangkeaha* examined in the present paper.

4. For whom *sangkeaha* is organized

Simply described, *sangkeaha* is an activity by which villagers systematically donate money and goods to those who suffer from hardship for some reason. Although the conditions for which *sangkeaha* is organized vary among villages, in all but one village, a donation is collected for severely ill or injured people. In some villages, *sangkeaha* is also used to help impoverished (unrelated to illness) people and those who are weakening progressively because of old age (not illness).

As presented later, donations are generally made on a voluntary basis. In addition, receiving benefits through *sangkeaha* is not conditional on making donations to *sangkeaha* for other villagers: *sangkeaha* can be organized for anyone who suffers from a hardship for reasons described above even if that person (or that person's family) has rarely participated in *sangkeaha* for other villagers.

In some villages, *sangkeaha* is organized only for those who meet some criteria. For example, *sangkeaha* is organized only for poor people in 14 villages (not organized for wealthy people even when they become severely ill), and only for elderly people in five villages. In 17 villages, illness and injury of children or infants are excluded from the *sangkeaha* coverage. In these villages, the reason for excluding children is that "it is the parents' responsibility to take care of their children" and "illnesses of children are easy to cure and are not protracted." Aside from the villages described

above, 91 villages, or 72% of the villages with ***sangkeaha***, have a policy that is applicable to organize ***sangkeaha*** for any villager, irrespective of their age or economic status.

5. Collection of donations

Village chiefs and ***achars*** assume the role of organizer to collect donations from villagers in most villages. Donations made to ***sangkeaha*** generally follow the procedures for administration described below.

1) Organizers learn of the existence of a villager suffering from some hardship (e.g. a villager who becomes severely ill).
2) Organizers decide whether ***sangkeaha*** should be organized for that villager.
3) Organizers announce the ***sangkeaha*** implementation to villagers (by a loudspeaker or door-to-door visits)
4) On the day of ***sangkeaha***, villagers visit the house of the recipient to make a donation; organizers also wait there.

Some villages adopt different procedures. For example, in nine villages, organizers visit villagers' homes to collect donations and take them to the recipient. The donation is made by the household unit: each household makes one donation. The amount of donation is freely determined by the donor except in some villages where the minimum amount of donation is set, as discussed later.

In most villages, the name of the donor and the amount of the donation of each donor are registered in a notebook when making a donation. This notebook is usually kept by the recipient herself, although in some villages organizers keep it. This register is used by the recipient to determine an appropriate amount of future donations when ***sangkeaha*** is organized for other villagers; the recipient typically tries to donate as much money or more than the donor villager gave her when she needed it.

Sangkeaha is organized at a village level. Therefore, participants are mainly limited to the villagers themselves. However, in some cases, relatives and close friends of the recipient living in neighboring villages also come to donate.

In no village is making a donation in ***sangkeaha*** mandatory in a strict sense. Therefore, people are able to decide by themselves whether to participate in a ***sangkeaha*** or not. According to the village survey, informants of 73 villages responded that villagers must participate in ***sangkeaha*** (and make donations). However, 26 of these villages have a participation rate (an average share of households in the village that participate in each ***sangkeaha***) of less than 90%; and eight of these 26 villages have a participation rate lower than 70%. These figures suggest that, in reality, donations are not compulsory. In fact, no measure is introduced to force villagers to make donations: according to the organizers survey, no village punishes those who fail to participate in ***sangkeaha*** or demand that they donate funds at a later date.

However, 13 villages set a minimum amount of donation per household to increase the donations. The amount is 1,000–3,000 riels.[3] Nevertheless, this is not a strict rule. For example, in one village, the minimum donation was set to 3,000 riels per household in 2009; even so, donations of less than

3,000 riels are also accepted with no sanction. Nevertheless, the ***sangkeaha*** organizer of the village perceived that a large share of villagers tend to donate 3,000 riels or more since the minimum was set.

Table 1. Village-level participation rate (R)

	Number of village	%
R<50%	3	2.4
50≤ R<70	12	9.5
70≤ R<90	42	33.3
90≤ R	69	54.8
Total	126	100.0

Source : Prepared by the author with the data collected through the village survey.

Ⅳ. Impact of *Sangkeaha*

To elucidate the extent to which people participate in ***sangkeaha*** in each village, in the village survey, informants (village chiefs or ***achars***) were asked the average share of households in the village participating in each time of ***sangkeaha***. Table 1 presents the result. Although the figures are rough estimates by informants, they show that most households participate in ***sangkeaha***. The participation rate is 90% or higher for 55% of the villages, and 88% of the villages have a participation rate of 70% or higher.

More precise figures of the participation rate were obtained in the 12 villages through the organizer survey, in which we collected information related to ***sangkeaha*** implemented in the 12 villages during January–August 2010. During this period, ***sangkeaha*** had been organized for 43 people in the 12 villages, and the proportion of households which participated in each ***sangkeaha*** in the respective village, or household participation rate, was 74.6% on average.[4)] Participation rates vary greatly according to villages, they were greater than 90% in three villages, but less than 50% in three other villages.

In ***sangkeaha*** for these 43 people, the average cash donation per participating household was 2,335 riels, and the average sum of cash donation per ***sangkeaha*** disbursement was 263,298 riels. This amount is not small. It is equivalent to 20–25 days pay for agricultural wage work in the district as of the time of the survey. However, large differences were found in the amounts of donations among cases. The sum of the donation was only 55,000 riels for the lowest case, although for the highest case 600,000 riels was collected. The average donation per participating household also varied greatly by village: in some villages, each participating household donated more than 3,000 riels on average but in one village, only 720 riels were donated on average.

In addition to cash, rice is also donated in most villages. In the 12 sample villages of the organizer survey, 39.5 kg of husked rice (which is equivalent approximately to 80,000 riels in value) was donated on average per ***sangkeaha*** disbursement.

Although the amount of donation described above is not a small amount for rural households in Cambodia, it is still insufficient to cover medical expenses incurred by the recipients in most cases,

as confirmed by the result of the recipient survey, for which we interviewed 22 recipients (or their family) of the prior two *sangkeaha* disbursements organized in 2010 in each village. For these 22 recipients, the average coverage rate (donation received/medical expenses) was only 40.8%. Although coverage rates in some cases exceeded 100% (they received more donations than they spent on medical treatment), the coverage rate was less than 50% for 17 of the 22 cases. The low coverage rates resulted from the large sums necessary for medical expenses. On average, recipients (or their family) spent about 2.5 million riels to treat their illness or injuries for which *sangkeaha* was organized, although they received only 0.36 million riels through *sangkeaha*, even if including the value of donated rice.

Furthermore, even if anyone in the village becomes severely ill or injured, *sangkeaha* is not always organized. According to the household survey, among 54 cases in which any member of household (or family member living separately) became severely ill or injured in 2010, *sangkeaha* was organized only for eight cases, even though the average medical expenditure for the other 46 cases was as large as 2.3 million riels.

Ⅴ. Motives to give people benefits in *sangkeaha*

1. Elements evoking the motives of donation

This section examines motives of people to make donation in *sangkeaha*.

Before empirical analysis, this subsection discusses what kind of motives people are more likely to have in making donation under the rules of *sangkeaha* and the way it is organized based on the theoretical argument in Section Ⅱ.

First, because of voluntary participation, which is the indispensable element of a charity-type safety net, it is less likely that people make donation in order to avoid sanction and gain insurance. Instead, altruistic motive would be perceived as their major motive.

As presented in Section Ⅱ, altruism has two sub-types, and the way *sangkeaha* is organized can evoke both types of altruism. Hedonic altruism is induced by two elements. First, *sangkeaha* is organized whenever a villager gets seriously ill and therefore villagers clearly know who the recipient is. Second, in most villages surveyed, villagers visit the recipient to make a donation. Under such situation, villagers are more likely to feel sympathy toward recipients and have a sense that their donation really helps recipients.

Normative altruism is evoked by the apparent linkage between the donation in *sangkeaha* and merit-making, which is highly valued in Theravada Buddhism in Cambodia. According to the organizer survey, organizers of 10 of the 12 sample villages emphasize merit-making when they call villagers for joining *sangkeaha*. People in the villages surveyed think that they can make merit through deeds of various kinds, and participation in *sangkeaha* is one of them. In fact, 94% of the respondents in the household survey answered that they were always conscious of merit-making when they participate in *sangkeaha*. In this regard, however, some *sangkeaha* organizers reported to the author that one can make merit by making a donation through *sangkeaha* only if one purely intends to help the recipient. This argument suggests that normative altruism underlies merit-making as the motive.

Returning a favor in dyadic reciprocal relationship can also be the motive to donate because in most villages donors and recipients can identify each other. Donors can identify recipients because *sangkeaha* is organized for a specific villager and because in most villages they visit recipient's home to make donation. Recipients can also definitely identify donors by the registration of the name of donors and the amount of their donation. As mentioned above, the registration is intended to be used to return favors to donors.

As mentioned above, in most villages, *sangkeaha* is organized for any villagers irrespective of their economic status and age. Under this condition, as suggested in Section Ⅱ, villagers can also have general reciprocity in mind when making donation. That is, one would feel obliged to make donation for other villagers in general because she can believe that villagers will help her once she gets seriously ill.

Though making donation is not the prerequisite for receiving donation in *sangkeaha*, people can have insurance motive because two conditions are met: dyadic reciprocal relationship is formed between donors and recipients and any villagers has a chance to become a recipient. When returning a favor in dyadic relationship between donors and recipients constitutes people's motives of donation, a villager who participates in *sangkeaha* every time and makes larger donation for other villagers would be able to receive larger donation once *sangkeaha* is organized for her because other villagers want to return a favor to her. Therefore, villagers may make (larger) donation in *sangkeaha* in order to receive larger donation when they become ill. Furthermore, according to the organizer survey, organizers of some villages emphasize that "if you do not help other villagers, they will not help you" when calling for villagers to join *sangkeaha*, which may lead people to regard participation in *sangkeaha* as a kind of security against adverse future shocks. In this regard, however, villagers can have such a motive only when they anticipate becoming recipient in future.

2. Qualitative assessment

This subsection examines people's motives using data collected from sample households.

To begin with, motives indicated by people themselves will be examined. In the household survey we asked those who generally participate in *sangkeaha* (295 households) the reason why. The responses are presented in Table 2. The following motives are manifested by these responses.

Table 2. Reasons for participating in *sangkeaha*

	N^a	$\%^b$
Villagers should help each other	264	89.5
To help those who suffer hardship	173	58.6
To make merit	82	27.8
So that villagers help my family when we get sick in future	19	6.4
Villagers have to participate as an obligation	5	1.7
Other reasons	17	5.8

Source: Prepared by the author with the data collected through the household survey.
Notes: Reasons for participating in *sangkeaha* cited by those who generally pareticipate in it (295 respondents). Multipul answeres are allowed.
a) Number of respondents citing the respective reason.
b) Proportion of respondents citing the respective reason.

First, altruistic feelings about recipients seem to be one of major motives. In fact, Table 2 shows

that 59% of respondents reported "we should help those who suffer hardship" as their reason for participation. This response also suggests that it is more "normative altruism," or seeing the good of some other people as a value in itself (Kolm, 2006), that constitutes their motive than "hedonic altruism," or feeling happier because someone is happier (Kolm, 2006). The importance of normative altruism as a motive is also reflected in the fact that merit-making is cited as a reason for participation by 28% of respondents (Table 2).

Second, people are apparently induced to make donations through a moral imperative or the norm of returning favors in the context of reciprocal relationship with other villagers. As shown in Table 2, nearly 90% of the respondents cited "villagers should help each other" as their reason for participation. Although this clearly illustrates that people share solidarity norms within village, it also implies that people consider it imperative to help other villagers because other villagers would help the participant's family in times of hardship. This further implies that people have in mind general reciprocity rather than dyadic reciprocity when making donation.

Finally, insurance motive also seem to underlie people's participation in *sangkeaha*. In fact, Table 2 shows that some, but not many, respondents participate in *sangkeaha* because they believe that by doing so they can expect future help from other villagers. Although receiving a benefit through *sangkeaha* is not conditional on making a donation to *sangkeaha* for other villagers, making a large donation to *sangkeaha* for other villagers is seen as an increase the expected amount of future benefit a person or family might receive through *sangkeaha* if the norm of returning a favor constitutes people's motive to participate, as argued above.

In addition, the four motives presented above are not mutually contradictory because people can be affected by various motives simultaneously. Rather, they are closely related mutually; therefore the four motives can coexist.

3. Econometric analysis

Next, we use econometric analysis to examine whether the motives described above explain participation in *sangkeaha*.

We use the information on the last two times of *sangkeaha* implemented in the village in 2010. For each time of *sangkeaha*, we have data of sample households on whether they participated in that time of *sangkeaha*, and, if they participated, how much they donated. Therefore, we have a data set in which each sample household is represented by two observations. (for households in two villages where *sangkeaha* was organized only once in 2010, only one observation corresponding to that one time of *sangkeaha* is defined).

Using this data set, two equations, the participation equation and the donation equation, are estimated. For the former, the dependent variables is a dummy variable indicating whether household participated in each time of *sangkeaha*, For the latter, the amount of donation, defined as the logarithm of sum of cash donation and the monetary value of the rice donation in each time of *sangkeaha*.

Based on the theoretical model presented in Section 2, we propose explanatory variables with which we can assess whether a certain motive underlies sample households' donation behavior and the extent to which the motive induce donation.

Effect of altruistic motive, including both hedonic and normative ones, is assessed by the asset size of the recipient, assuming that asset holding represent the economic status of a household. The negative sign for this variable indicates that altruism is behind people's donation.

In addition, whether normative altruism constitutes people's motives can be assessed by a variable representing the consciousness of the informant that making donation is an act of merit making. In concrete, we asked a question of whether and how often the informant (=donor) is conscious of merit-making when she participates in ***sangkeaha*** (choosing from "no," "sometimes" and "always"), and then construct a dummy variable which takes value 1 if the answer to this question is "always" and 0 otherwise.[5] A positive and significant coefficient for this variable shows that normative altruism, manifested by aspiration for merit-making, constitutes people's motives.

To examine whether donation is based on dyadic reciprocity, we introduce a variable "help by the recipient," which is defined as the first component of principal component analysis of three dummy variables representing whether the informant's household has ever been helped by the (household of) recipient (giving money; lending money without interest; helping with farm work).[6] The positive coefficient for this variable indicates that people make donation to return a favor to the recipient with dyadic reciprocal relationship.

Whether insurance motive and/or general reciprocity underlies the donation behavior can be assessed by examining the effect of the probability for the sample household of becoming a recipient, which can be represented by the probability of experiencing health shocks because ***sangkeaha*** is organized mostly for those who get seriously ill. In concrete, we use the number of household members with chronic disease as the variable representing the health shock probability. The positive coefficient indicates significance of insurance motive and/or general reciprocity in encouraging donation.

In addition, because the effect of non-insurance motive can vary according to the economic status of the donor as demonstrated in Section Ⅱ, we also include interaction terms of the variables representing non-insurance motive given above and informant's asset size (non-land productive assets).[7]

Other explanatory variables include variables representing the attributes of the donor household as well as the recipient household, to examine whether donors change their behavior according to the demographic and economic status of the recipient household.

The household attributes variables include the age and the educational level of household head and the number of household members (grouped by age category). As variables reflecting the economic status of households, the area of farmland owned and non-land productive assets[8] are used. A dummy variable indicating a female-headed household is also introduced because female-headed households, lacking male labor force, are often regarded as economically disadvantaged in rural Cambodia.

A dummy variable indicating whether the recipient is old age or not (aged 60 or older) is also included to assess whether old age, which generally leads economic vulnerability, attract donation.

In addition, the relationship between the informant (or family) and the recipient (or family), such as whether they are relatives, whether they are partners of exchange labor for farm work, and whether they are in the same neighborhood (in the same ***krom***),[9] are also used. These variables are

hypothesized to have positive effect because of the norm of helping each other or the relationship of dyadic reciprocity would be strong for between relatives, labor-exchange partners, and neighbors. As for being "in the same neighborhood," it would also facilitate participation in ***sangkeaha*** because of the closeness of the recipient's home (making it easy to visit the recipient).

Finally, to account for village-specific effects, village dummy variables are also introduced.

Some econometric issues need attention.[10] First, because the amount of donation is only observed for those households which participated in ***sangkeaha***, estimating the donation equation separately from the participation equation can entail sample selection bias. To correct for the selection bias, the sample selection model is also estimated by the maximum likelihood method (ML), in which the two equations are estimated simultaneously with allowing for correlation between the error terms of the two equations.[11] However, the correlation coefficient between the error terms is not significant (p=1.00),[12] which means that the selection bias can be ignored. Therefore, the two equations are estimated separately, with the participation equation by the probit model and the donation equation by OLS.

Second, the variable "help by the recipient" can cause endogeneity bias if included as an exogenous variable in the equations. Because unobservable factors of the recipient's economic situation and relationship between the recipient and the informant would affect both the help by the recipient to the informants and informant's donation to the recipient, "help by the recipient" is likely to be correlated with the error terms of the participation and the donation equations. To correct for the possible endogeneity bias, we estimate an equation determining "help by the recipient" and the participation or the donation equation simultaneously by ML, with including "helped by the recipient" in the latter equations and allowing for correlation between the error terms of the two equations.[13] As instrumental variables, three variables representing the relationship between the recipient and the informant mentioned above (being relatives, labor-exchange partner, and in the same neighborhood) are used. These three variables are found to be appropriate as instruments because they are basically significant only in the "help by the recipient" equation but not in the participation or the donation equation when the two equations are estimated simultaneously in the way mentioned above.

Fourth, because each household has fundamentally two observations (one observation for one time of ***sangkeaha***), there will be correlation in error terms within a household, which reflects unobservable factors of each household. Therefore, estimated standard errors are corrected for the within-household correlation.[14]

Estimation results are presented in Table 3. Regarding the interaction terms of non-land asset and the motive variables, only significant ones are retained in the estimation.

First, we examine the models not including "helped by the recipient." The asset size of the recipient is not significant in both equations. Based on the theory presented in Section Ⅱ, this result implies that altruism is insignificant as a motive. However, "consciousness of merit-making" has positive and significant coefficient in the participation equation. Based on this estimation result, the change in this variable from 0 to 1 leads to a 16.6 percentage point increase in the expected probability of participation.[15] This indicates that normative altruism is one of major motives.

The number of chronically-ill members also has positive effect on participation, and expected

Table 3. Determinant factors of participation in *sangkeaha* and the amount of donation made

	Participation (probit)		Amount of donation (OLS)	
	Coefficient	*z*	Coefficient	*t*
Attributes of household surveyed				
Age of household head	0.014	(1.58)	0.001	(0.24)
Educational level of household head[a]	−0.035	(0.30)	−0.006	(0.17)
Number of household member aged 14 and under	−0.093	(1.21)	−0.009	(0.46)
Number of household member aged 15–59	−0.097 *	(1.74)	0.048 **	(2.61)
Number of household member aged 60 and over	0.293 *	(1.82)	0.039	(0.82)
Female headed household (dummy)	−0.211	(0.82)	0.106	(1.58)
ln (Area of farmland owned+1)	0.156 *	(1.84)	0.025	(0.79)
ln (Non-land asset+1)	0.969 ***	(3.07)	0.090 ***	(2.90)
Number of household members with chronic disease	0.575 ***	(2.62)	−0.014	(0.51)
Perception of merit-making in participating *sangkeaha* (dummy)	2.026**	(2.39)	0.061	(0.74)
Attributes of recipient or his/her household				
Number of household member aged 14 and under	0.047	(0.23)	−0.066	(1.54)
Number of household member aged 15–59	−0.126	(0.68)	−0.020	(0.55)
Number of household member aged 60 and over	−0.918 **	(2.24)	−0.143 **	(2.13)
Female headed household (dummy)	−0.465	(1.05)	−0.158 *	(1.94)
ln (Area of farmland owned+1)	0.079	(0.43)	0.030	(0.84)
ln (Non-land asset+1)	0.061	(0.28)	0.061	(1.20)
The recipient is aged 60 and over	0.500	(1.24)	0.156 **	(2.05)
Relation between the household surveyed and the recipient				
Relative (dummy)	0.161	(0.71)	0.109 **	(2.15)
Partner of labor exchange in farming (dummy)	0.442 **	(2.01)	0.114 ***	(2.47)
Living in the same neighborhood (dummy)	0.390	(1.33)	0.245 ***	(3.89)
Interaction terms				
[ln(Non-land asset+1) (household surveyed)] ×[Number of household members with chronic disease]	−0.211 **	(2.45)		
[ln(Non-land asset+1) (household surveyed)] ×[Perception of merit-making in pareticipating sangkeaha]	−0.644 **	(2.02)		
Constant	−2.958	(1.93)	7.552	(26.9)
R^2	0.23[b]		0.52	
N	526		438	

Source : Prepared by the author

Notes : Figures in parentheses are the absolute values of *z*-statistic or *t*-statisic. Significance levels: * 10%, ** 5%, *** 1%. The standard errors are adjusted for the correlation within household. Village dummy variables are also included as explanatory variables but the coefficients are not reported in this table.

a) 0: no schooling; 1 : primary school; 2 : junior high school; 3 : high school; 4 : higher education.

b) Pseudo R^2.

participation probability rises by 2.6 percentage point with an increase in the number of chronically-ill member from 0 to 1. This result suggests that insurance motive and/or general reciprocity promotes people's participation in ***sangkeaha***. Although the number of chronically-ill members is not significant in the donation equation, it can be explained by the negative effect of the economic burden of having many ill-members in household (the economic disadvantage does not hinder participation because making only a small donation is also allowed).

The interaction terms of non-land assets and the consciousness of merit-making as well as the number of chronically-ill members are both significant in the participation equation (in the donation function, the interaction terms are not significant and thus removed from the equation). Their signs are negative, indicating that the effect of these variables decrease with the non-land asset holding. This result is in accordance with the theoretical prediction presented in Section Ⅱ; the non-insurance motives exert critical influence on participation especially for poorer donors.

As is expected, the three variables indicating the close relationship between the informant (donor) and the recipient are all positive and mostly significant in both participation and the donation equations. This result indicates that the closeness of the relationship induce donation, though exact motives for the donation cannot be identified only by these variables.

It is also worth noting that informant's asset, farmland or non-land assets, has positive significant effect on both participation and the amount of donation, implying that ***sangkeaha*** can have income-redistribution effect. This result also suggests that non-insurance motives are strong, according to our theoretical analysis given in Section Ⅱ.

Next, the model including the variable "help by the recipient" is examined. As shown in the last line of Table 4, the exogeneity of "help by the recipient" is rejected, which means that the estimation method allowing for the endongeneity of "helped by the recipient" is appropriate.[16)]

Table 4. Effect of the extent to which the informant was helped by the recipient

	Participation		Amount of donation	
	(1)	(2)	(3)	(4)
Help by the recipient	0.780 ***	2.242 **	0.222 ***	0.113
	(3.62)	(2.41)	(6.28)	(1.60)
[ln(Non-land asset+1) (household surveyed)]		-0.647 *		0.042 *
×[Help by the recipient]		(1.65)		(1.82)
N	525	525	437	437
Test of the exogeneity of "Help by the recipient" (*p*-value)[a]	0.09	0.16	0.00	0.00

Source : Prepared by the author

Notes : Coefficients for other variables are omitted from the table. Figures in parentheses are the absolute values of *z*-statistic. Significance levels: * 10%, ** 5%, *** 1%. The standard errors are adjusted for the correlation within household.

a) Wald test for the participation equation and liklihood ratio test for the donation equation are conducted on the null hypothes that correlation between the error terms of the two equation is zero.

As presented in Table 4, even after accounting for the endogeneity, the extent to which the informants was helped by the recipient has significant positive effect on both participation and the amount of donation. The effect is large. Based on the estimation result shown in column (1) and (3),

an increase in the variable "help by the recipient" by 1-standard deviation (from the mean value of 0 to 1.277) raises the expected probability of participation by 9.5 percentage points (from 88.2% to 97.7%) and the amount of donation by 1,298 riels (from 3,952 to 5,250 riels). This result clearly shows returning a favor in the context of dyadic reciprocity constitutes people's motives of making donation in *sangkeaha*.

As presented in column (2) and (4), the interaction term of "helped by the recipient" and informant's non-land asset, if included, is weakly significant. The coefficient of the interaction term is negative in the participation equation but it is positive in the donation equation. This result indicates that returning a favor to the recipient is an important motive of participating in *sangkeaha* for poorer people while it increases the amount of donation by wealthier people.

As is already mentioned, when "helped by the recipient" is included, neither of three variables indicating the close relationship between the informant and the recipient is significant if included in the participation and the donation equations. This suggests that people's participation and donation are encouraged for the recipient with close relationship not because the close relationship *per se* engenders altruistic feeling, but just because they have the relationship of dyadic reciprocity. In any case, the econometric analysis clearly indicates that personal relationship with the recipient strongly affects people's donation behavior in *sangkeaha* even though it is organized as a village-level charity.

Ⅵ. Beneficiary of *Sangkeaha*

This section investigates whether poor people benefit throughs *sangkeaha* on an equality with non-poor people by an econometric examination of the relation between economic status of household and degree to which households benefit from *sangkeaha*.

According to the econometric analysis in the previous section, asset holding of the recipient does not have a significant effect on the participation and the amount of donation, which implies that poor people are not favored nor are discriminated in *sangkeaha*. But the analysis in the previous section is not sufficient for examining the effect of the recipient's economic status because it used information of only 22 recipients. Therefore, this section utilizes data of the past experience of the 300 sample households with regard to becoming recipient of donation in *sangekaha*.

Two indicators are used to represent the degree to which a household benefit through *sangkeaha*: "the number of times each household received donations through *sangkeaha* during 2005–2010," and "the amount of donations received by a household in each *sangkeaha* disbursement." These indicators as dependent variables are separately regressed on various attributes of households. Therefore, two equations are estimated.

The equation explaining "the number of times each household received donations" is modeled as Poisson count model with a household as the unit of observation.

For the equation explaining "the amount of donations received," the unit of the observation is a *sangkeaha* disbursement. In this case, the sample includes only those households for which *sangkeaha* was organized during 2005-2010. Therefore, the sample selection model was estimated in which the selection criterion is whether *sangkeaha* was organized for the household during that period.[17] However, the null hypothesis, that the correlation coefficient for the error terms of the selection

equation and the outcome equation (which determines the amount of donation received) is zero, could not be rejected (p=0.996). Therefore, the outcome equation is independently estimated by OLS using only the selected sample. In this equation, households for which more than one incidence of ***sangkeaha*** was organized have two or more observations, and therefore standard errors are corrected for possible within-household correlation.

Explanatory variables include the same variables representing household's attributes as were included in the participation and the donation functions estimated in the previous section. Village dummy variables are also included. For "the number of times" equation, the number of cases of severe illness or injuries of household members during 2005-2010 is also used as an explanatory variable because ***sangkeaha*** would be organized for such cases. For "the amount of donations received" equation, the attribute of the recipient (=patient), or dummy variables indicating whether the recipient is husband, wife, father of either husband or wife, mother of either husband or wife, are also included as explanatory variables because donors might take into consideration who the recipient is in deciding their amount of donation.

Estimation results are presented in Table 5. Among the explanatory variables for "the number of times," only the number of cases of severe illness/injuries is significant (and positive). Demographic variables as well as variables representing household's asset holding are all insignificant. This result suggests that ***sangkeaha*** is organized irrespective of the demographic and economic situation of household as long as any villager gets serious illness or injuries. In other words, conforming to its charitable nature, ***sangkeaha*** is organized rather equally for all households.

As for the amount of donation received, besides variables representing who the recipient was, non-land asset and its square have significant impact. This result means that there is a U-shaped relationship between non-land asset and the amount of donation received. Based on the estimation results, the predicted amount of donation received decreases as non-land asset increases up to 14, which is near its mean value of 13, but then it increases as non-land asset further increases. This result implies that, while altruistic motive induces people to make larger amount of donation to poorer recipients, effect of other motives become relatively strong for better-off recipients. A plausible motive to donate to better-off recipients is returning a favor to the recipient who helped the donor in the past. Insurance motive can also induce donation to wealthy recipients because one can expect larger amount of help in return from wealthy recipients. Therefore, the analysis in this section also indicates that donation in ***sangkeaha*** is induced not only by altruism but also by reciprocity and insurance motive.

Table 5. Determinant factors of receiving donation through *sangkeaha*

	Number of times receiving donation through *sangkeaha* (Poisson count model)		Amount of donation received through *sangkeaha* (OLS)	
	Coefficents	*z*	Coefficents	*t*
Age of household head	0.000	(0.02)	-401	(0.18)
Educational level of household head[a]	0.000	(0.00)	-31,699	(0.88)
Number of household member aged 14 and under	0.079	(0.76)	13,063	(0.97)
Number of household member aged 15-59	-0.069	(0.88)	416	(0.04)
Number of household member aged 60 and over	0.091	(0.45)	21,031	(0.50)
Female headed household (dummy)	0.488	(1.52)	-39,743	(0.64)
ln (Area of farmland owned+1)	-0.151	(1.62)	24,855	(1.60)
Non-land asset			-16,433 ***	(3.48)
[Non-land asset]^2			580 ***	(7.29)
ln(Non-land asset+1)	0.107	(0.76)		
Number of household members with chronic disease	0.175	(1.39)	11,315	(0.71)
Number of cases of serious illness of household member	0.459 ***	(2.90)		
The recipient is husband (dummy)			103,292 *	(1.94)
The recipient is wife (dummy)			78,257	(1.31)
The recipient is father of husband or wife (dummy)			141,747 *	(1.72)
The recipient is mother of husband or wife (dummy)			41,810	(0.80)
Constant	-0.938	(1.13)	105,070	(0.80)
R^2	0.10[b]		0.79	
N	296		83	

Source : Prepared by the author
Notes : Figures in parentheses are the absolute values of *z*-statistic or *t*-statistic. Significance levels: * 10%, ** 5%, *** 1%. The standard errors are adjusted for the correlation within household. Village dummy variables are also included as explanatory variables but the coefficients are not reported in this table.
a) See the notes of Table 3.
b) Pseudo R^2.

Ⅶ. Rules Promoting Participation

As revealed in Sections Ⅴ and Ⅵ, various motives besides altruistic motive induce people to make donation in ***sangkeaha***. Nevertheless, as shown in Section Ⅳ, in some villages the participation rate is not so high, and ***sangkeaha*** often fails to collect sufficient donation to cover the medical cost incurred by the recipient's household. The unsatisfactory performance of ***sangkeaha*** can be attributable partly to its voluntary participation rule. Though voluntary participation evokes non-insurance motives,

especially altruistic motive, and thus brings the advantage that poor people are not excluded, it also seems to cause the low participation rate and smaller amount of donation collected in some villages.

How can we promote people's participation in *sangkeaha* without discarding the voluntary participation rule? If rules provide people with motives to participate, as argued in Section Ⅱ, the key is to adopt rules that encourage people's participation. This section therefore examines with econometric method the relationship between the rule of *sangkeaha* and participation rate using village level data. Concretely, village-level participation rate as dependent variable is regressed on variables representing *sangkeaha's* rule (or the way it is organized) as well as attributes of the village.

The following three rules are hypothesized to evoke some specific motives and thus affect participation rate. The first is "unconditionality," or the rule that *sangkeaha* is organized for any villagers irrespective of their economic status and age. Under this rule, as discussed in Section Ⅱ, insurance motive and general reciprocity can induce people's participation. The second is "making donation by visiting the recipient's home." As pointed out in Section Ⅱ, this way of donation can evoke hedonic altruism and dyadic reciprocity. The third is "the registering of donor's name and the amount of donation," which apparently evokes dyadic reciprocity. Each of these rules is represented by a dummy variable, which takes value one if the village has that rule, and zero otherwise. Among 113 sample villages for which the participation equation is estimated, 72% has the unconditionality rule. Both "visiting recipient's home" and "registration" are rules adopted by 92% of the sample villages, though not all the villages with the former rule and those with the latter rule overlap.

Village attributes used as explanatory variables include the number of household in the village, which is expected to have negative effect on the participation rate because in a village with a large number of households each villager can form reciprocal and altruistic relationship only with small portion of villagers. Large villages may also have difficulty in dissemination of the information of holding *sangkeaha*. The area of farmland per household (classified into three by land type) is also included to control economic condition of the village. Commune dummies are also included to control the commune-specific effects, such as economic conditions not reflected in the area of farmland.

The dependent variable, participation rate, is expressed as an ordered variable ranging from 1 to 6 depending on the participation rate inferred by respondents (i.e. *sangkeaha* organizers of each village).[18] The ordered variable rather than continuous variable is used because respondents often gave the figure of participation rate with some range of variation.

Naturally, only villages with *sangkeaha* can be used for the estimation, but this can cause the selection bias if whether a village has *sangkeaha* is not randomly determined. However, the result of the estimation of sample selection model, in which the selection equation determines whether a village has *sangkeaha*, indicates that the selection bias can be ignored.[19] Therefore, "participation rate equation" is estimated independently by the ordered probit model.

Estimation results are shown in Table 6. As presented in column (1), all the rule variables are not significant. On the other hand, as predicted, the coefficient of the number of household in the village is negative and significant. This result indicates that in a large village only a smaller portion of villagers can have reciprocal and altruistic relationship with the recipient. This further suggests that the effect of rule can vary according to the village size. For example, the unconditionality rule may

promote participation especially in large villages because the sense of general reciprocity, which is evoked by this rule, would be felt by people even if they do not have personal relationship with the recipient.

Table 6. Participation rate equation (ordered probit model)

	(1)		(2)	
	Coefficients	*z*	Coefficients	*z*
Village attributes				
Number of household	−0.007 **	(2.45)	−0.018 ***	(2.85)
Area of farmland per household (wet season rice field)	−2.734 ***	(2.96)	−2.733 ***	(2.98)
[Area of farmland per household (wet season rice field)]^2	0.686 **	(2.58)	0.703 ***	(2.65)
Area of farmland per household (dry season rice field)	1.758 *	(1.91)	1.993 **	(2.06)
[Area of farmland per household (dry season rice field)]^2	−0.723 **	(2.45)	−0.902 ***	(2.88)
Area of farmland per household (upland field)	−3.215	(0.62)	−3.617	(0.71)
Rule variables				
Unconditionality	0.155	(0.51)	−1.181	(1.45)
Visit to recipient's home	−0.332	(0.67)	−2.626 **	(2.14)
Registeration	0.499	(1.11)	1.166	(1.28)
[Unconditionality] × [Number of household]			0.009 **	(2.02)
[Visit to recipient's home] × [Number of household]			0.015 **	(2.36)
[Registration] × [Number of household]			−0.009 *	(1.66)
Pseudo R^2	0.18		0.21	
N	113		113	

Source : Prepared by the author
Notes : Figures in parentheses are the absolute values of *z*-statistic. Significance levels: * 10%, ** 5%, *** 1%. The standard errors are robust for heteroschadisticity. Commune dummy variables are also included as explanatory variables but the coefficients are not reported in this table.

Table 7. Effect of rules on participation rate by the number of household in the village

Number of household	Unconditionality		Visit to recipient's home		Registeration	
50	−0.17	(0.13)	−0.28 **	(0.08)	0.20	(0.20)
100	−0.08	(0.12)	−0.27 **	(0.12)	0.09	(0.16)
150	0.06	(0.10)	−0.13	(0.17)	−0.05	(0.14)
200	0.19 *	(0.10)	0.08	(0.16)	−0.17	(0.15)
250	0.26 **	(0.11)	0.21	(0.13)	−0.26	(0.17)
300	0.29 **	(0.13)	0.27 **	(0.11)	−0.34 *	(0.20)

Source : Prepared by the author
Notes : The figures indicate the changes in the probability of participation rate being 90 % or higher due to having the respective rule. Figures in parentheses are standard errors. Significance levels: * 10%, ** 5%, *** 1%.

With this possibility in mind, a model with interaction terms of the number of household in the village and the each of the rule variable is also estimated. As shown in column (2) of Table 6, all the interaction terms are significant. To see how the effect of the rules changes according to village size, Table 7 presents changes in the predicted probability of the participation rate being 90% or more due to the change in the rule variable from 0 to 1 by the number of households in the village. Unconditionality rule has a large positive effect in larger villages. For villages with 300 households, having the unconditionality rule increases the probability of the participation rate being 90% or higher by 29 percentage point. This result indicates that in larger villages, where altruism and dyadic reciprocity are less likely to constitute major motives for participation, participation rate would be increased by adopting rules under which the sense of general reciprocity induce people to make donation. This is also consistent with the fact that most informants cited "villagers should help each other" as their motive to make donation in ***sangkeaha***, as presented above.

The rule "visiting the recipient's home" also has significant positive effect in villages with 300 households, but it has significant negative effect in villages with 100 or less households. This result is puzzling, but may represent the effect of "collection of donation by ***sangkeaha*** organizers." In villages where people do not visit to recipient's home to make donation, ***sangkeaha*** organizers walk around the village to collect donation from villagers. This method of donation collection would be more effective in smaller villages because organizers can visit villagers' houses many times in a day.

The registration rule has weakly significant negative effect in villages with 300 households, indicating that a large proportion of villagers do not have personal relationship with the recipient in the first place in a large village and therefore evoking the sense of dyadic reciprocity is ineffective. Or, there can be reverse casualty: large villages with low participation rate might introduce the registration rule to promote people's participation.

As suggested by this argument, the adoption of rule might be endogenously determined by ***sangkeaha*** organizers depending on the characteristics of each village. This means that the estimation results may include some endogeneity biases and therefore further studies are needed to reach a definitive conclusion regarding the effect of rules on donation.

Ⅷ. Conclusion

Sangkeaha is a community-based charity-type safety net, intended especially for illness, found in rural Cambodia. Unlike CBHI, it is not membership-based but is generally intended to provide protection to all members of a community. Using primary data collected in Treang district, Takeo province, this study examined the extent to which ***sangkeaha*** protects people against health shocks, with what motives people participate in it, who benefits more from it, and the effect of rules on people's participation in ***sangkeaha***. The findings are summarized as follows.

Even though participation is voluntary, ***sangkeaha*** can collect large amounts of donations from people in light of the economic situation of rural Cambodia, but the amounts are nonetheless often insufficient to cover the medical costs that recipients incur. In addition, many cases of severe illness and injury are left unprotected even by ***sangkeaha***.

Though people's donation is often insufficient, various motives besides simple altruism seem to

encourage them to make donation in ***sangekaha***. People seem to make donation out of normative altruism because they regard donation in ***sangkeaha*** as merit-making. Because donors and the recipient are identified by each other, and because ***sangkeaha*** is organized for any villagers irrespective of their economic status and age in most villages, people seem to be conscious of relationships of mutual help among villagers through ***sangkeaha***, and therefore they seem to participate in it to conform to the norm of returning favors in the context of both dyadic and general reciprocity. Because of the reciprocal relationship between villagers, insurance motive also seem to induce people to make donation.

In line with the expectation for charity-type safety net, poor people are not discriminated against in ***sangkeaha***. It is organized rather equally for all households irrespective of economic status. On the other hand, the amount of donation collected and the asset size of recipient has U-shaped relationship, which also indicates that donation in ***sangkeaha*** is also induced by reciprocity and insurance motive.

As motives are shaped partly by rules of ***sangkeaha***, the extent to which people participate in ***sangkeaha*** is influenced by rules adopted. The econometric analysis indicates that the unconditionality rule that any villager is eligible to receive donation increases the participation rate especially in large villages. This further indicates that people's participation can be promoted by making them have the sense of general reciprocity.

These findings provide some implications for safety-net policies in developing countries. First, this paper reveals the potential of community-based charity-type safety-net schemes for providing protection to rural populations in developing countries. Although the case of ***sangkeaha*** in rural Cambodia examined here indicates that safety-net provided by the charity-type scheme is often insufficient, this type of scheme is less likely to exclude poor people. Furthermore, the marked sustainability of ***sangkeaha*** indicates that charity-type schemes can maintain people's participation. These merits can be attributable to the fact that people participate in a charity-type scheme with non-insurance (or non-selfish) motives such as altruism and the sense of general reciprocity. Owing to its sustainability, ***sangkeaha*** will continue to play an indispensable role in providing safety net to people in some part of rural Cambodia, at least until full-fledged public social security system is introduced in rural Cambodia in future.

In this connection, the second implication is that charity-type schemes provide hints for CBHI. As mentioned in the introductory part, it is reported that CBHI schemes often experience problems such as the exclusion of the poorest segment of population and the high rate of drop-out. The case of ***sangkeaha*** indicates that these problems may be alleviated by making the members of a CBHI scheme perceive it as a mechanism of mutual help among them, rather than a mechanism of providing only personal benefit.

Thirdly, however, it would not be easy to geographically diffuse the charity-type safety net scheme. Because altruism and the solidarity norm are key factors promoting people's participation, it would be introduced only to cohesive communities in which its members have intimate relationships. In case of Cambodia, it would be no coincidence that ***sangkeaha*** is found in some part of Takeo and Kampong Speu provinces, where villages seem to have this character owing to their relatively long history of settlements. This indicates that the charity-type safety net scheme can be further diffused

to other villages in these two provinces, as is evident from the fact that many sample villages started *sangkeaha* in the 2000s. On the other hand, it is less likely to be spread in villages in the Thai-border region because, rather recently settled by migrants from other part of the country, they are thought to be less cohesive.

The importance of altruism also suggest that outside actors are not in a good position to take initiative to introduce a charity-type safety net scheme to communities because people cannot be forced to have altruistic feeling. In such circumstances, what the government and outside NGOs can do might be limited to dissemination of information of successful cases of *sangkeaha*-like activities as a good example to villages with no such activities.

Finally, the case of *sangkeaha* provides counter evidence against a prevailing argument that increasing economic opportunities outside communities erode community-level safety-net arrangements in developing economies. As described earlier, many villages in Treang district started *sangkeaha* in the 2000s, when Cambodian rural households had increasing opportunities outside their community to earn their living and accumulate their wealth, such as labor migration to cities or sales of agricultural products for outside markets. This situation, by allowing the diversification of income, is likely to weaken the necessity of mutual help in villages (Morduch, 1999). Alternatively, making self-insurance possible might provoke the withdrawal of wealthier households from community-level risk-sharing arrangements (Fafchamps, 1992; Platteau, 2006). *Sangkeaha* has been diffused even under such a situation, apparently because obtaining insurance is not the only motive of people to participate in *sangkeaha*: altruism and merit-making based on it also constitute people's motive. Importance of these motives, however, underscores that *sangkeaha*-like activities can be introduced only where people share other-regarding norms within their community.

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NOTES

1) Muslim societies have charitable activities based on the teachings of Islam such as *zakah* and *sadaqa*, in which some part of collected donation is given to the poor and the needy (see, for example, Ahmed 2004). But they differ from the charity-type safety net studied in the present paper in that they work as an aid to poor people rather than as safety net against shocks and that in case of *zakah* the charity is mostly organized by organizations covering larger geographical area rather than by each community.

2) When consumption level is very low, people would give priority to consumption over non-economic elements like non-insurance benefits assumed in this model. This means that the marginal utility of non-insurance benefits is small when the consumption level is low.

3) One US dollar was equivalent approximately to 4,200 riels at the time of the survey.

4）The numbers of households per village in these 12 villages are 73–302. The average is 165.
5）In constructing this variable, "no" and "sometimes" are merged into one category because "no" was indicated only by two respondents.
6）The first component explains 54 % of the total variance and the eigenvectors associated with these three variables are 0.623, 0.625 and 0.472, respectively.
7）See Note 8 for the definition of non-land asset variable. The non-land asset rather than landholding is used as the indicator of household's economic status because the former has larger variation and thus can better explain the wealth difference between households than the latter. Furthermore, as sample households are selected from 12 villages, there would be a large variation in the quality of farmland according to the village, which means that the difference in landholding does not necessarily represent the difference in the economic status between households.
8）This variable is defined as the weighted sum of the number of non-land productive assets including draft animals, motorbikes, rice mills, pumps, power-tillers, threshers, harvesters, and cars. The weight is based on the prevailing price of the assets in the area surveyed.
9）A ***krom*** is a group formed by several households in the same neighborhood in a village.
10）Statistical software STATA is used for the estimation of the econometric models presented in this paper.
11）In the sample selection model, the participation equation is specified as probit model and the donation equation as liner regression. For the estimation, we used STATA module [cmp], which enables the estimation of multi-equation systems in which the errors share a multivariate normal distribution.
12）Likelihood ratio test is performed for the sample selection model and separately estimated the participation equation and the donation equation.
13）STATA modules [ivprobit] and [sem] were used for the estimation of the participation equation and the donation equation, respectively. The explanatory variables of the "help by the recipient" equation include all the explanatory variables appearing in the participation and the donation equations and the instrumental variables. As for the donation equation, two-stage least squares (2SLS) is less restrictive model, in which, unlike ML, the joint normality of the error terms of the two equations are not assumed. But we adopted ML because 2SLS does not allow for the inclusion of interaction term of the endogenous explanatory variable and other explanatory variable. In fact, (without the interaction term) estimated parameters by ML are very close to those by 2SLS.
14）STATA's option [vce cluster] is applied.
15）The marginal effect presented in this paper is the average of the marginal effect calculated for all the observations.
16）For the donation equation, the endogeneity of "help by the recipient" is also confirmed even if the equation is estimated by 2SLS (p=0.00; Dubin-Wu-Hausman test). The choice of the instrumental variables are also found to be statistically valid based on 2SLS estimation, as the test of the validity of the instruments (whether instruments has no correlation with error terms and are excluded correctly from the structural equation), and that of weak instrument (whether instruments are sufficiently correlated with the endogenous explanatory variable) are all passed.
17）STATA module [heckman] is used for the estimation. To satisfy the exclusion restriction (Cameron and Trivedi, 2005: 551), the number of cases of severe illness or injuries of household members during 2005–2010 is included in the selection equation but not in the outcome equation. This variable is not significant even if included in the outcome equation.
18）The dependent variable takes value 1 for participation rate less than 50%, 2 for 50% or more and less than 60%, 3 for 60% or more and less than 70%, 4 for 70% or more and less than 80%, 5 for 80% or more and less than 90%, and 6 for 90% or more.
19）Using STATA module [cmp], the selection equation specified as probit model and the participation equation specified as ordered probit model are estimated jointly by ML with allowing for the correlation between the error terms of the two equations. The explanatory variables of the selection equation include all the explanatory variables (except the rule variables) of the participation rate equation and an ordered variable with scale of 1 to 5 indicating the degree to which villagers rely on hired labor (instead of exchange labor) in their farm work to satisfy the exclusion restriction. The null hypothesis of no selectivity cannot be rejected,

as the estimated coefficient of correlation was not significant (p=0.42).

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