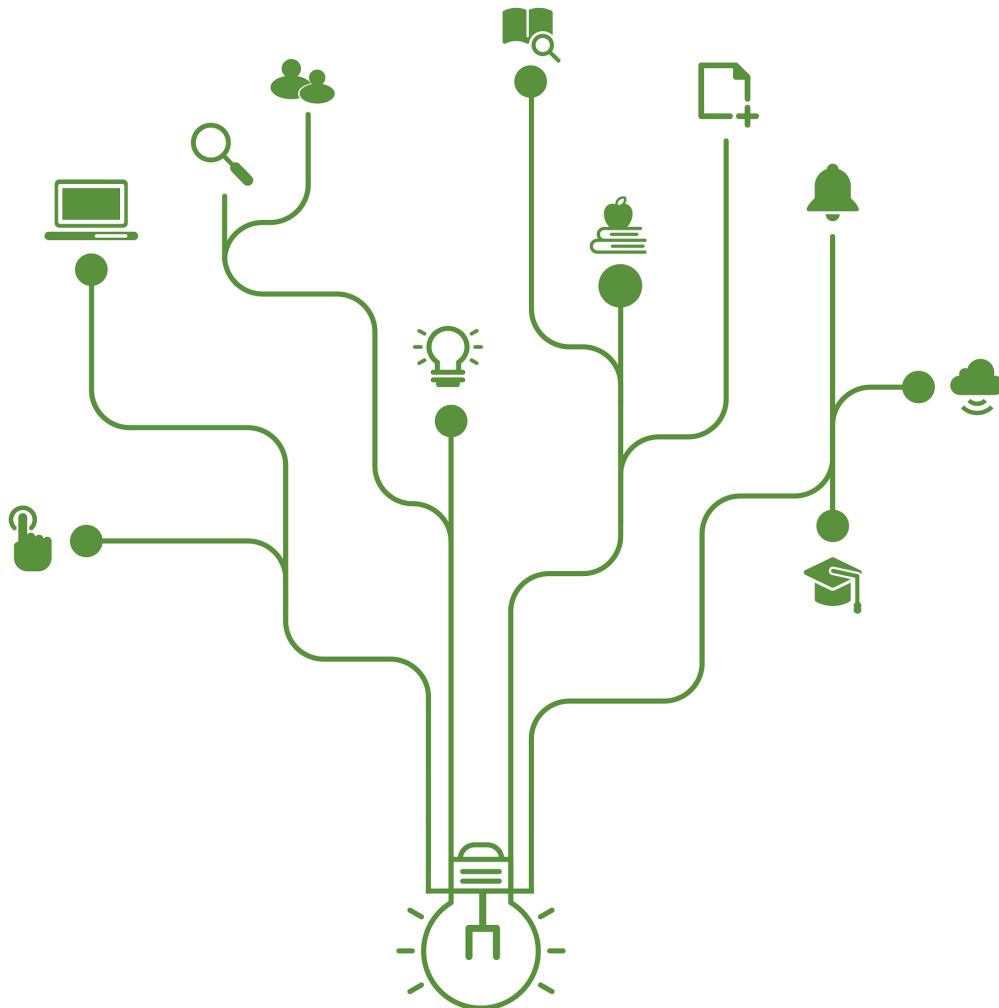


The Socio-economic Effect of Community-Driven Development in Conflict-affected Regions: Evidence from Cambodia

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Introduction

Community-driven development (CDD) has become increasingly common approach used by mul-tilateral development banks, governments, and NGOs to address the needs of the poor local communities in developing countries. CDD is characterized by the approach of giving control of decision and resources to the local community. CDD approaches are particularly prominent in conflict-affected communities which enables local community to regain sense of social cohesion and to restore livelihood. While much of literature focused on documenting the challenges and benefits of CDD approach in conflict affected context, what is yet to be established is whether CDD in conflict affected context can generate change in social and economic outcomes.

Thus, this paper explores whether or not community-driven development (CDD) project af-fects a villages social capital and economic outcomes in post-conflict Cambodia. We compare the impact of CDD by looking at data from two rounds of surveys (baseline and endline). The results indicate that the project significantly strengthens the capacity of self-reliance, especially in vulnerable groups such as low-income, less educated and ethnic and religious minority house-holds. However, CDD was shown to have very limited impact on improving economic condition. Although the project slightly increases the household monthly income, the CDD project does not generate remarkable changes in community-level economic conditions.

The paper is organized as follows. Section 2 explains the historical background of Cambodia and the unique features of this CDD project. Section 3 describes the intervention and data collec-tion. Section 4 outlines the estimation models used in the analysis. In Section 5, we present the results of the program and explain their implications.

Background

Cambodia has recently stepped into the lower-middle income stage through strong economic growth. However, poverty continues to fall in Cambodia. According to the World Bank, about 90% of the poor live in rural areas while agriculture remains the traditional mainstay of the Cambodian economy comprising about 30% of the GDP and absorbing almost half of the total labor force. Moreover, the wide spread devastation under Pol Pot regime in 1970s is assumed to have persistent impact on social capital in Cambodia.

Between 1975 to 1979, Khmer Rouge Party leader Pol Pot attempted to impose extreme form of Maoist Communist agriculture model in Cambodia. The regime forced millions of people to labor camps where they had to work long hours a day, with limited food and no compensation

(Chandler, 2000). Anyone who was perceived as potential threat to the regime including all the intellectuals and elites, were tortured and killed. In just less than four years of the Khmer Rouge regime, it is estimated that 25 percent of the Cambodias total population (nearly 2 million people) were killed. The widespread atrocities committed by the Khmer Rouge made it difficult for country to recover, as the regime resulted depleting social capitals as well as destroying all social, political and economic institutions (Collier et al., 2003).

In this context, Cambodian government showed interest in the Saemaul Undong (SMU), which was the Korean rural development program in the 1970s. It contributed to seasonal poverty elim-ination in the rural area and alleviation of urban-rural disparity through village-level projects. Recently it has received global attention and has been launched in many developing countries. The Ministry of Rural Development (MRD) of Cambodia and Korea International Cooperation Agency (KOICA) signed to implement the pilot SMU in 30 villages from 2014 to 2018. Saemaul Undong, literally translated as new village movement, was a rural community development pro-gram in the early 1970s. Saemaul Undong stands out from other rural CDD projects in mainly two facets. First, rural villagers participation was pivotal in successful implementation of a wide-scale community project. Rural villagers contributed to their villages development goal in the form of labor, cash, land and other materials, and these participation and contribution was key to Saemaul Undongs success.

The Cambodia SMU project allows villagers to formulate a village-level yearly plan

and are granted funds to implement their plan. Based on their performance evaluation in the previous year, each village will receive different amount of fund in the subsequent year to implement another yearly plan. The Cambodia SMU has multiple objectives: to improve the livelihood of rural villages through income generation, capacity building, and living environment improvement activities, and strengthen social cohesion.

Cambodia SMU differs from existing rural CDD project in mainly two aspects. First, Cambodia SMU integrates both top-down and bottom-up approaches. The central government provides the general introduction of project guidelines and directions, while the local government act as a pipeline to link the voices of both village and the central government. And at the community-level, each village proposes and implements its own development project plan. Like many other CDD projects, the Cambodia SMU also builds on villagers active participation to strengthen ownership and sustainability.

Setting

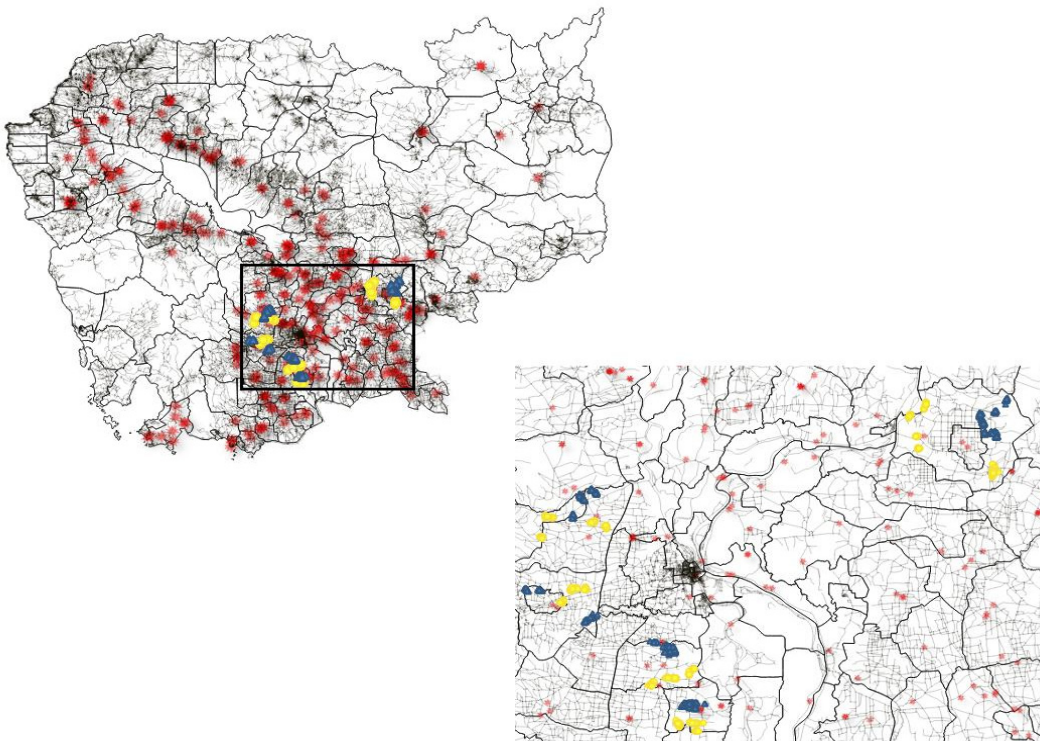
The Saemaul Undong Project (SMU) in Cambodia is a four-year project (2014-2018), implemented in 30 villages in 3 Provinces. The impact evaluation team contracted with Royal University of Phnom Penh (RUPP), a local Cambodia research team, to conduct the baseline survey, which took place from February to April 2017. Due to the delay in impact evaluation design and survey firm contracting, the data collection began later than expected and the project implementation had begun by the time of the data collection. The baseline survey took place in three Provinces (Kampong Speu, Takeo, and Tboung Khmum) in Cambodia, and 1,800 households were sampled in the 30 treatment villages and 30 control villages – approximately 30 households for each village. RUPP used systematic sampling technique to select households for the baseline survey. Each household had an equal chance to be selected for the study from the ordered sampling frame. The endline survey was conducted from July to September in 2019 after the SMU ended. The endline survey included 56 households for each village, except Ek Pheap where sample size is 51 out of total 72 households.

The sampled households were asked about (i) household demographics; (ii) household socio-economic status; (iii) access to services; (iv) community groups; (v) trust; (vi) social cohesion ; (vii) effect of pol pot regime. The questionnaires were developed and pre-tested in Khmer languages, and enumerators were trained in collecting and recording the required

information. The questionnaire was first developed by the impact evaluation team and then reviewed and translated into Khmer language by the RUPP team. Social capital related questions were designed based on Measuring Social Capital of the World Bank (2004). The questionnaire was tested and piloted in other areas of Cambodia to ensure it was culturally appropriate. During the enumerator training and pilot surveys, some questions were refined because they were not clear for respondents and data collections.

Figure 1 presents geographical information of treatment and control villages, and the location of genocide burials. The black polygon indicates the boundary of district, the red dots are burial sites, the blue dots and yellow dots are the households belonging to treatment group and control group respectively. As shown in Cambodia map (left above), the SMU was implemented in the villages that were largely harmed by the genocide to assess the impact of Pol Pot experience on the results of SMU. The right below map that enlarges the site of intervention presents the locations of households of both groups. As shown in the right below map, to prevent contagion effect, households in the control village are selected to have at least over 5 km distance from those in treatment village.

Figure 1: Burials of Genocide, Treatment and Control Groups



Notes: The genocide data is from Cambodia Genocide Databases (<https://gsp.yale.edu/cambodian-genocide-databases-cgdb>).

Empirical Analysis

Identification Strategy

To rigorously evaluate the effects of SMU program in a causal way, a randomized experiment was required before the program. However, Cambodia's SMU program had already started with the endogenous selection of 30 treatment villages. To compensate for the limitation of the non-randomized treatment, we use differences-in-differences estimation to control for the initial differences derived from time-consistent omitted variables between the treatment and control villages.

$$Outcome_{hvd} = \beta Treatment_{vd} \times Post_{dt} + \gamma Treatment_{vd} + \delta Post_{dt} + X_{hvd} \theta + \lambda_d + \varepsilon_{hvd} \quad (1)$$

where $Outcome_{hvd}$ is an outcome of interest of household h in village v and district d at time

a. $Treatment$ is a dummy for SMU program participation and $Time$ is a dummy equal to 1 for the endline. X_{hvd} is a set of vectors controlling for baseline demographic and socioeconomic characteristics. λ_d is the district fixed effects that address all the unobservable but time-constant features of district. ε_{hvd} is an error term. β is our coefficient of interest capturing the average treatment effects of SMU program after controlling for the initial differences between the treatment and control villages. This double difference estimation strategy is effective to weed out time-invariant village specific compounding factors as well as to control for general time trend applying for the entire villages.

Results

Baseline Estimates

A balance test was done to ensure that the assignment of treatment is orthogonal to other characteristics of the sample. The sample comprises 1,805 households in total: 911 from 30 treatment villages and 904 from 30 control villages. Table 1 provides descriptive statistics of household characteristics of each group. We compare the demographic characteristics of households in treatment villages with those of control villages. As column

(6) of Table 1 presents, the treatment and control groups are not similar in the cultural composition: religion, ethnicity, and economic status measured by land and home ownership. Though these unbalanced characteristics might bias the estimates of SMU impact in simple regression, these time-consistent confounding factors can be addressed with the difference in difference strategy. Moreover, to minimize any possible effect predetermined demographic features, we include the characteristics that were significantly different between treated and control village groups as control variables.

Table 1: Balance Test

	Treatment		Control		Treatment-Control	
	Mean (1)	Observation (2)	Mean (3)	Observation (4)	Mean difference (5)	P-value of difference (6)
(Household Head)						
Age	52.112	911	51.599	904	0.513	0.414
Female	0.27	904	0.259	894	0.011	0.58
Buddhism	0.836	911	0.979	904	-0.143***	0
Khmer	0.838	911	0.985	904	-0.147***	0
Marital status	0.775	911	0.793	904	-0.018	0.347
Education year	3.049	911	3.299	904	-0.25*	0.091
Land ownership	0.936	911	0.904	904	0.033**	0.011
Home ownership	0.897	911	0.861	904	0.036**	0.018
Weighted assets	12.582	911	13.43	903	-0.849	0.255
Pol Pot trauma	4.792	911	5.022	904	-0.231	0.119

Notes: The sample includes total 1,805 households from 60 villages in Cambodia. The households whose geographical information of residence are different from the administrative boundary of village are included but the test that excluded these household generates the same results. The differences of household characteristics between treatment and control villages are measured by t-test. Robust standard errors clustered at the village level are presented in parentheses. Significantly different than zero is indicated at 99 (***) , 95 (**), and 90(*) percent confidence. Reported weighted average of assets are estimated by inverse average of 11 household assets including car, mobile phone, wire phone, boat, bed, sofa, radio, television, refrigerator, bicycle, motorbicycle and electricity. 'Physically (mentally) affected by the Pol Pot regimes' is coded by 6 likert scales: zero to five. For the ones with no exposure to the regime is coded zero while five is for the ones who were severely (physically or mentally) injured during the Pol Pot regime.

SMU effect on Social Capital

1. Trust in villagers

This evaluation measures the impact of SMU on social capital through its three pillars: trust, self-empowerment and collective action. We present the treatment effects of SMU on consolidating trust within the community members in Table 2. The trust in villagers are measured by four survey items: 1) most of the people living in the village can be trusted; 2) villagers are willing to help you if needed; 3) villagers are not likely to take advantage

of you for their own sake; and 4) villagers generally trust each other in matters of lending and borrowing money. For each question, this paper conducts three models without controls, with controls and with controls and district fixed effects to check whether the estimates are biased by confounding factors. The aggregated level of trust in villagers is a composite index that merges all four of the indicators into one. As shown in columns (1) to (3) of Table 2, the SMU marginally reduces the general trust towards villagers at the 10% of significance level while significantly increasing the trust in the matter of monetary transaction with 99% confidence. Though the trust toward villagers in the specified interaction is increased with the largest magnitude 0.4 standard deviation the aggregated level of trust in villagers are not statistically significant as shown in columns (13) to (15).

The trust in people outside of the village is measured by the level of trust in four groups: 1) local government officers, 2) central government officers, 3) other ethnic groups, and 4) strangers. The SMU was implemented in cooperation with government officers. Thus, in SMU, the villagers could increase their trust in government that was responsive and that delivered public goods. However, the results of Table 3 indicate that trust in local and central government is unchanged by the SMU. The impact of the SMU indistinguishable from zero is also found in trust in members other ethnic or religious group and in strangers.

Table 2: Treatment Effect of SMU on within village trust

	Villagers can be trusted			Willing to help villagers		
	No control (1)	Control (2)	Control+Dist.fixed (3)	No control (4)	Control (5)	Control+ Dist.fixed (6)
Treatment x Post	-0.171*	-0.166*	-0.164*	-0.052	-0.053	-0.043
	(0.091)	(0.088)	(0.087)	(0.110)	(0.108)	(0.106)
Treatment	0.047	0.003	0.018	0.030	0.028	0.002
	(0.087)	(0.082)	(0.073)	(0.096)	(0.096)	(0.083)
Post	-0.034	-0.007	-0.019	0.022	0.041	0.019
	(0.062)	(0.064)	(0.063)	(0.078)	(0.075)	(0.076)
Observations	5,170	5,153	5,153	5,170	5,153	5,153
R-squared	0.005	0.019	0.039	0.000	0.004	0.023

	Villagers are not selfish			Willing to lend money to villagers		
	No control (7)	Control (8)	Control+ Dist.fixed (9)	No control (10)	Control (11)	Control + Dist.fixed (12)
Treatment x Post	0.063	0.065	0.063	0.424***	0.430***	0.444***
	(0.110)	(0.108)	(0.112)	(0.138)	(0.133)	(0.135)
Treatment	-0.093	-0.099	-0.123	-0.184*	-0.213**	-0.251**
	(0.099)	(0.098)	(0.074)	(0.107)	(0.104)	(0.103)
Post	0.277***	0.250***	0.264***	0.043	-0.003	0.003
	(0.084)	(0.082)	(0.084)	(0.074)	(0.071)	(0.072)
Observations	5,170	5,153	5,153	5,169	5,152	5,152
R-squared	0.022	0.028	0.056	0.025	0.035	0.060

	Normalized composite index of trust in villagers		
	No control (13)	Control (14)	Control & District fixed (15)
Treatment x Post	-0.009	-0.009	-0.008
	(0.012)	(0.012)	(0.012)
Treatment	-0.002	-0.006	-0.008
	(0.010)	(0.010)	(0.010)
Post	0.021***	0.022***	0.021***
	(0.007)	(0.007)	(0.007)
Observations	20,680	20,612	20,612
R-squared	0.002	0.004	0.007

Notes: The unit of observations is household. All outcome variables (except the aggregated level of trust in villagers) are measured 5 likert scales. The dependent variables in this table are all normalized with mean zero and standard deviation one in control villages. The included control variables are household age, gender, religion, ethnicity, marital status, education, land ownership and home ownership. There are seven districts where include 8-9 villages on average. In each district the control and treatment villages are evenly located. Robust standard errors clustered at the village level is in parentheses. Significantly different than zero is indicated at 99 (***) , 95 (**), and 90(*) percent confidence.

Table 3: Treatment Effect of SMU on trust in people out of village

	Trust in local government			Trust in central government		
	No control	Control	Control + Dist.fixed	No control	Control	Control + Dist.fixed
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment x Post	0.128 (0.129)	0.123 (0.127)	0.130 (0.128)	-0.021 (0.118)	-0.024 (0.117)	-0.018 (0.118)
Treatment	-0.190 (0.126)	-0.192 (0.128)	-0.203* (0.107)	-0.054 (0.106)	-0.070 (0.107)	-0.057 (0.090)
Post	0.002 (0.081)	0.031 (0.079)	0.005 (0.080)	0.265*** (0.077)	0.290*** (0.080)	0.271*** (0.078)
Observations	5,170	5,153	5,153	5,170	5,153	5,153
R-squared	0.005	0.008	0.035	0.016	0.018	0.049
	Trust in other identity groups			Trust in strangers		
	No control	Control	Control + Dist.fixed	No control	Control	Control + Dist.fixed
	(7)	(8)	(9)	(10)	(11)	(12)
Treatment x Post	-0.036 (0.085)	-0.024 (0.084)	-0.043 (0.083)	-0.008 (0.081)	0.009 (0.075)	0.011 (0.073)
Treatment	0.151 (0.103)	0.076 (0.092)	0.120* (0.067)	0.028 (0.070)	0.004 (0.068)	0.009 (0.057)
Post	0.012 (0.065)	-0.014 (0.062)	0.010 (0.063)	-0.418*** (0.060)	-0.443*** (0.055)	-0.439*** (0.054)
Observations	5,170	5,153	5,153	5,170	5,153	5,153
R-squared	0.005	0.035	0.070	0.072	0.083	0.093
	Normalized composite index of trust in others					
	No control	Control	Control + Dist.fixed			
	(13)	(14)	(15)			
Treatment x Post	0.004 (0.018)	0.005 (0.017)	0.005 (0.017)			
Treatment	-0.004 (0.016)	-0.011 (0.016)	-0.008 (0.014)			
Post	-0.009 (0.011)	-0.009 (0.011)	-0.010 (0.011)			
Observations	20,680	20,612	20,612			
R-squared	0.000	0.004	0.009			

Notes: The unit of observations is household. All outcome variables (except the aggregated level of trust in villagers) are measured 5 likert scales. The dependent variables in this table are all normalized with mean zero and standard deviation one in control villages. Robust standard errors clustered at the village level is in parentheses. Significantly different than zero is indicated at 99 (***) , 95 (**), and 90(*) percent confidence.

2 Self-Empowerment

We measure self-empowerment through three items: 1) how much control the respondent has in making decisions that affect everyday activities, 2) whether the respondent has the power to make important decisions, and 3) how much influence the respondent has in making this village a better place to live. Table 4 presents the treatment effect of SMU on self-empowerment. The results show that exposure to participatory experience raises the capacity of self-reliance, particularly the decisions about the village development projects. The SMU strengthens the self-help capacity of villagers by 0.29 standard deviation, which is significant at the 1% level. The total level of self-empowerment also increased by 0.05 standard deviation at a significance level of 0.05.

Table 4: Treatment Effect of SMU on Self-Empowerment

	Power to make decisions in my life			Control to make decisions in my life		
	No control	Control	Control + Dist.fixed	No control	Control	Control + Dist.fixed
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment x Post	-0.063 (0.101)	-0.063 (0.104)	-0.068 (0.104)	0.189 (0.140)	0.193 (0.133)	0.202 (0.133)
Treatment	-0.042 (0.089)	-0.064 (0.093)	-0.060 (0.068)	-0.001 (0.084)	0.004 (0.093)	-0.047 (0.076)
Post	0.519*** (0.067)	0.518*** (0.069)	0.505*** (0.071)	-0.086 (0.095)	-0.086 (0.093)	-0.123 (0.093)
Observations	5,170	5,153	5,153	5,170	5,153	5,153
R-squared	0.045	0.058	0.087	0.003	0.028	0.073
	Having Impact in making my village better			Normalized composite index of self-empowerment		
	No control	Control	Control + Dist.fixed	No control	Control	Control + Dist.fixed
	(7)	(8)	(9)	(10)	(11)	(12)
Treatment x Post	0.274** (0.107)	0.278** (0.107)	0.290*** (0.107)	0.044** (0.023)	0.045** (0.022)	0.047** (0.022)
Treatment	0.052 (0.079)	0.036 (0.084)	0.015 (0.077)	0.001 (0.024)	-0.003 (0.025)	-0.010 (0.016)
Post	0.235*** (0.080)	0.249*** (0.083)	0.232*** (0.083)	0.074*** (0.013)	0.076*** (0.013)	0.068*** (0.013)
Observations	5,170	5,153	5,153	15,510	15,459	15,459
R-squared	0.040	0.062	0.070	0.015	0.029	0.050

Notes: All outcome variables (except the aggregated level of self-empowerment) are measured 5 likert scales. The dependent variables in this table are all normalized with mean 0 and standard deviation 1 in control villages. Robust standard errors clustered at the village level is in parentheses. Significantly different than zero is indicated at 99 (***), 95 (**), and 90(*) percent confidence.

3. Collective action and Social Mobilization

The information about SMUs effect on collective action is obtained through four items: compared to the last 12 months, the following items have improved: 1) the respondents attitude to collective action, 2) other community members participation in collective action, 3) the level of participation in collective action to solve community problems, and 4) the participation in helping community members in unfortunate situations. Table 5 shows that SMU does not have a direct and significant impact on motivating people to work for the common good. This is because the participation rate in community matters was initially very high at 67% among respondents, and 94% of others, 80% of participation rate to solve public problems and 92% to solve a community members problem; thus, SMUs impact on collective action can be negligible due to the very small margin for improvement. Moreover, the baseline survey was conducted after the intervention so the initial urge to participate the community development activities was dampened as the implementation continued. These patterns are shown in columns (1) to (6). The negative effect of Post variable indicates that the participation in the first phase of intervention is statistically higher than in the second although the mean average of treatment village is larger by 0.14 0.2 standard deviation at the .05 statistical significance level.

In sum, most of the SMU effect on social capital is found in the self-empowerment dimension. The cornerstone of community-driven development is the active voluntary participation and the local trust within the village facilitates the mobilization of collective action. Thus, the trust in villagers and the level of collective action can determine the success of community-driven development, not the consequences. Thus, although the SMU effect on trust and collective action is statistically negligible, we can conclude that the SMU improves the capacity of villagers and empowers them to make their own voices heard and make their own choices.

Table 5: Treatment Effect of SMU on Collective Action

	Experience of Participating in collective action					Collective action for Community Improvement			
	No	control	Control	Control	+ Dist.fixed	No	control	Control	Control + Dist.fixed
	(1)	(2)	(3)	(3)	(3)	(4)	(5)	(6)	
Treatment x Post	-0.153*	-0.150*	-0.149*			-0.134	-0.132	-0.129	
	(0.083)	(0.078)	(0.081)			(0.116)	(0.115)	(0.116)	
Treatment	0.190**	0.204**	0.143*			0.022	0.047	-0.003	
	(0.091)	(0.087)	(0.071)			(0.114)	(0.114)	(0.083)	
Post	-0.393***	-0.400***	-0.394***			-0.163**	-0.156*	-0.184**	
	(0.055)	(0.052)	(0.053)			(0.081)	(0.081)	(0.082)	
Observations	5,170	5,153	5,153			5,170	5,153	5,153	
R-squared	0.044	0.068	0.137			0.008	0.022	0.065	
	Collective action for Solving Community Problem				Collective action for Helping Community Members				
	No	control	Control	Control	+ Dist.fixed	No	control	Control	Control + Dist.fixed
	(7)	(8)	(8)	(9)	(9)	(10)	(11)	(12)	
Treatment x Post	-0.068	-0.058	-0.071			-0.135	-0.131	-0.129	
	(0.123)	(0.121)	(0.121)			(0.117)	(0.115)	(0.115)	
Treatment	0.193**	0.172*	0.196**			0.060	0.038	0.060	
	(0.089)	(0.090)	(0.082)			(0.120)	(0.120)	(0.096)	
Post	0.276***	0.251***	0.251***			0.787***	0.788***	0.778***	
	(0.091)	(0.090)	(0.089)			(0.066)	(0.066)	(0.065)	
Observations	5,170	5,153	5,153			5,170	5,153	5,153	
R-squared	0.015	0.021	0.035			0.155	0.157	0.184	
	Normalized composite index of collective action								
	No control	Control	Control + District fixed effect						
	(13)	(14)	(15)						
Treatment x Post	-0.031	-0.030	-0.030						
	(0.019)	(0.018)	(0.018)						
Treatment	0.029*	0.029*	0.025						
	(0.016)	(0.017)	(0.016)						
Post	0.032***	0.030***	0.028***						
	(0.011)	(0.011)	(0.011)						
Observations	20,680	20,612	20,612						
R-squared	0.002	0.009	0.016						

Notes: All outcomes (except the aggregated level of collective action) in the raw dataset are dummy variables (0 is No and 1 is Yes). The dependent variables in this table are all normalized with mean 0 and standard deviation 1 in control villages. Robust standard errors clustered at the village level is in parentheses. Significantly different than zero is indicated at 99 (***), 95 (**), and 90(*) percent confidence.

Income Generation of Community and Household

In addition to the improvement of social capital, the other critical purpose of SMU is to increase income by creating a better community environment for economic activities. We evaluate the economic condition of community by examining living quality, the availability of employment, access to job training and the increase of agricultural production and sales. Moreover, we ask their average monthly income to assess the economic status of the respondents household.

Table 6 provides the result of treatment effect of SMU on income generation in the house-hold and the community. As indicated in columns (2) to (21), SMU impact on each category of income generation activities for community is not statistically different from zero. In contrast to community-income generation, SMU has little effect on increasing household income. The income effect of SMU solely goes to the participants of SMU, so these ambiguous effect of SMU on income generation could be caused by non-compliers who mitigate the average effect of treatment.

In contrast to the effect of the SMU on self-empowerment, the income generation effect of this project is only marginally significant at the household level. The SMU is proven to have no effect on the community-level income generation effect. To precisely measure noncompliance, we must estimate the treatment effect of SMU derived only from community-level participation.

Table 6: Treatment effect of SMU on Income Generation

	Household monthly income				Living condition of community				Employment in community				Job training programme								
	No		Control - Dist.fixed		No		Control + Dist.fixed		No		Control		Control + Dist.fixed		No		Control		Control + Dist.fixed		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Treatment x Post	0.168*	0.166*	0.155*	0.150	0.145	0.153	-0.117	-0.133	-0.117	0.079	0.079	0.088									
	(0.096)	(0.092)	(0.091)	(0.130)	(0.133)	(0.129)	(0.096)	(0.096)	(0.096)	(0.129)	(0.130)	(0.128)									
Treatment	-0.002	0.053	0.020	0.091	0.139	0.088	0.201	0.256**	0.194***	0.482***	0.547***	0.505***									
	(0.078)	(0.081)	(0.085)	(0.145)	(0.140)	(0.111)	(0.122)	(0.118)	(0.065)	(0.142)	(0.132)	(0.093)									
Post	0.499***	0.473***	0.471***	0.583***	0.597***	0.576***	-0.122*	-0.072	-0.097	-2.317***	-2.295***	-2.339***									
	(0.063)	(0.061)	(0.062)	(0.096)	(0.098)	(0.097)	(0.071)	(0.071)	(0.071)	(0.075)	(0.076)	(0.073)									
Observations	4,340	4,330	4,330	5,170	5,153	5,153	5,170	5,153	5,153	5,097	5,080	5,080									
R-squared	0.051	0.110	0.148	0.112	0.130	0.174	0.012	0.027	0.091	0.547	0.559	0.600									
	Normalized composite index of community income																				
	Production improvement in community				Sales improvement in community																
	No		Control - Dist.fixed		No		Control + Dist.fixed		No		Control		Control + Dist.fixed		No		Control		Control + Dist.fixed		
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	
Treatment x Post	0.048	0.051	0.054	0.136	0.140	0.133	0.012	0.012	0.013												
	(0.127)	(0.129)	(0.126)	(0.113)	(0.112)	(0.112)	(0.015)	(0.015)	(0.015)												
Treatment	0.043	0.077	0.054	-0.073	-0.061	-0.056	0.030	0.038**	0.031***												
	(0.141)	(0.138)	(0.107)	(0.092)	(0.088)	(0.088)	(0.019)	(0.017)	(0.011)												
Post	0.717***	0.744***	0.718***	1.025***	1.053***	1.046***	-0.005	0.001	-0.004												
	(0.093)	(0.095)	(0.094)	(0.072)	(0.070)	(0.070)	(0.010)	(0.010)	(0.010)												
Observations	5,170	5,153	5,153	5,170	5,153	5,153	25,777	25,692	25,692												
R-squared	0.118	0.128	0.172	0.204	0.208	0.219	0.005	0.011	0.028												

Notes: The variable of job training center is coded as a dummy but all the other outcome variables (except the aggregated level of community income generation and household monthly income) are measured 5 likert scales. The dependent variables in this table are all normalized with mean zero and standard deviation one in control villages. As the analyses of social capital, the included control variables are household age, gender, religion, ethnicity, marital status, education, land ownership and home ownership. There are seven districts where include 8-9 villages on average. In each district the control and treatment villages are evenly located. Robust standard errors clustered at the village level is in parentheses. Significantly different than zero is indicated at 99 (***) , 95 (**), and 90(*) percent confidence.

Distribution of Benefits

Distribution of Income Generation Benefit

In theoretical terms, a community-driven development project which is driven by local demand and based on the participation of community members should improve the match between what a community needs and what it obtains (Mansuri & Rao, 2004). However, meta-analyses of community-driven development projects reveal that wealthier and better-networked individuals dominate decision making while the vulnerable groups such as the poor, female, or ethnic minorities are systematically excluded from participation. Consequently, the dominant groups leaders, local elites or the rich shape the project to benefit themselves instead of distributing the benefits to the most deprived (Bardhan, 2000; Ibanez & Rao, 2003; Katz & Sara, 1997).

To check whether the SMU project distributes its benefits to people who need the most, we conduct heterogeneous analyses in six vulnerable groups: 1) the poor, 2) the female head of household, 3) the low educated, 4) ethnic minorities (non-Khmer), 5) religious minorities (non-Buddhist), and 6) the physically and mentally traumatized by Pol Pot regime.¹⁾

The results of heterogeneous analyses present consistent patterns for each outcome. The effect of SMU on self-empowerment is most pronounced in the vulnerable groups, as shown in panels A, B, D, E of columns (5) and (6) of Table 7. The magnitude of the SMU effect on self-empowerment is 0.02 to 0.2 standard deviations greater in the vulnerable groups such as the household of female head, non-Khmer and non-Buddhist. In contrast, the SMU causes the adverse effect on mobilizing collective action for the vulnerable groups. As better educated and richer households have fewer opportunity costs, the non-vulnerable groups are more likely to participate into collective action. Highly insecure jobs and the lack of time prevent deprived groups from joining the community-based development project. These exclusions from participation might increase the possibility that the benefits from participation are disproportionately distributed. As presented in panels (A) to (E) of columns (11) and (12), the SMU increases household income only when the households are richer, male-headed, more educated, and belong to a majority ethnic and religious group. This unequal distribution of material benefits of the SMU can be linked to the low participation rate of the vulnerable groups.

¹⁾ The methods that define households for each category are described in detail in the notes of Table 7.

Table 7: Distribution of Income Generation Effect of SMU

Outcome variables	Trust in villagers		Trust in others		Self empowerment		Collective action		Community Income		Household income	
	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A. Treatment effect by the level of poverty												
Treatment x Post	0.014 (0.018)	-0.011 (0.013)	-0.015 (0.023)	0.009 (0.019)	0.062* (0.037)	0.048* (0.025)	-0.067*** (0.016)	-0.018 (0.021)	0.025 (0.026)	0.012 (0.014)	-0.1287 (0.1518)	0.2511** (0.0983)
Treatment	-0.040** (0.017)	-0.003 (0.011)	0.009 (0.019)	-0.011 (0.014)	-0.042 (0.030)	-0.006 (0.017)	0.035** (0.015)	0.022 (0.017)	0.006 (0.020)	0.035*** (0.011)	0.2159 (0.1444)	-0.0222 (0.0936)
Post	0.025* (0.015)	0.019** (0.008)	0.021 (0.016)	-0.015 (0.012)	0.130*** (0.023)	0.054*** (0.015)	0.038*** (0.012)	0.024** (0.012)	-0.001 (0.017)	-0.004 (0.009)	0.3931*** (0.0704)	0.4961*** (0.0730)
Observations	5,124	15,488	5,124	15,488	3,843	11,616	5,124	15,488	6,388	19,304	1,152	3,178
R-squared	0.013	0.007	0.012	0.011	0.073	0.046	0.031	0.013	0.029	0.028	0.1398	0.1558
Panel B. Treatment effect by gender of household head												
Treatment x Post	-0.040** (0.019)	0.005 (0.012)	0.002 (0.023)	0.007 (0.018)	0.088** (0.041)	0.032 (0.023)	-0.037* (0.022)	-0.028 (0.019)	0.006 (0.018)	0.015 (0.015)	0.0835 (0.1467)	0.2058* (0.1077)
Treatment	-0.001 (0.015)	-0.011 (0.011)	-0.017 (0.020)	-0.004 (0.014)	-0.053* (0.031)	0.006 (0.015)	0.039** (0.018)	0.020 (0.018)	0.044*** (0.013)	0.026** (0.012)	0.1371 (0.1333)	-0.0499 (0.1010)
Post	0.039*** (0.015)	0.013** (0.006)	-0.007 (0.016)	-0.011 (0.012)	0.086*** (0.026)	0.061*** (0.016)	0.027 (0.018)	0.029*** (0.010)	-0.009 (0.013)	-0.001 (0.010)	0.4021*** (0.0758)	0.5081*** (0.0867)
Observations	6,020	14,592	6,020	14,592	4,515	10,944	6,020	14,592	7,505	18,187	1,402	2,928
R-squared	0.012	0.006	0.011	0.010	0.057	0.050	0.018	0.016	0.032	0.026	0.1510	0.1397

Notes: The outcome variables all normalized composite index except the household income. In panel A we divide the beneficiaries based on their household assets. If a household's total weighted assets is below 25 percentile in the distribution, the household is categorized as the poor. And the Less poor group is defined as the household whose assets are above 25 percentile in the distribution. Panel B is divided into two based on the gender of household head. All specifications include household demographic characteristics - household age, gender, religion, ethnicity, marital status, education, land ownership and home ownership and district fixed effects. Robust standard errors clustered at the village level is in parentheses. Significantly different than zero is indicated as 99 (***), 95 (**), and 90(*) percent confidence.

(Continued)

Outcome variables	Trust in villagers		Trust in others		Self empowerment		Collective action		Community Income		Household income	
	Low (1)	Less low (2)	Low (3)	Less low (4)	Low (5)	Less low (6)	Low (7)	Less low (8)	Low (9)	Less low (10)	Low (11)	Less low (12)
Panel C. Treatment effect by education level												
Treatment x Post	-0.011 (0.021)	0.012 (0.018)	-0.011 (0.021)	0.012 (0.018)	0.049 (0.031)	0.057* (0.032)	-0.047** (0.023)	-0.016 (0.022)	0.031* (0.016)	0.005 (0.016)	-0.0269 (0.1549)	0.2660** (0.1050)
Treatment	0.004 (0.016)	-0.013 (0.015)	0.004 (0.016)	-0.013 (0.015)	0.015 (0.023)	-0.027 (0.024)	0.045** (0.019)	0.011 (0.019)	0.024* (0.012)	0.035*** (0.013)	0.2644* (0.1523)	-0.1107 (0.0905)
Post	-0.017 (0.016)	-0.004 (0.012)	-0.017 (0.016)	-0.004 (0.012)	0.100*** (0.024)	0.038* (0.020)	0.032** (0.016)	0.023 (0.015)	-0.017 (0.012)	0.003 (0.011)	0.4457*** (0.0582)	0.4802*** (0.0869)
Observations	6,392	14,220	6,392	14,220	4,794	4,986	6,392	14,220	7,967	17,725	1,295	3,035
R-squared	0.014	0.010	0.014	0.010	0.063	0.027	0.023	0.010	0.034	0.025	0.1337	0.1373

	Non		Non		Non		Non		Non		Non	
	Khmer	Khmer	Khmer	Khmer	Khmer	Khmer	Khmer	Khmer	Khmer	Khmer	Khmer	Khmer
Panel D. Treatment effect by ethnic group												
Treatment x Post	-0.020 (0.029)	-0.009 (0.013)	0.070*** (0.025)	0.011 (0.019)	0.202*** (0.051)	0.050** (0.024)	-0.014 (0.043)	-0.025 (0.020)	0.063* (0.033)	-0.001 (0.015)	0.2394 (0.2061)	0.1969** (0.0975)
Treatment	0.009 (0.011)	-0.008 (0.011)	-0.042 (0.029)	-0.013 (0.015)	-0.063 (0.042)	-0.016 (0.017)	0.028 (0.037)	0.021 (0.017)	-0.032 (0.040)	0.042*** (0.012)	0.0773 (0.2382)	-0.0196 (0.0908)
Post	0.037 (0.025)	0.021*** (0.007)	-0.117*** (0.023)	-0.008 (0.011)	-0.091** (0.042)	0.069*** (0.014)	-0.012 (0.038)	0.029*** (0.011)	0.019 (0.032)	-0.004 (0.010)	0.2407 (0.1921)	0.4658*** (0.0628)
Observations	1,920	18,692	1,920	18,692	1,440	14,019	1,920	18,692	2,399	23,293	412	3,918
R-squared	0.012	0.008	0.018	0.008	0.050	0.052	0.018	0.016	0.023	0.028	0.0898	0.1482

Notes: The outcome variables all normalized composite index except the household income. In panel C, the beneficiaries are divided based on their education level. If the household head does not receive the primary education (the year of education is less than three), the household head is categorized as the low educated. If the head of household receives more than 3 years education, we define the household as the less low educated. Panel D is divided into two based on the ethnicity of household head. As the major ethnic group is Khmer, the vulnerable group is the non Khmer household. All specifications include household demographic characteristics - household age, gender, religion, ethnicity, marital status, education, land ownership and home ownership and district fixed effects. Robust standard errors clustered at the village level is in parentheses. Significantly different than zero is indicated at 99 (***) , 95 (**), and 90(*) percent confidence.

(Continued)

Outcome variables	Trust in villagers		Trust in others		Self empowerment		Collective action		Community Income		Household income	
	Non		Non		Non		Non		Non		Non	
	Buddhist (1)	Buddhist (2)	Buddhist (3)	Buddhist (4)	Buddhist (5)	Buddhist (6)	Buddhist (7)	Buddhist (8)	Buddhist (9)	Buddhist (10)	Buddhist (11)	Buddhist (12)
Panel E. Treatment effect by religion												
Treatment x Post	-0.038 (0.030)	-0.009 (0.013)	0.002 (0.041)	0.012 (0.019)	0.153*** (0.049)	0.048** (0.024)	-0.036 (0.040)	-0.025 (0.020)	0.045 (0.032)	-0.001 (0.015)	-0.0463 (0.1606)	0.2023** (0.0968)
Treatment	0.032 (0.023)	-0.009 (0.011)	0.020 (0.036)	-0.014 (0.015)	-0.049 (0.037)	-0.014 (0.017)	0.022 (0.033)	0.021 (0.018)	-0.009 (0.035)	0.041*** (0.012)	0.2645 (0.1778)	-0.0210 (0.0903)
Post	0.0577** (0.027)	0.020*** (0.007)	-0.053 (0.039)	-0.008 (0.011)	-0.042 (0.046)	0.070*** (0.013)	0.009 (0.036)	0.029*** (0.011)	0.039 (0.031)	-0.005 (0.010)	0.5071*** (0.1699)	0.4633*** (0.0624)
Observations	2,028	18,584	2,028	18,584	1,521	13,938	2,028	18,584	2,534	23,158	435	3,895
R-squared	0.013	0.008	0.016	0.008	0.052	0.053	0.013	0.017	0.023	0.028	0.0822	0.1488

Outcome variables	Trust in villagers		Trust in others		Self empowerment		Collective action		Community Income		Household income	
	Non		Non		Non		Non		Non		Non	
	Buddhist (1)	Buddhist (2)	Buddhist (3)	Buddhist (4)	Buddhist (5)	Buddhist (6)	Buddhist (7)	Buddhist (8)	Buddhist (9)	Buddhist (10)	Buddhist (11)	Buddhist (12)
Panel E. Treatment effect by trauma from Pol Pot regime												
Treatment x Post	0.006 (0.029)	-0.014 (0.017)	-0.019 (0.025)	-0.008 (0.019)	0.060 (0.060)	0.022 (0.029)	0.014 (0.034)	-0.029 (0.023)	0.055* (0.029)	0.011 (0.016)	-0.0478 (0.3336)	0.1013 (0.1168)
Treatment	-0.025 (0.030)	-0.006 (0.009)	0.017 (0.025)	-0.008 (0.012)	-0.006 (0.059)	-0.012 (0.014)	-0.022 (0.036)	0.031** (0.015)	-0.010 (0.029)	0.033*** (0.009)	0.2094 (0.5428)	0.0070 (0.0732)
Post	0.003 (0.015)	0.028*** (0.011)	0.008 (0.019)	-0.001 (0.012)	0.035 (0.033)	0.069*** (0.019)	-0.026 (0.028)	0.014 (0.014)	0.001 (0.016)	-0.005 (0.011)	0.1358 (0.1321)	0.5809*** (0.1049)
Observations	8,208	8,624	8,208	9,756	6,156	7,317	10,856	9,756	13,567	12,125	2,022	1,646
R-squared	0.012	0.011	0.017	0.024	0.032	0.072	0.019	0.020	0.020	0.053	0.1486	0.1364

Notes: The outcome variables all normalized composite index except the household income. In panel E, the beneficiaries are categorized based on the religion of household head. If the household head is Buddhist which is the major religion, we consider the household is not vulnerable group. Panel D is categorized the vulnerable group based on the trauma of Pol Pot regime. If the head of household has physically or mentally affected more than top 25 percentile level, this paper considers the household as the highly affected group. If the level of trauma of the household head is less the 25 percentile in the distribution, the household is defined as the lowly affected. All specifications include household demographic characteristics - household age, gender, religion, ethnicity, marital status, education, land ownership and home ownership and district fixed effects. Robust standard errors clustered at the village level is in parentheses. Significantly different than zero is indicated as ***, **, and 90(*) percent confidence.

In addition to the conventional categories of vulnerability, this paper includes the households that have members who were mentally or physically harmed by the Pol Pot regime. Cambodia's community-driven development projects are attributable to the state-sponsored genocide of the 1970s. SMU should therefore investigate whether the trauma generates a differential impact. The severity of the trauma caused by the Pol Pot regime is divided into two categories. The 'low' category of the trauma includes people whose severity is below the 75th percentile. The 'high' category is for above the top 25th percentile. Panel E shows that the trauma of Pol Pot does not affect the distribution of benefits of the SMU. The most traumatized households receive the most community income generation benefits from the SMU though the effect is only marginally significant. Thus, from the heterogeneous analysis, it is hard to find that trauma from the Pol Pot regime has a detrimental effect on the benefits of SMU.

Conclusion

This study examines the effect of the SMU on social capital and economic outcomes in post-conflict Cambodia. CDD approaches of the SMU is particularly important in conflict-affected communities which enables local community to regain sense of social cohesion and to restore livelihood. From 2014 to 2018, the SMU implemented in 30 villages in 3 Provinces to improve the livelihood of rural villages through income generation, capacity building, and living environment improvement activities, and strengthen social cohesion.

According to our estimates, the SMU project significantly improves the capacity of self-empowerment. The households of treatment villagers have 0.04 standard deviation greater self-reliance in making decisions for their life and village. Considering the fairness of the distribution of benefits, this self-empowerment effect of SMU becomes even more remarkable since the effect is especially substantial in vulnerable groups such as low-income, less educated and ethnic and religious minority households. However, SMU has very limited impact on improving economic condition. Although the project slightly increases the household monthly income, the CDD project does not generate substantial changes in community-level economic conditions.

Our findings contribute to the debate about the importance of CDD in improving social cohesion and income generation in conflict-affected areas. They provide the evidence that CDD improves the self-empowerment of villagers, particularly the vulnerable groups.

Furthermore, our results suggest that to generate notable improvement in economic conditions, the SMU should be accompanied with active participation of villagers

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