COMMUNITY ENFORCEMENT TO COMMUNITY EMPOWERMENT: CASE STUDY OF CHILI COLLECTIVE MARKETING ON COASTAL SANDY LAND YOGYAKARTA SPECIAL REGION

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Abstract

Coastal sandy land had been assumed as marginal land and abandoned for many years. Farmers who was living on coastal sandy land of Kulon Progo District had faced the worst poverty problem. Since 1970 to 1980, they had cultivated coastal sandy land subsistently. All of the inhabitants could not have a good economic condition, education, and healthy. Eye disease had been epidemic on the dry season while health facility was inaccessable. However, recently, in that coastal sandy land area has been able to produce an economical commodity such as chili, watermelon, papaya and other horticulture products. Technological innovation which discovered by a farmer changed the socio-economics condition of coastal sandy land farmers. It was invented by the farmer who belongs to B Farmer Group (BFG). As pioneers of chili farming on coastal sandy land, the farmers in the BFG always attempt to invent new technology like evolution of well for watering technology and plastic mulch to ease the most difficult tasks of cultivating on marginal land. Those innovations diffused to neighboring villages, G Farmer Group (GFG). Meanwhile, the GFG enforced institutionalized land planning for the sustainability of chili farming. Then, GFG could introduce the institutional innovation taking advantage of shared norms as a community. Community enforcement happened on the GFG through the sanction for dishonest behavior of individual against the farmer group. The leader takes authority control of sanction while mostly individual member awares the equality and evennes for all of members and then, they achieved chili collective marketing successfully. To understand how the community enforcement is part of the way to empower the community, social network analysis was used to mapping the pattern of relationship. In addition, exponential random graph models (ERGM) was functioned to gather the structural effect of ties in the farmer group network. To understand the effect of leader on community enforcement, again ERGM was used to predict the role of leaders as exogenous effects on network. The result of social network pattern, interlocking network appears on the GFG, members tend to get connected each other. The connection among members happened because of the social norms and social setting on the farmer group. They attempt to form the structural equivalence then community enforcement could empower them to work collectively. Being connected, it means community shared the knowledge and information conformly while connectivity among leaders have influenced on the information validity.

Keywords: Community, enforcement, empowerment, social network analysis, collective marketing

BACKGROUND

Indonesia has made use of farmer groups as one approach to develop rural communities. Community as a group of person with individual characteristics who are linked by social ties, share common perspectives and engage in joint actions in geographical locations or settings (MacQueen et al. 2001). Community is a group of interdependent inhabitants residing in the same location and interacting with each other through special relationships which consist of a number of persons that connect in specific way that distinguishes them from others (Homan, 2004) (North, 1990). A community of people is a social network whose members develop relationships with each other through repeated interaction (Masten and Prufer, 2014). In Indonesia, farmer groups are the community based on geographical location while it has an agenda setting reaching the better living together.

Cooperation on the community can be sustained through long-term relationship and the way to sustain cooperation is by personal enforcement (Takahashi, 2007). In the small community where every person can interact constantly, personal enforcement can be powerful function to maintain cohesiveness. Within groups, shared norms, beliefs, knowledge, and social affiliations create the cohesiveness and information flow required to effectively monitor and punish dishonest group members.

Meanwhile, personal enforcement could change into community enforcement, which determines group to reward cooperators and punish cheaters. Community enforcement will be effective if extra information transmission within the community is set up. In addition, enforcement institutions is key factor for effective community management of a common pool resource (Ostrom 1999 *cit* Palmer 2005).

Communities can enhance their capital by focusing on improving the skills of leaders. Platteau (1996) describe how successful community collective action may be associated with effective, charismatic local leadership. Leaders in the network share information, provide advices and supports. The social ties will facilitate the improvement of trust among them. Collective leadership network is a system of social ties among people focusing on a shared goal or a desire to achieve specific goal. The network members in the small group grow the interaction in the larger network. By the time, enforcement on the community transforms to community empowerment when the rules, regulation and norms are respected by all members of farmer group. Community empowerment is understood either as a process or as an outcome. Considering the process of empowerment, community assumes as power to conduct effectively to change their lives and environment (Kasmel and Andersen, 2011). Alsop, Bertelsen, and Holland (2006) describe empowerment as "a group's or individual's capacity to make effective choices. Then, make choices and transform those choices into desired actions and outcomes. Amartya Sen's (1989) define empower as a concept of agency (the ability to act on behalf of what you value and have reason to value)—and Alkire 2008; Ibrahim and Alkire 2007 define as the component related to the institutional environment, which offers people the ability to access institution properly. Thus, community empowerment process promotes the participation of people, organizations and communities for increased individual and community behavior.

How the community enforcement took effect to the community empowerment, it will be explain by analyzing the function of regulation and leaders. In addition, the process of community empowerment will describe in details by comparing two farmer groups, BFG and GFG. The community regulation on GFG and BFG will be clearly compared in this paper.

METHODS

This study attempts to explore the historical process and present situation of chili collective marketing in Yogyakarta Special Region. It focuses on two pioneering farmer groups based on chili farming and marketing, which are located on coastal sandy land. These two farmer groups (BFG and GFG) have been successfully conducting collective activities for both chili farming and chili marketing.

Field research was carried out on two farmer groups in the Kulon Progo District of the Yogyakarta Special Region in Indonesia. The groups are B Farmer Group (BFG) and G Farmer Group (GFG). Data were collected through whole-network on membership ties among members of both groups through personal interviews with all 86 of GFG members and 94 of BFG members. The roster method was used (Butts, 2008) to gather the membership network. Type of network: Advice network about knowledge exchange of chili farming among the farmer group members on coastal sandy land

Then, the network were drawn by Pajek 5.10 and the formation of social ties are analyzed by ERGM using MPNet software. ERGM are used to decribe the structural effect of the network (endogenous) and the actor relation effect (exogenous) on the network. Actor attributes are treated as exogenous that affect the presence of social ties (Lusher, et.al, 2013).

RESULT AND DISCUSSION

Chili farming on coastal sandy land was started after the invention of compatible watering technology. The innovation spread quickly through the village and neighboring villages. The FG aids in transferring innovations; there are many activities conducted by FGs including chili collective marketing. The FG initiated the land planning utilization for chili farming. They divided the function of the sandy land into four categories in consideration of the evenness of land division for current farmers, for late-comer farmers, community purposes, and reforestation. The planning for land utilization was also used to persuade the village officer to make a tenancy contract. In addition, the categorization of the land arranged the area so that scattered plots became one larger plot for each farmer. Conducting the land arrangement was a difficult task to achieve, but enforcement from the group to the members helped them to accomplish it.

Technological innovation which discovered by a farmer changed the socio-economics condition of coastal sandy land farmers. It was invented by the farmer who belongs to BFG. As pioneers of chili farming on coastal sandy land, the farmers in the BFG always attempt to invent new technology like evolution of well for watering technology and plastic mulch to ease the most difficult tasks of cultivating on marginal land. Those innovations diffused to neighbouring villages, GFG. Meanwhile, the GFG enforced institutionalized land planning for the sustainability of chili farming. Then, GFG could introduce the institutional innovation taking advantage of shared norms as a community. Community enforcement happened on the GFG through the sanction for dishonest behavior of individual against the farmer group. The leader takes authority control of sanction while mostly individual member awares the equality and evennes for all of members and then, they achieved chili collective marketing successfully.

Collective marketing has strengthened the bargaining power of the farmers to sell their chili products. In the past, farmers sold chilies individually to intermediate traders or sub-intermediate traders; after collective marketing was conducted by the FGs, the traders who wanted to buy chili products from the farmers of that village had to buy them through the FG. Later, auctions were chosen as a system of selling the collected chili product to traders. The traders who joined as bidders were assembler traders who were not only from the surrounding area but also from other cities in Central Java. The ability to maintain high chili prices during each harvesting season motivates the farmers to continue selling through

collective marketing. In terms of collective marketing, both FGs succeeded in stabilizing chili prices among the farmers, but the payment system for the chili product is still held by the traders, which means farmers and FGs encounters delayed payment problems.

Community enforcement could be happened by the commitment to conduct consensus enforcement of sanction and penalty. In here, leaders take control of the process of enforcement. Meanwhile, the communication network in the community is able to examine the role of leaders in the community.

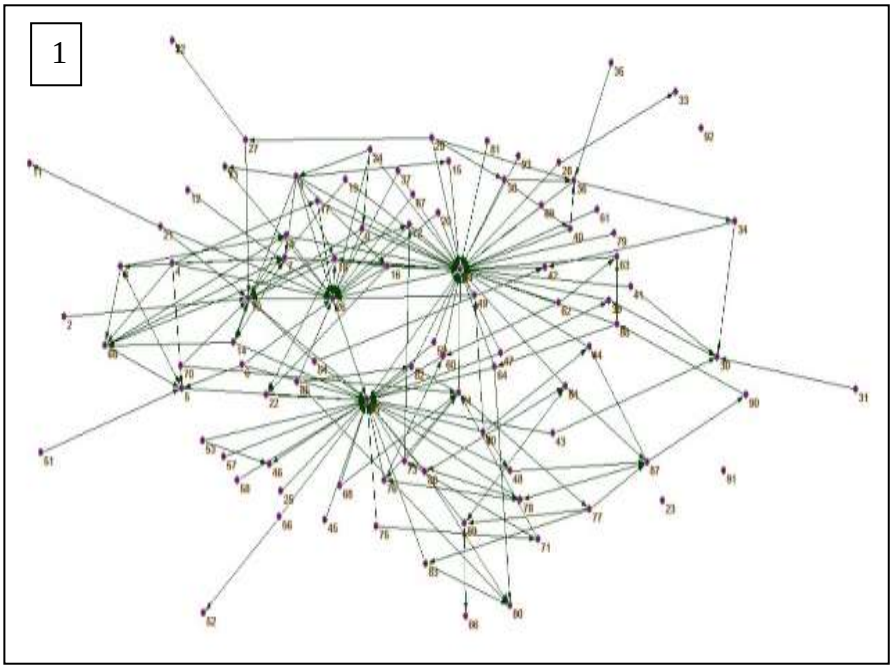
a. Socio-centered network of FGs

Socio-centered network comprises a set of social actors who have a relationship among them in the condition of dyadic relational ties. Social actor involved in action of the community with strategies or approaches. The relationship among members of the community can elaborate through the social network. On the social network, actors often choose the other network friend based on friend's attributes. Meanwhile, some of the actors change their attributes because the influence of network's partner. Actor can change some preference or attribute values due to the influence of network's partner. Difussion or contagion is happened by the influence of friend on the network. So that, on the community, network analysis will detect the patterns of social ties among members of it.

Table 1: Communication Network on BFG and GFG

Communication Network	BFG	GFG
Size (number of nodes)	94	86
Number of ties	205	818
non-reciprocal ties	165	154
reciprocal ties	40	664
Number of cliques	1	329
Network density	0.02	0.11
Average in-degree	2.13	9.48
Average out-degree	2.19	9.51
Average all-degree	4.32	18.99

The Table 1 shows that on BFG (1) network contains 94 nodes which produced only 205 lines, out of a possible maximum of 8,742 lines. Among all the lines which are connected in the network, only 40 ties are reciprocally tied. While, merely one clique appears in the BFG's network. It assumes that asymmetric (non-reciprocal) ties are dominant and low density are appeared on the network. It is resulted, each member in the BFG knits with only two members in the network. The pattern of BFG activities are centralized only into three nodes, affects the structural network ties. It seems that non-reciprocal ties are mostly formed between leaders and members.



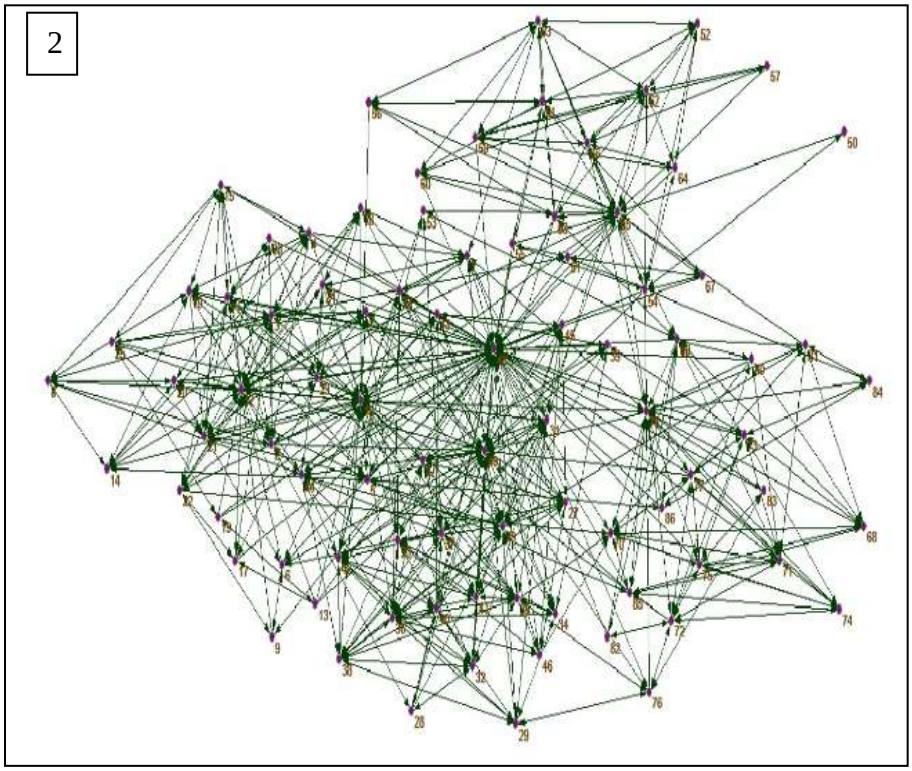


Figure 1. Sociogram of BFG and GFG

The sociogram of GFG (2) shows that cohessiveness of network has bundled. GFG members are connected with more members (9-10 nodes of all-degree) than BFG

members (2 nodes for all-degree). In addition, Table 1 shows that on the GFG the reciprocal ties are dominant; 81.17% from a total of 818 ties, members produce 329 cliques (complete connected lines). Considering the reciprocal ties and number of cliques, the network pattern of GFG socio-centered network tends to be interlocking.

b. Exponential Random Graph Model of Farmer Groups

Exponential random graph models (ERGMs) are currently applied to examine network data and are central to understanding social structure and network processes. ERGMs are first and concerned by explaining the patterns of ties in the social network. Ties between actors is not only shown at random, entities have specific reasons to connect with one member rather than another. The motivations of interactions are varied and complex and have been subject to accurate analysis of the social sciences. This research shows that member who also leaders will have a higher tendency to cooperate. This makes sense for two reasons, first, become leaders make them to communicate with many members which have an impact on community enforcement. Second, when member searching for information from the FG tend to rely on referrals.

Actor attributes are individual-level measures on the node. During selection process investigate as homophily, actor form a tie because they share one or more individual attribute. While social influence, actors change some attributes due to the influence to network's partner.

On the ERGM, structural effects refer to network configuration that do not depend on the characteristic of the network node. But, a network tie is between a pair of individuals. So, an ERGM is a tie-based model for social networks and depedency between network ties. Reciprocity is a form of depedency, while transitivity can be simply explained as a friend of my friend is my friend.

The Model of ERGMs produces paramater estimates that indicate the strengh and direction of netwoks pattern. This model use some parameters on the structural effect and actor relation effects. Arc is like an intercept effect in the linear regression and can be interpreted as the baseline propensity for the occurance ties. Table 2 shows that reciprocity for both FGs are positive and significant which means members of FGs are likely to communicate reciprocally. The style of communication of BFGs and GFGs are different which can be seen from popularity (in-degree) and activity (out-degree). Communication of GFG are not centralized only to leaders because out-degree effect is negative and significant. On the other hand, in BFG, communication centralized to popular members (leaders).

Table 2: Structural and Exogenous effect on Network

Network effect	Estimates (SEs) BFG		GFG	
Structural effects (endogenous)				
Arc	-3.49(0.48)	*	22.80 (5.88)	*
Reciprocity	3.47(0.43)	*	4.7 (0.21)	*
Popularity spread (in-degree)	0.76 (0.19)	*	-0.16 (0.57)	
Activity spread (out-degree)	-0.35 (0.23)		-14.74 (3.18)	*
Transitivity (AT-T)	1.04(0.19)	*		
Multiple 2-paths (A2P-T)	-0.36 (0.07)	*		
Activity closure (AT-U)			1.64(0.08)	*
Shared Activity (A2P-U)			-0.02 (0.004)	*
Exogenous effect (Actor Attributes)				
Sender (FG/Leaders)	-0.24(0.46)		-1.55 (0.28)	*
Receiver (FG/Leaders)	-0.49(0.29)		1.01 (0.16)	*
Interaction (FG/Leaders)			0.49 (0.53)	
FG Leaders_Match	-1.39(0.25)	*	0.09 (0.04)	*

Transitivity is significant and positive while multiple 2-paths is negative and significant for BFG which is indicating a tendency of hierarchical path closure. In the GFG, activity closure is postive and significance means communication tend to structural homophily, actors in the network who makes similar choice of others form a tie. Shared activity is negative and significant means that they tend to seek information not only among member but also to popular person who have more reliable information.

Social network can capture a balance between the individual and the system, between the actor attributes and social structure. The social structure of BFG and GFG has already decribed through structural effect. There are some difference of social structure in GFG and BFG. In this paper, actor attributes are differ as two leaders and members.

Actor attributes influenced the network of GFG and BFG in different results. In the BFG, the local connectivity is indicated by a tendency for hierarchical path closure while against the cyclic closure. It means the members merely get information through the popular person (farmer group head), members rarely exchange the information with any other members. The function of farmer group is played by the reciprocal exchange between members and leaders only.

In the GFG, the exchange is not centralized to specific person while members tend to exchange with others, the network formed by the structural equivalence. Every member of GFG exchange the common knowledge, it seems they conduct it because of social settings on the neighborhood. Besides, the GFG board also coordinated the exchange knowledge between them to make sure that they would give a validated information to the members. NA head in the GFG receive more ties from members as a result of members search the knowledge.

c. Community Enforcement to Community Empowerment

Since 1985, the farmers surrounded by coastal areas in the Yogyakarta Special Region have been cultivating chilies, initiated by the two farmer groups, BFG and GFG. Marginal land, extreme climates, and the need for information forced each of them to create a FG. BFG and GFG realizes the condition of the sandy land and the probability of succeeding in cultivating chili on sandy land, there are some rules to execute in order get the succesful chili farming.

FGs are a social institution that influences people and helps determine the social consensus and values on the society (Gordon, 1980). Individual members are under consensus forces to conform and behave by the collective norms; thus groups determine the human interaction and the results that members could achieve (Pradhan, 1999). The FGs were built based on the communities in which they were formed; as a result, social norms and rules are the bases for regulating the attitude and behavior of the members to achieve group goals. All members, as individuals, perform based on the calculated costs and benefits, which include the area's economy and social and psychological concerns. The members adjust their behavior when the group cannot utilize the social network and facilitate economic exchange to provide satisfactory conditions. Farmers can decide to work collectively or individually, based on their own preferences and values, to maximize their economic and social benefits. Social ostracism and sanctions enforce compliance with the social rules.

Markelova and Meinzen-Dick (2009) summarized three important factors for a FG to succeed in collective marketing in agriculture: the characteristics of the product and market, the characteristics of the agricultural product determining the different ways to market it; the characteristics of the group can be an enabling factor for the success such as a group that has the same socioeconomic status, shared norms and values, and a knowledgeable leader trusted by the members; and group arrangements or rules are needed to develop accountability and enforcement mechanisms.

In the GFG, regular, official meetings constitute the basis of the group's collective activity. The group meetings function as the mode of communication between the leader and members and legitimize the consensus at the group level. Meanwhile in BFG does not have regular group meetings as a medium of exchange between the leader and members.

In case of chili collective marketing, the members of both FGs understand that larger quantities of chili yield a higher price at auction through collective marketing. However, in BFG, each member can sell chili based on his individual judgment so they hesitate to persuade other members to sell chili only through collective marketing even if they hope it. Unlike the case of the BFG, the members of the GFG take it for granted to market collectively, because they respect the consensus. The forms of individual farmer performance differ, based on the shape of the human interaction in the group in which they are nested. The farmers surrounded by tightly-bound relationships among themselves will behave by considering the group consensus; in contrast, the farmers who maintain relationships only with the important persons in the group will behave by considering their own individual benefit, being affected only by the important actor in the network.

In the BFG, the activity of member at chili collective marketing is not only influenced by economic conditions but also by their position towards FG leaders and their position in the organization. The closer position of members to FG leaders brings them greater advantage in getting information regarding FG services, i.e. seed and new technology. In the GFG, the performance of chili farming is influenced by the

economic condition of farmers. Those farmers who can afford to adopt new technology earlier than other farmers have a feeling of responsibility to adopt them earlier.

In both the BFG and GFG, economic condition, organizational structure, rand the role of leadership influence the community enforcement of collective marketing. Because of the enforceability of consensus, members can achieve good performances together on chili collective marketing. Each farmer can access group facilities and information equally. Leaders and members that experience regular group meetings can find a group consensus and follow the rules of the FG, so the personality of the leader is not a critical point to manage FG. On the other hand, even if the group lacks group meeting activities, the leader and members can exchange information by keeping individual relationships, and this can also enhance group performance. In this type of FG, the personality and capability of leader become a crucial to enable FG performance.

While enforceability consensus has happened and respected by all member, they are able to have power to conduct chili farming and collective marketing to change their lives and environment. Through the farmer group, they can make choices on making usefull of coastal sandy land and transform the marginal land to productive land while also conduct the land arrangement for members in order to ease the accesibility of land. In addition, farmers could make a choices into desired actions on chili farming and outcomes on chili collective marketing. As a result, community empowerment process by BFG and GFG promotes the participation of member, strengthen farmer group (institution) and communities for increased individual capacity and community behavior.

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