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Original Article

Individual social and economic position versus impact of collective services: Contribution to small-scale farmers' adoption on single origin coffee processing scheme♣

Bayu Rizky Pratama[1, 2*], and Sucihatiningsih Dian Wisika P.[3]

[1] *MOQUAS, Institute des Regions Chaudes, SupAgro Montpellier, Montpellier, 34090 France*

[2] *Department of Agribusiness, Universitas Muhadi Setiabudi, Brebes, Central Java, 52252 Indonesia*

[3] *Department of Economic Development, Universitas Negeri Semarang, Semarang, 50229 Indonesia*

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Abstract

The protection of coffee products by labels named geographic indications (GI) is often presented as one option to protect the markets open to small scale farmers and sustain their production. However, farmers only enjoy a limited direct benefit from GI certification, instead coffee's economic rent is still captured largely by exporters. The research attempted to overcome these limitations by creating more focused labels through single origin (SO) specialty coffee. Methods performed included in-depth interviews with coffee professionals aimed to assess different public policies resulting more efficiency of SO coffee on the farms' economies added by analysis hierarchy process (AHP) and questioner given to 134 farmers to find the factors contributing on their adoption. It was found the collective action through farmers groups allowed farmers to set up the attributes of coffee production, including some regulations and sanctions. These services went far beyond the individual position to adopt the SO specifications. In the final decision, farmers have been adopted the SO program due to reliable factors to enhance the SO collective action development, such as (1) farmer institutional improvement (0.425), (2) farmer technical skill improvement (0.332), (3) financial access (0.102), (4) technology support (0.087), (5) marketing and partnership development (0.054).

Keywords: geographical indication, coffee, innovation in agriculture, collective action, farmers' adoption

1. Introduction

Coffee protection programs recently have become an important support to local farmers to sustain their production, protect the market channel, and allow them to enlarge their coffee branding. The protection programs of Indonesia coffee producers are required due to more than 90% of local productions were exported. Indonesia coffee producers have been experienced some claim problems in the international coffee market, such that the cases of "*Gayo mountain coffee*" registration by Holland Company (Herviandi *et al*, 2017) and "*Toraja coffee*" by Key coffee Japan (Neilson *et al*, 2018). In order to facilitate the local coffee protection, Indonesia government has initiated a program of geographical indication (GI) registration and protection, where it generally could be used to make coffee more exportable, recognizable, and trustworthy for consumer around the world. It can lead to

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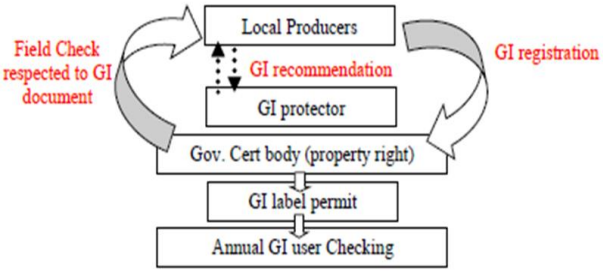
*Corresponding author
Email address: bayurp@umus.ac.id

more stable incomes for coffee producing countries (FAO, 2016). This development could offer opportunities to local farmers and a sustainable rural development process (Belletti & Marescotti, 2011; Belleti, 2014).

One of GI coffees expected to capture more value is Java Preanger coffee produced in Bandung, Indonesia. The local government acted as an authority to introduce the GI conception to local farmer leaders and construct local rules of GI attribution. It was followed by an establishment of local protection body (GI protector), a non-government body to coordinate and monitor the GI implementation under such territories (Figure 1). The protection offered to local farmers cultivated under these territories which could register their coffee as a GI coffee label. However, an investigation found the results of GI implementation was under expectation. Farmers basically just received a small direct benefit from this certification (E, Sri, 2015; Neilson, 2018), where the coffee value chain was still captured largely by the exporters received around 95.46% (Robusta) and 83.66% (Arabica) of the total economic rent, otherwise the small-scale farmers have low by less value added. It was supposed due to the result of a weak collective action and coordination capacities, which lead to a weak market power. Farmers basically worked individually where the groups mostly function only during the government visitation. The failure in conducting GI protection made local farmers develop a specific local protection at lower scale, instead the whole scale GI areas aimed to develop local capacity on processing by producing the single origin (SO) coffee. It is controlled under some standards and monitoring systems in their localized area to make a distinctive market as a development of GI coffee in the narrow scale (Figure 2). In order to enlarge SO coffee adoption to farmer groups, some estimated factors have been evaluated to help government spreading the SO coffee program to local coffee producers. Therefore, the identification between social-economic factors and collective collaboration among the farmers become the concerned factors to be evaluated. Farmers' choice in adopting the SO coffee program will rely on how strong farmers elaborate themselves in a group to conduct a collective movement which could be reducing the cost of adoption followed with intense assistances and controlling system. Thus, this study is willing to evaluate how farmers' collective actions are far beyond the social-economic factors in the process of adoption of SO coffee.

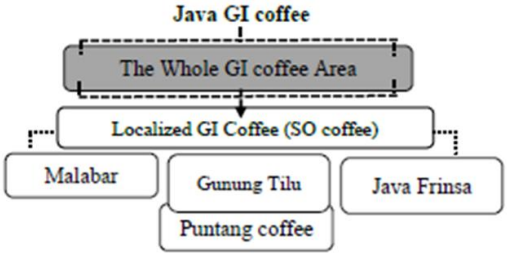
2. Research Methods

This study performed a mixed analysis method through combined qualitative and quantitative methods in specific location of Bandung City, especially at four local coffee producers; (1) Puntang Coffee, (2) Malabar Coffee, (3) Gunung Tilu Coffee, and (4) Java Frinsa Coffee. This area covers the main producers of coffee in Bandung City as the basis of data collection to depict real situation of coffee development. The sample opted depending on the analysis method applied. In-depth interview assisted with observation and documentation had been conducted to 4 producers (the leader of farmers and high-level members) which are (1) Tilu Mountain coffee, (2) Puntang coffee, (3) Malabar coffe, and (4) Java Frinsa coffee. In addition, quantitative analysis was used to support the detail explanations of farmers' adoption on single origin (SO) coffee processing coffee within the groups



Source: Field Observation (2019)

Figure 1. Scheme of local farmer registration for GI



Source: Field Observation (2019)

Figure 2. Development of SO coffee by localized GI coffee producers

by ordered logit model to observe the choice between adoption and non-adoption. The samples are selected by mix-sampling method; (1) stratified sampling method to divide the adopter and non-adopter farmers, and (2) random sampling method to select randomly the farmers as many as 134 farmers from four different local coffee producers.

Finally, the usage of AHP analysis, as the aim is to define the priority of strategies for policy recommendation to some key person respondents included (1) Farmer group leaders, (2) West Java Province Official on Agriculture, (3) Department of Commerce, (4) Department of Plantation, (5) Coffee developer (roastery), (6) Coffee developer (coffee shop owner), (7) Coffee developer (retailer/cooperative supplier), (8) Buyer, (9) Exporter, (10) Trader, and (11) GI Protector. Through AHP analysis (Pratama and Hardiansyah, 2014), it could be found a comprehensive analysis by in-depth interviews to expert professionals (key person) which could determine the proper alternative policy recommendations by their expert and experience in which regarding to this study are aimed to find development strategies of SO coffee implementation for local coffee farmers.

3. Results and Discussion

3.1 Results

Based on the analysis using logit model to find the factors influencing farmers to adopt the Single Origin (SO) Processing coffee, there were some particular factors such as (1) Age of farmer (sig. 0.017), (2) Credit liability (sig. 0.002), (3) GI Knowledge (sig. 0.017), (4) Household size (sig. 0.002), (5) Source of income (sig. 0.001), (6) Age of farmer (sig. 0.002), (7) Credit liability (sig. 0.008), (8) Availability of Adopter neighborhood (sig. 0.029), (9) Collective action

within the group of farmers (sig. 0.008), and (9) Extension Support (sig. 0.039) (more details in Table 1). However, the factors of farmers' age and credit liability have been prevented farmers in joining the SO coffee program, since farmer with an older age would be difficult to adapt the new system and cultivation standard as they were more conservative, than the younger. While for the credit liability, farmers who have been taking the credit to the exporter would be difficult to join, since they have to extract their cultivation for the exporter in exchange of their credit allowances.

3. 2. Discussion

3.2.1 Weak collective action as burden of GI implementation

Java Preanger coffee (GI) implementation at whole scale has massive weakness to be recovered, since it gave very less benefit, especially on the economic rent for the small-scale farmers. The collaborative flowchart is explained (Figure 3) to identify GI certification implementation among the farmers and other actors, including the challenges. Even though, both local government and farmer leader representatives had already been held focus group discussion (FGD) to discuss the GI implementation, including construct the product attribution for the GI user. Nevertheless, the irregular support in implementation become the challenge, particularly for small scale farmers who have less of capacity building. Government less participation at this case of GI implementation is considered as the main source of weakness for less capacity building of farmers, due to the fact that the government is not involved in direct participation, but as external body with less support and budget limit. Durand and Stephane (2017), stated the local government participatory approach in GI program is a key element to define the GI attributes and improve the farmers' perception. Thus, the little action from local government in GI program could impact on implementation, as it could reduce the collective action capacity within farmers.

The less support from local government to develop higher quality coffee through SO coffee processing made the actual situation on Bandung coffee farmers could not meet its vision of expansion, in which farmers have not establish yet the regular meeting for GI, instead conditional meeting when there were some inspections from the national government through agricultural ministry. Furthermore, the irregular support from the government impacted to the less awareness of GI Java Preanger attributes, thus, it raised the problem of the GI free rider as well as GI misuse (Figure 6). Without any sanctions applied both from local government and farmers, non-local farmers could easily imitate the same product through the same brand names, without any inspection of their quality of coffees.

Moreover, the less budget support from local government for financing the local GI protectors also become the main reason of less capacity building of farmers where farmer members could not understand the know-how practice for GI coffee. Rather than improve the collaborative action to lift the average quality standard, farmers are mostly motivated on material benefit, such as profit and subsidy to involve in the program. Whereas, GI is the program which basically offers the immaterial benefit through collective action and social capital that could improve the quality and reputation of the coffee. Thus, farmers need an intense assistance to increase their collective motivation for GI implementation by some FGD and training about the long-term benefit of GI implementation, including the technology support.

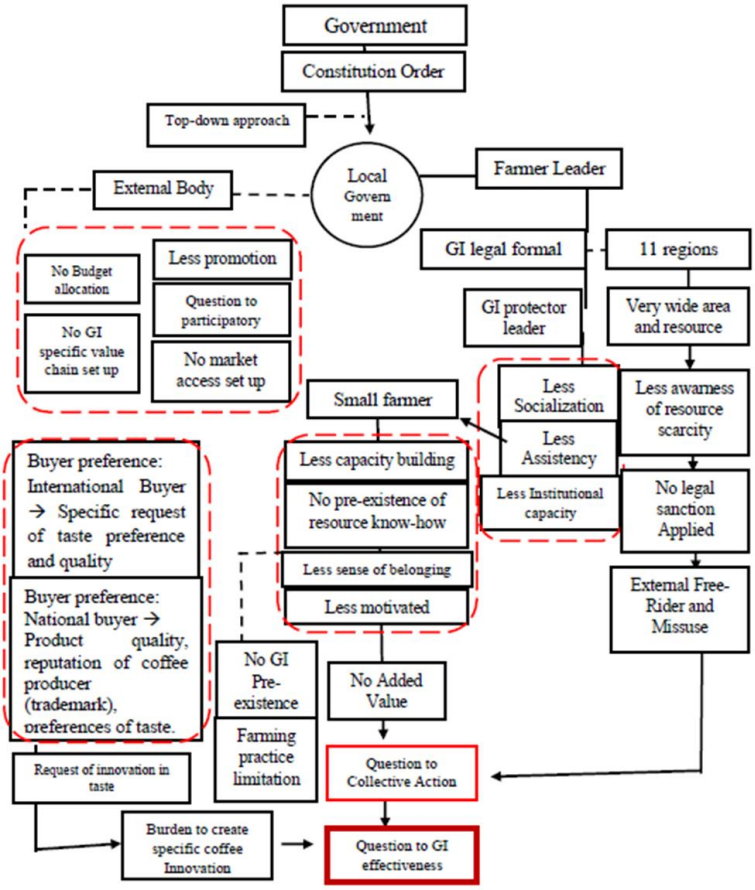
The study found some misappropriate concepts on GI implementation, since GI is not a single actor movement, hence, this requires collaborative contribution movement started from the producers to the other value chain actors. Ostrom (2010) stated that the payoff rules which specify how benefit and cost are to be equally distributed to the actors is the external variable which could influence the motivational perception farmer to do a collective effort. However, instead of establishing the collective action among the value channels for coffee market players through a specific GI coffee value chain with various request of standard, local government was allowing farmers to market their production to exporters with a normal price, the same as another local coffee production. Thus, the efforts from farmers producing the GI coffee were not equally paid off as they have been done an extra coffee protection.

Furthermore, unequal sharing for benefit within farmers may lead to a single question of collective action where some farmers may have less effort while others are struggling with GI attribution (free rider GI users). Therefore, some cases found when coffee growers made the coffee from

Table 1. New model of predicted variables

Variables in the equation									
		B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	VARX1	3.226	1.357	5.650	1	.017	25.174	1.761	359.821
	VARX2.2	2.769	.897	9.530	1	.002	15.945	2.748	92.512
	VARX2.3	5.329	1.676	10.112	1	.001	206.157	7.724	5502.122
	VARX2.5	-.270	.088	9.491	1	.002	.764	.643	.907
	VARX2.7	-3.870	1.456	7.060	1	.008	.021	.001	.362
	VARX3.2	3.349	1.535	4.762	1	.029	28.482	1.406	576.863
	VARX6.2	4.070	1.527	7.108	1	.008	58.555	2.938	1166.887
	VARX7.1	3.902	1.888	4.270	1	.039	49.491	1.223	2003.432
	Constant	-8.968	4.329	4.292	1	.038	.000		

Note: Only variable X2.5 (age or farmer) and variable X2.7 (credit liability) have negative influence to the farmers' adoption X1 (GI Knowledge), X2.2 (Household size), X2.3 (Source of income), X2.5 (Age of farmer), X2.7 (Credit liability), X3.2 (Availability of Adopter neighbourhood), X6.2 (Collective action within the group of farmers), X7.1 (Extension Support). Source: Data Analysis (2019)



Source: Field Observation (2019)

Figure 3. GI collective action implementation scheme

Robusta coffee bean which clearly violated the attribution by wrong ingredient (Figure 6). Furthermore, the misuse is about the violation in ingredient and production method by civet coffee ingredient and fermented civet coffee method which both are not included on the attribution of GI. Thus, it proved that the misuse happened for non-GI user and free-rider within the internal GI actors (GI user) due to less of protection by sanction management system and collective contribution among the farmers. As Ostrom (2010) also identified the same case which proposed the monitoring users and resource become the design principles as factors affecting the probability of long-term survival of a collective protection effort. Nevertheless, as it is depicted in Figure 3, GI local protectors could not perform as the local authority of GI security, where they have to build and establish the initial awareness of GI coffee as well as issue the sanctions for every condition beyond the norm. The less awareness will lead to the weak collective action among the farmer members, which, therefore, this would impact to their less efforts of participation in order to maintain the GI attribution and characteristics which are the value of GI to open a distinctive market. Due to the fact that the particular key of producing GI product as a protected product through an acknowledged label is to introduce consumers that farmers have been successfully produced the differentiated products which create a niche compared to other products.

3.2.2. How collective action changed perspective of farmers' adoption beyond social-economic factors?

One of the important factors that influence deeply the farmers' adoption in SO coffee processing program is collective action within the farmers' group. Collective action has *P-value* 0.008 in positive sign (Table 1) which made it as an influential factor that could improve the probability of adoption. Moreover, observed from the odds ratio (OR) value (Table 2), collective action has 58.55 value of odds ratio which means the farmers who have collective action with a voluntary participation within the group of farmers would have 58.55 times higher probability to adopt the SO processing coffee than the farmers who do not involve in a collective action under the farmers' group. Kalibwani *et al* (2017), observed the collective action by the membership farmers has the positive influence to the adoption on the agricultural program. For Java Preanger coffee farmers, it is observed that this collective action was the key role to enhance the development of SO coffee processing implementation and adoption where the individuals undertake the collective participation and effort based on the mutual motive and interest including the expectation of mutual interest. By collective action, farmer members have the obligation to contribute voluntary by doing some mutual

Table 2. Odds ratio (Exp (B)) on predicted variables

		B	Exp(B)
Step 1[a]	VARX1 (GI Knowledge)	3.226	25.174
	VARX2.2 (Household size)	2.769	15.945
	VARX2.3 (Source of income)	5.329	206.157
	VARX2.5 (Age of farmer)	-.270	.764
	VARX2.7 (Credit liability)	-3.870	.021
	VARX3.2 (Availability of Adopter neighbourhood)	3.349	28.482
	VARX6.2 (Collective action within the group of farmers)	4.070	58.555
	VARX7.1 (Extension Support)	3.902	49.491
	Constant	-8.968	.000

Source: Data Analysis (2019)

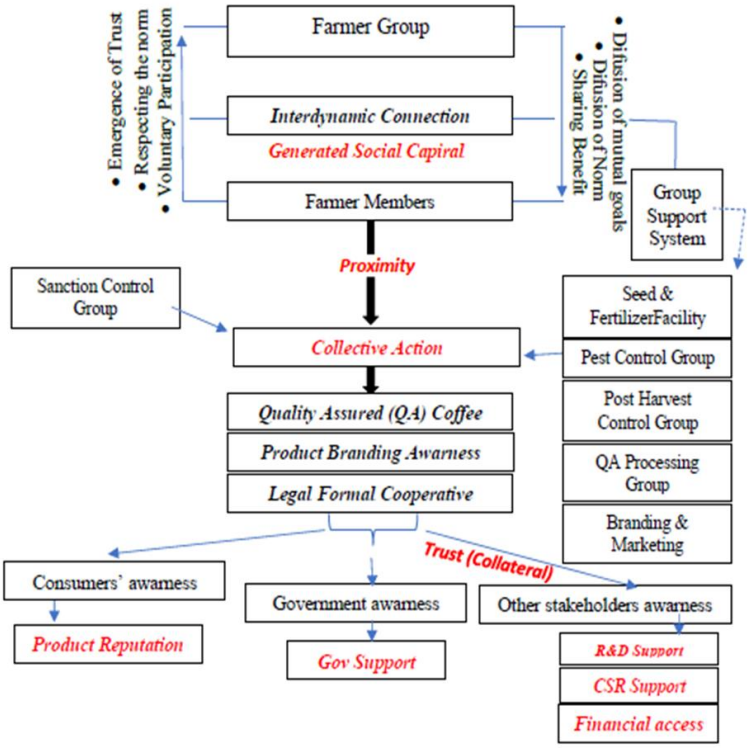
works and efforts, such as (1) cultivation aspect such as the coffee plantation preservation, (2) coffee harvest protection, (3) post-harvest method, (4) storage procedures, (5) processing methods, and (6) packaging as well as (7) branding and marketing strategies.

The collective action has been activated the social capital on Java Preanger local coffee producers which played a significant role to create the bond of each farmer. In the social capital, interconnection with some interactions among the farmers is not only influence the acquisition of information, but also enable the individual farmers to comprehend about social norm and influence other farmers' attitudes and behavior (Kohler *et al.*, 2007; Monge & Daniel, 2008). Through social capital in collective action, the quantity and quality of farmers' participation would be increased, where it facilitates the diffusion of innovation by reducing the uncertainty about adoption compliance. It was successfully done by the SO coffee producers where between four producers, they have been set up intense participatory extension program to their membership farmers through some extra facilities such (1) seed and fertilizer incentive, (2) pest control group inspection, (3) post-harvest control group, (4) quality assurance processing group, and also the facility on (5) branding and marketing (Figure 4). As an additional benefit, collective action allowed farmers to reduce a high investment cost, where usually the peasant farmers could not afford without collective sharing, including credit access by group collateral (Knox *et al*, 1998 on Monge and Daniel, 2008). As depicted again on Figure 4, the farmers which have been legalized by the government by a group could access to the financial access support, including other funding support such as CRS from state-owned or private enterprises (Figure 7).

To generate the collective action under the farmers' group, the farmer leaders take the main role to share the information, benefit, and mutual goals, in order to invite the less participant farmers to participate more in the group. The daily persuasive extension become the main media of diffusion information where less participant farmers could learn and observe how the program could be handled (operation adaptability) as well as program's benefit in the future. It is explained how collective action implemented under the group of farmers in order to adopt the SO coffee program as below (Figure 4). In order to implement the program of SO coffee with a processing scheme, the farmers' groups have to build the foundation of social capital among the farmers to increase the interest of each farmer. The farmer leaders have high responsibility during the transition from traditional coffee farming system to an added value coffee (SO coffee) through some feedback incentive to the farmer group members, such as (1) a fair price for the quality coffee bean, (2) cultivation and production support through pest control group, and (3) the profit-sharing benefit from the group cooperative.

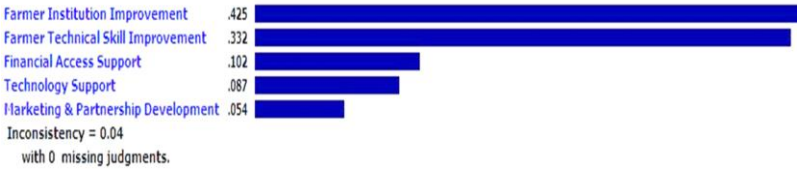
The inter-dynamic connection between the farmers and the group of farmers become the strong bond which generates the depth social capital to enhance the trust of membership farmers to participate in group agendas. The trust could be established, thanks to the efforts of the group where they give facilitation to the membership farmers in order to get a better quality of coffee production through group support system. The group support system helps the farmers to control the farming activities, starting from the cultivation preparation until the marketing of the SO coffee product, such as (1) seed and fertilizer facility group, (2) pest control group, (3) post-harvest control group, (4) QA processing group, and (5) branding and marketing group. In addition, farmers' group also have (6) the sanction control system where its function is to control the compliance of farmers in the procedures and norms as the regulatory control within the group. The sanction varies from light to heavy sanction for farmer members. The low sanctions are such as (1) reduce the price given to the farmers due to the less quality (not fully red-cherry harvest), (2) reduce the allocation of seed and fertilizer for the members who act less participant, and the heavy sanction such as (1) the farmers could not sell the coffee bean to cooperative, (2) drop-out sanction where farmers are loss their membership which is mainly due to very less participation, both in training and supplying the coffee harvest to cooperative. Furthermore, the sanction for external user is a legal sanction if there is a misuse of coffee label which could be reported to the property right department.

This factor went beyond the social and economic factors, importantly due to the fact that the collective action has been contributed to the establishment of the same perception among farmers within the group which put them in the same goals of opening a distinctive market as a protected coffee brand. Compared to social-economic factors which were just only as supported factors to ease the implementation of coffee adoption. Based on the appendix table 2, there were (1) GI Knowledge (25.174 point), (2) Household size (15.945 point), (3) Source of income (206.157 point), (4) Age of farmers (0.764 point), (5) Credit Liability (0.021 point), (6) Availability of adopter neighborhood (28.482 point), and (7) extension support (49.491 point), which all impacted to the



Source: Field Observation (2019)

Figure 4. Implementation of collective action in SO coffee



Note: Rank of priorities (1) Farmer Institution Improvement, (2) Farmer Technical Skill Improvement, (3) Financial Access Support, (4) Technology Support, and (5) Marketing & Partnership Development

Source: Field Observation (2019)

Figure 5. Priority strategies for farmers' adoption on SO processing coffee

Source: Research documentation (2019)

Figure 6. The missuses of GI label

adoption of farmers on the SO Coffee program. While the factor of collective action become the second highest influenced factor to improve probability of farmers' adoption as much as 58.555 times higher than the farmers' groups that have not had the collective action.

Based on the result of logit analysis above, this study could define the important key role of collective action among the farmer groups during the implementation of GI coffee at lower scale which went beyond the social and economic factors. Collective action on GI implementation became the key source of element to start every farmers' decision whether they have to join in the adoption. Instead relying on the individual factors, such as the land size, the capital size, and the source of farmers' income, the collective action could elaborate all farmers into a single vision collectively. Thus, this could consist of all categories of farmers without exclusiveness and exception. As long as farmers acknowledge the same goals, having the equal sharing benefit with the same proportion of efforts, they could join in

Source: Research documentation (2019)

Figure 7. Establishing post-harvest market and machine due to financial access by CSR and government.

the program of GI implementation without any differences of equality. Collective action's role is as a representative of all regulation during the GI coffee program implementation. It has all the elements from (1) the introducing the know-how of GI to the farmers, (2) establishing the product attribution as a protection of distinctive market, (3) creating the agreement of sanction and support control system, and (4) generating a collective market using a single acknowledged label of coffee which is only used by the registered farmer members. Otherwise, other factors of social and economic would have allowed them to be more motivated and eased to understand the concept of GI and its implementation.

3.2.3. Policy recommendation to support farmers' adoption in GI SO coffee

As the observation found some challenges in GI coffee implementation, thus, it required the improvement both for farmers and the institution itself aimed to establish the equal collaboration among the farmers within the farmer group as institution. Based on appendix Figure 5, it has been evaluated the priority of policy recommendation to stimulate farmers' adoption. In order to improve the adoption program, the strategy of (1) farmer institutional improvement (0.425) has become the most important strategy among all strategies which should become the most considered action plan by government. Farmers basically have such group of farmers, however, majority of the groups are less active with less participation on the group. Instead, the group become the formality group with less effective function to farmers. As the processing program of SO coffee is more complex than the ordinary farming system (cultivation), so that the farmers' institution becomes the main support to improve the sharing works among the members collectively with intense extension and learning-by-doing education within the groups. As a result, due to the collective action within the effective group through institutional context support, the SO processing coffee goals could be achieved collectively. (2) The farmer technical skill improvement (0.332) becomes the second most important strategy which should be conducted by government, in which its function is to recover the farmers' lack of skill in processing and marketing, including other management practices such as quality assessment and storage management system. Moreover, the strategy is not only considering the internal strategy (farmer internal improvement), but also the external strategy (outside farmer support) where the government needs to open the support.

The next important strategy is about (3) financial access (0.102). Farmers would need more support for financial access, where basically it helps the farmers to acquire the facility, such as machinery, marketing support system, and cash flow support, particularly for the farmer groups that are required the huge amount of financial support. In the other hand, farmer groups need (4) technology support where this could be helped by government or other parties to improve the technology importantly for processing, such as huller machine, pulper, drying, and roasting machine. However, since the government would have some limitations on their budget, so that the government has to be selective to give the machine, so that it might not all the farmers' group which would obtain the machinery support. Nevertheless, this strategy is still important but not that much, since farmer group could possibly begin the coffee processing scheme with least machine or any affordable machinery that could be bought by farmer group, rather than awaiting the government help for machine. However, the re-investment for higher quality and more sophisticated machines has to be supported by government to enhance the quality and quantity improvement for farmer groups.

Furthermore, the last considered strategy is about (5) marketing and partnership development. This strategy is the least important compared to the other strategies, in which the expert respondents have been assuming that the market in Bandung has been established through some market facilities, thanks to the value chain development growth by the business ecosystem, such as roastery, cafe, and also marketing media including the internet market place, so that the producers would have less difficulties on marketing and finding a partnership in the value chain to promote and sell their coffee productions. As more details, the strategies could be explained at specific level to reveal how each strategy could be developed to resolve the barriers on the program adoption for farmers. This study has been analyzed the proper actions that should be done by government from all five strategies.

4. Conclusions

The collective action within the group allowed farmers to set up the attributes of coffee production, including some regulations and sanctions in purpose of maintain the coffee quality, such as (1) farmer support system offering different services, such as (a) seed and fertilizer, (b) pest control system, (c) post-harvest control group, (d) quality assurance system, and (e) branding and marketing system, and (2) sanction system to control the farmer members' compliance with the groups' norms. Compared to social and economic factors, this collective action has far more beyond impact to influence farmers' adoption, whereas the logit

resulted the collective action within the groups has the positive influence by odds ratio as much as 58.55 which was the second highest influential variables after the source of income of farmers by 206.15. The collective action has been contributed to the establishment of the same perception among farmers within the group which put them in the same goals of opening a distinctive market as a protected coffee brand. These elements were the most fundamental source to construct the GI implementation due to the fact that GI is indeed required a collective movement in order to produce the exactly same quality and niche.

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References

Belleti, G., Marescotti, A., & Touzard, J. (2014). Geographical indications, public goods, and sustainable development: The roles of actors' strategies and public policies. *World Development Journal*, *98*, 45-57. doi:10.1016/j.worlddev.2015.05.004.

Durand & Stephane F. (2017). Can geographical indications modernize indonesian and vietnamese agriculture? Analyzing the role of national and local governments and producers' strategies. *World Development Journal*, *98*, 93-104.

E., Sri., Offermans, A., Kemp, R., & Corvers, R. (2015). The impact of coffee certification on the economic performance of Indonesian actors. *Asian Journal of Agriculture and Development*, *12*(2), 1-16.

FAO. (2016). *GI expected to boost Laotian coffee export*. Lao: FAO Press Release.

Herviandi, A., Susilowati, E., & Njatrijani, R. (2017). Optimalisasi perlindungan hukum terhadap pendaftaran merek dagang di negara lain (In Bahasa). *Diponegoro Law Journal*, *6*, 1-14.

Kalibwani, R., Kamugisha, R., Kakuru, M., & Hilman, E. (2017). Adoption of soil conservation through collective actions in Southwestern Uganda. *African Crop Science Journal, 25*, 13-19. doi:10.4314/acsj.v25i1.2S.

Monge, Mario & Daniel. (2008). *How change agents and social capital influence the adoption of innovations among small farmers*. Washington, DC: International Food Policy Research Institute.

Neilson, J., Wright, J., & Aklimawati, L. (2018). Geographical indications and value capture in the Indonesia coffee sector. *Journal of Rural Studies*, *59*, 35-48. doi: 10.1016/j.jrurstud.2018.01.003

Ostrom, E. (2010). Beyond markets and states: Polycentric governance of complex economic systems. *American Economic Review*, *100*(3), 641–672.

Pratama, B., & Sahaya, H. (2014). Strategi Pengembangan Usahatani Kedelai Untuk Mewujudkan Ketahanan Pangan Indonesia (In Bahasa). *Jejak: Jurnal Ekonomi Dan Kebijakan*, *7*(2). doi:10.15294/Jejak.V7i2.3899.