

THE IMPACT OF SOCIAL CAPITAL ON THE ADOPTION OF ORGANIC FARMING INNOVATION IN PAGERWOJO DISTRICT

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Abstract

Farming activity is one of efforts to increase economy level of the farmers. One of farming activities is ability to utilize farming land. Pagerwojo District of Tulungagung Regency is one of villages that is potential to be used as farming land. Current condition has been able to develop an organic-based farming, which offers great benefits for farmers and the society. Implementation of such farming is followed by social capital to support and utilize the resources in the environment. This research studied problems that focused on the impact of social capital on adoption of the organic farming innovation in Pagerwojo district in order to increase economy level of the farmers. Objectives of the research were: 1) Identify parameter of the social capital (trust, norm, and network) in Pagerwojo District; 2) Identify parameter on adoption of the organic farming innovation in Pagerwojo District, and 3) Analyze the impact of social capital on adoption of the organic farming innovation in Pagerwojo District. Method of the research was combining the descriptive and explanatory research. The location was selected in accordance with case study in Pagerwojo District of Tulungagung Regency. Data of the research was primary data that was collected through interview and respondents were selected using Snowball sampling technique. The analysis method used Likert's scale, which will be conversed using factor analysis with dependent variable such as adoption of innovation, and independent variables that include network, trust, and norm. Therefore, it indicated what is the extent of social capital affects the adoption of organic farming innovation in Pagerwojo District, Tulungagung Regency.

Keywords: Social Capital, Organic Farming, Adoption of Innovation and Regression Analysis

INTRODUCTION

Pagerwojo is one of districts, which cooperated with University Brawijaya, campus II Kediri. This district locates at the west side of Tulungagung Regency that covers the area 88.22 Km². It comprises of 11 villages in which the north side adjacent to Sendang District, the east side adjacent to Kauman District, the south side adjacent to Gondang District, and the west side adjacent to Trenggalek Regency. Land uses in the District comprise of two types, rice field and dry land that cover 1,375 Ha and 7,447 Ha, respectively. Most of areas in Pagerwojo District are dominated by highlands and mountainous, so that they are suitable for horticulture and estate. However, the crops dominate the planting area, rice field covers the area 5,041 Ha and produces 35,517 Kw; while in 2018, the area of 2,521 Ha produced 168.113 Kw corn (Anonim, 2019). So that, it can be said that implementation of farming actiity in Indonesia is one of efforts to increase economy in the village, particularly for farmers and parties who get involved in farming activity.

Agricultural sector plays important role in national economy, but it has not been able to fulfill life necessities of the farmers in Indonesia so that proper strategy is required in agricultural development. Agricultural development is aimed to increase social welfare fairly and equally. Effort to overcome this problem is required to make a big change in development, particularly in agricultural sector. (Barki et al., 2017). Farmer is one of the keys to increase the crop yield, but condition of the farmer at present is less profitable due to low income and they are not able to utilize the land for farming activity optimally.

In relation to agricultural development, it is important to understand the farmer, individually, in using any network to access information, interact with others, and take action collectively to get profit (Barki et al., 2017). Good farming activity will be able to perform farming operation collectively. Such collective farming will be able to reduce production cost, increase productivity, rise income, and increase job opportunity. The farmers have social environment that affect the farming activity. Implementation of farming activity is followed by social capital to support and able to use resources in the environment.

Social capital can be discussed in strong community context, strong civil society, and nation-state identity. Social capital, including its elements, such as trust, cohesiveness, altruism, mutual cooperation, network, and social collaboration have great impact on economy growth through various mechanism, such as the increase of responsibility for public interest, the extended participation in democracy process, strengthen harmony of the society, and decrease the violence and criminal rates (Field, 2005; Blakeley and Suggate, 1997; Suharto, 2005a; Suharto 2005b).

The application of organic farming has significant impact on productivity and income of the farmer. Farmers are more concerned with organic farming application, higher productivity and income than farmers who apply conventional farming (Mulyadi, et al., 2014). Organic farming is a farming system, which is friendly to environment and produce healthy foods, free of lethal drug residues and chemical substances. Actually, organic farming has become traditional wisdom/knowledge, which cultured among farmers in Indonesia. However, such organic farming technology is started to be abandoned by the farmers when intensification technology is started to be applied and relied on agrochemical substances. Since then, farmers become the target of agrochemical intake and depend on the outsiders. Following the emergence of problem that relates to environmental impacts as a result of chemicals application, organic farming technology which environmentally safe and produce healthy foods are started to be concerned.

In this study, problem that is going to be revealed focuses on the impact of social capital on adoption of the organic farming innovation in Pagerwojo District to increase economy level of the farmers. Social capital may strengthen capacity of the organization which contains economic activities. The key factors that contribute the success of social developmental institutions include managerial skills, ability to make technical planning, and ability of the personnel to manage the project, as well as ability to make good relationship with society (Syahra, 2003). In the research (Anggita, 2013) collective farming requires strong social capital among farmers.

Concept of Social Capital

Basic principle of the social capital is that only social groups, which have a set of cultural and social values that appreciate the importance of mutual cooperation which will make progress and develop with their own strength.

A community group may not only rely on outside assistance to overcome its economic difficulty, but they also think and take the best steps collectively to handle this difficulty by exerting their potencies and resources. Therefore, social capital emphasizes the need for self-support (independence) to

overcome social and economic problems, while outside assistance is a complement to trigger initiative and productivity that emerge from within the community itself (Syahra, 2003).

Social capital refers to resource that resulted from interaction among peoples in a community. Nevertheless, measurement of such social capital rarely involves measurement of the interaction itself. But, result of the interaction itself leads to the creation or maintenance of trust among peoples in the community. An interaction occurs in individual and institutional scales. Individually, it refers to interaction of intimate relation between individuals that create an emotional bond. Institutionally, interaction is created when vision and goal of an organization have similarity with other organization.

Although the interaction occurs for reasons, however, peoples interact, communicate, and then cooperate because they are basically affected by their desires to share how to achieve mutual goal, which may be different from their own goal, personally. Such condition particularly occurs on interaction that lasts relatively long. Such interaction creates social capital, emotional bonds that unify peoples to achieve mutual goal, which will foster trust and security as resulted from relatively longer relationship. As like financial capital, such social capital may be viewed as source that can be used for activity or production process at present, as well as to be invested for activity in the future.

Intuitively, basic idea of the social capital is that someone's family, friend, and colleague/ partner are important assets who are asked for help in any critical situation. Community that has diverse stocks of social network and civil association is in the outside position to face poverty and susceptibility, problem solving, and utilizing new opportunity. On the contrary, no social bond will have significant impact as well (Vipriyanti, 2007). Therefore, community that has high social capital tends to work together, feels secure to talk and be able to overcome any differences. On the contrary, community that has low social capital will show some suspiciousness of each other, the spread of the term 'our group' and 'their group', without law assurance, and social orderliness, and often emerge the 'scapegoat'.

Concept of Organic Farming

Organic farming is considered unprofitable in short-term. Because with the same technology, organic farming produces less optimal along with the application of less fertilizer in comparison with the conventional cropping. But, if it is combined with the application of organic fertilizer, pest control along with appropriate technological innovation will be able to produce relatively equal results. It is just for sure, long-term organic farming will guarantee for soil quality and better local ecosystem.

Organic farming (natural farming) is an environmentally safe cropping, which endeavor to minimize negative impact on nature and its surrounding, in which the main characteristic is the application of organic materials (organic fertilizer and pesticide) and without the application of chemical material (Sutanto, 2002). Organic farming system encourages the people back to nature, as well as increasing productivity of the crop yield through improving soil quality by avoiding or reducing the application of chemical materials. Because basically, organic farming limits any negative impact resulted by chemical cultivation or often so-called as conventional farming. Organic farming appreciates authority and autonomy of the farmers in accordance with local values.

Organic farming system is a farming production system that based on biologically-nutrient recycling. Western experts for agriculture suggested that organic farming system is "law of return", a system that tries to return various organic matters in the form of agricultural and cattle wastes to the soil in order to transform the nutrients into soil biomass, without using input outside the land, and only rely on the nature. After having the mineralization process, they will turn into nutrients in the soil that feed the plants. Such organic farming is based on philosophy that developing principles of feeding the soil that feeds the plants, and not just feeds the plants directly (Sutanto, 2002).

According to Center for Research and Development of Soil and Agroclimate, organic farming is not farming system without any fertilizer application, but the fertilizer is applied in accordance to result of the soil test, whereas the result will determine the success of organic farming development. Organic farming should fulfill the rule/principle of the certification that relate to input/*saprodi*, production process as well as the products, and to avoid to share improper inputs, such as: seeds as a result of genetic modification and microorganism, which is ineffective and inefficient, synthetic chemical fertilizer and plant growth regulator, as well as toxic wastes, and synthetic chemical pesticides.

Organic farming must fulfill rules of certification that relate to input/*saprodi*, production process as well as the production, so that in practice, it is expected to perform as follow:

- a. Avoid the application of seeds resulted from genetic modification.
- b. Avoid the application of ineffective and inefficient microorganism.
- c. Avoid the application of synthetic chemical fertilizer and plant growth regulator, as well as toxic wastes.
- d. Improve and maintain soil fertility and productivity by supplementing organic matters.
- e. Multi-culture planting pattern (mixed farming).
- f. Avoid the application of synthetic chemical pesticide, weed control, as well as disease and pest control through mechanical and biological procedures.

Organic farming is based on the application of minimum external input that demand the used land may not be polluted by chemical materials and has good accessibility. Geographical condition and land quality have been considered in land selection. The land use, which has been cultivated conventionally by the application of synthetic pesticide and fertilizer, takes longer conversion period. Technical requirements for organic food products include: land conversion from the conventional system for annual plants is done at least two years before and without combustion, the seeds were not resulted from genetic modification, water source and irrigation are not polluted, soil fertility management does not apply synthetic chemical fertilizer or does not apply feces and OPT management does not use synthetic pesticide.

RESEARCH METHODS

Location was selected in accordance with the case in Pagerwojo District of Tulungagung Regency. Method in collecting the data was done primary because in order to find out the social capital, it requires direct interaction with respondents or informants. The respondents were selected using Snowball method, in which the informants who will be interviewed are recommended by the previous informants. In data collecting process, the snowball process keeps going until the answers are convergent, credible, and not "surfeited".

Method of the research used descriptive and econometric approaches. The econometric approach used factor analysis and multi-regression model.

Data in this research includes primary and secondary data. There are three variables in this research, such as network, trust, and norm. Those variables were collected using questionnaires, which were delivered to the respondents through interview and reinforced by observation. Items of the question as well as the statement were designed in accordance with Likert's model scale of five categories. Respondents were asked to agree or disagree with the statement content in five categories that include very disagree, disagree, doubtful, agree, very agree. The collected data will be analyzed using descriptive and statistical analysis, namely multi-linear regression, which previously underwent

precondition test that included normality test and classical assumption test. Multi-linear regression analysis was applied in accordance with Arikunto (2007):

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + e$$

Notes:

- Y = Innovative adoption (score)
- a = Constant
- b1 b3 = Coefficient of regression
- X1 = Trust (score)
- X2 = Norm (score)
- X3 = Network (score)
- e = Confounding variable

RESULTS AND DISCUSSION

Result of the data normality test using Kolmogorov-Smirnov showed that data was normal distributed and results of the classical assumption test showed that the data free from multicollinearity, autocorrelation, and heteroscedasticity. Results of multi-regression analysis showed that social capital has very significant impact on adoption of innovation. Results of multi-regression analysis are presented below.

Table 1: Result of Regression Analysis

Variables	Coefficient	T Statistic	P Value
Intercepts	-0.097	-0.40	0.693
Trust (X ₁)	0.77	-6.09	0.000*
Network (X ₂)	0.35	2.56	0.012*
Norm (X ₃)	0.30	2.03	0.046*
R- Squares		0.66	
Samples		95	
Sig.*		0.043	

Source: Primary Data of the Research is processed, 2020.

Note: *) Significance at $\alpha < 0.05$.

Results of the regression analysis suggested that Trust, Networking, and Norm have simultaneously significant impact on adoption of the organic farming innovation, however, the whole model has model percentage of 66%, so that 34% variables are outside the analysis model, and it shows that the designed model has affected farmers and breeders in Pagerwojo Village to adopt the organic farming innovation through Trust, Networking, and Norm. Such condition showed that even partially those three variables of Trust, Networking, and Norm have significant effect on adoption of innovation, which was taken from 95 samples in Pagerwojo Village. The significant level of Trust is 0.000, whereas the condition showed that Trust has significant impact with coefficient 0.77, which means that each addition of one unit of Trust will increase 0.77 Adoption of Innovation. Furthermore, the significant level of Networking variable is 0.012 with coefficient 0.35, which means that each addition of one unit of Network, it will increase 0.35 adoption of innovation. While significant level of Norm is 0.046, and this condition showed that Norm has significant impact with coefficient 0.30, which means that each addition of one unit of norm variable, it will increase 0.30 adoption of innovation.

Trust

Trust has positive impact on adoption of organic farming innovation, which means that Trust is very helpful in the adoption of organic farming innovation. Although some farmers in Pagerwojo Village have not wanted to adopt the organic farming innovation due to they still use the provided seeds that are sold in low cost, along with the strong trust in using ways without expending much money, has made the adoption of innovation will be difficult to be implemented and the process will take longer. The farmer group plays important role in assisting and encouraging other farmers, who have not adopted the innovation. Meanwhile, the farmer groups in Pagerwojo Village play important roles in the implementation of traditional method, meeting among the farmer groups are held routinely every month, perform some activities such as payment of monthly dues that will increase togetherness in the group, and it is supported by procurement of seeds and fertilizers, which are facilitated by the farmer groups. During the harvest time, the farmer groups participate in assisting the implementation of harvesting and providing information about prices for the sale of harvested crops.

Such condition shows that the implementation of farming activities in Pagerwojo Village are highly affected by Trust, but desire to adopt the innovation has run even some of them have not adopted the organic farming innovation. If a farmer group still applies the traditional method, according to (Orr, 2003), an innovation should be communicated in a community or group in order to gain mutual agreement and perform it together. If a group disagrees or does not want to perform the innovation, the traditional method or the prevailing method are considered to be more effective and profitable for the farmers and the farmer groups.

Network

Just like the Trust variable, Network also has positive and significant impact on the adoption of organic farming innovation in Pagerwojo Village. As the network booster, the farmer groups becomes the main strength in determining the network, almost all activities in the farmer group are performed together from upstream to downstream. The farmers cooperate collectively in farming activities, mutual cooperation, and exchange of information, so that they have strong network. Member of the group performs routine activity to fulfill the need of *saprodi*, in which the famers work together in producing fertilizer, organic pesticide, and local seeds of superior variety. The farmers do not tend to borrow capital if they do not have urgent needs. Indirectly, the farmers will be active in any activity, which is held by the farmer group. According to (Barki et al., 2017) strong network will strengthen cooperation among individuals. Network is very important in social capital because network among individuals will facilitate coordination and cooperation between individual and the group.

Norm

In the analysis result, norm has significant and positive impact. Mutual respect has created comfortable condition within the farmer group in Pagerwojo Village because they may give contribution to each other and feel comfort in any farming activity. Sense of togetherness has made the members will be able to exchange ideas in every activity including adoption of organic farming innovation, even though few of them perform organic farming but most of them perform organic transition. The farmer groups in Pagerwojo District have also applied written regulations. Objective of the regulations is expected that the farmers should obey the norms that have been agreed by the whole parties. It conforms to the suggestion by Hasbullah (2006) that social norms is a set of rules that must be obeyed and followed by the community in a specific social entity. Mutual norms will strengthen the social bond among individuals and reinforce cooperation in the adoption process of innovation.

CONCLUSION

Adoption of the organic farming innovation in Pagerwojo Village is affected by Social Capital that includes Trust, Network, and Norm. The impact of Trust on adoption of the organic farming innovation through farmer group, which has activities in Pagerwojo Village such as payment of routine dues that will be used for farming activities, seed and fertilizer aid, as well as information about prices of the farming products.

Network also plays important role in the adoption of organic farming innovation in Pagerwojo Village, moreover, by the existence of farmer groups, the established network for each farmer who has joined in the group will be able to build communication in each farming activity, particularly in exchange of information and problems that are being faced.

Norm that is prevailed in writing and orally has made the implementation of farming activity becomes easier, and the farmers give priority to mutual cooperation in every activity of the farmer group.

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