Contribution of village cooperation unit in improving farmers' incomes

M B Sibuea¹ and F A Sibuea²

¹ Agribusiness Department University of Muhammadiyah Sumatera Utara
² A student of Magister Agribusiness of Institut Pertanian Bogor
Email: buchari65@yahoo.com, Tel: +628126588824

Abstract. One of the government and private efforts to improve people’s welfare particularly to improve farmer’s income is to activate the Village Cooperation Unit (KUD). The objective of research was to know the efficiency level of farming organized by farmers together with cooperative. Theoretically some social economic variables have been known influences the rate of farmer’s income, therefore three social variables, such as the level of cooperation services, members participation, and friendship among farmers with cooperation were studied. List of questions divided into forty family’s leader members of KUD which become samples. Analysis models were used production function of Cob-Douglass and Output Input Ratio models. It was concluded that level of participation and friendship partially were significantly to the income’s rate meanwhile variable of cooperation services level were not significant. Simultaneously, three factors gave very significant contribution, where R-square was 0.97 so that very significant. It’s also concluded that the biggest contribution given by the friendship level. Efficiency level or farming efforts of the farmers is very well and feasible with the average of OIR rate 19.23. This research recommended that this effort could be improved from friendship process among institution since the contribution was significantly improving the farmer’s income.

1. Introduction
The cooperative holds an important role in the Indonesian economy which is a representation of the constitutional form of business for the Indonesian nation as stated in Article 33 Paragraph 1 of the 1945 Constitution where is stated that the economy is arranged as a joint effort on the principle of kinship. Logical consequence is that in every dynamics of national development must always give greater space and motion to the cooperatives development in order to be more instrumental because it is considered a form of the existence of a populist economy. On the implementation, the cooperative is gone through Law Number 25 of 1992 about Cooperatives and Presidential Instruction Number 18 year 1998 about the cooperative improvement and development [1].

Village Cooperative Unit (KUD) is one of the most famous and most widely found type of cooperatives in Indonesia, especially service of various economic activities in rural area teaching farmers have a distribution function of production facilities such as fertilizers, pesticides, seeds and various equipment Farming, distribute of daily necessities by fit prices, provide low interest credits and easy rules, do counselling, processing and marketing of products and other fields in accordance with the capabilities and circumstances of the cooperative [2].

KUD is a vital business entity for rural communities that can excite and improve the performance farmers so that the produced production will increase both quantitatively and qualitatively. KUD is a
collection of people who work together to fill one or more economic need or cooperation to do business. It is different from other types of business and usually has the orientation to capital and profit that will be accepted. Cooperatives prefer the human factor and work on the basis of the economy for the welfare of its members. Nevertheless, the situation but the cooperative is not a charity [3].

The key of cooperative advancement is ability on accumulating savings from members and its business have surplus. With stronger capital and the ability to serve better members, agricultural cooperatives will certainly gain wider trust in the midst of society so that in turn it will increase the number of members of the cooperative. His stronger ability will enable the cooperative to accommodate the aspirations of other community members so that the scope of the cooperative will be able to include more diverse activities. In this context, it is hoped that the cooperative can become a forum for activities as well as a teacher of the rural economy [4].

The agricultural sector in general is one of the main drivers aimed at increasing national production, improving the living standards of the large majority of people working in agriculture and to establish a strong foundation for the gradual execution of development. In the context of implementing these objectives, from the very beginning of nation-building, the development of the agricultural sector has been placed as the first priority gradually directed to economic development [5].

In the development activities of the agricultural sector, so that the implementation process goes well, many elements or supporting tools that really determine progress or not the development of agriculture. One of the most prominent is the continuity KUD in researching referred to as agricultural cooperatives [6].

The objective condition found in the research area is felt less optimal cooperation between farmers with KUD in terms of business management, shelter/distribution, palm oil marketing and still lack of participation level of farmers to the existence of cooperatives and otherwise cooperative services that are still not good so that not yet fully touching to all member layers. Therefore, this research is intended to know how far the influence of cooperative services, the level of farmer participation to the existence of cooperatives and farmer-cooperative partnership partially and simultaneously to increase farmer's income and also to know the efficiency level farmer-managed farmer.

Through this research is expected to provide an alternative problem solving in empowering the economy of the villagers. The model of social economy which is reflected by the large participation of the lower community / farmers in an effort to change their life for example through a farming cooperative should be able to provide welfare to its members that can be measured from the efficiency level of farming.

To further direct and focus the research, hypothesis is proposed (1) the real influence between the level of cooperative service to the members, the level of participation of members on the existence of cooperatives and the level of partnership between farmers and cooperatives to increase farmers' income either simultaneously or partially and (2) Agricultural enterprises managed by farmers members of agricultural cooperatives are feasible.

2. Material and methods
This research is done by case study so that it is expected that the result of this research will be able to provide an alternative solution as well as comparative or comparison material for other relevant research cases. This research was conducted in working area KUD Harta located in Selayang Village, Selesai District, Langkat Regency covering work area in 5 villages. The villages selected to be the object of research are Selayang Village and Ujung Bandar Village because as many as 75% of the members of the cooperative are from both villages. This agricultural cooperative is one of the largest in Langkat Regency so it is very representative as a research location.

The reason for choosing this KUD as research location is because this cooperative is the biggest in Langkat Regency in terms of number of members (reaching 1169 members of cooperative) managerial aspect as well as from profit aspect of their business. The data collected is in the form of primary and
secondary data. Primary data obtained direct interviews with respondents consisting of farmers, farmer groups and administrators KUD own. Secondary data is obtained from Cooperative Office, other relevant Government Offices and Private Offices and references relevant to this research.

The population in this study is the palm oil cooperative members where the main livelihood is derived from the oil palm business. The research unit is the head of the farm household which is taken at random. This can be done because the area, type and pattern of farming business are relatively homogeneous. Sampling was done by purposive sampling method. The sample size of 40 farmers with the details as shown in table below

**Table 1. Size of research area**

| No | Village     | Number of members | Percentage (%) | Number of samples |
|----|-------------|-------------------|----------------|------------------|
| 1  | Selayang    | 467               | 53.25          | 21               |
| 2  | Ujung Bandar| 410               | 46.75          | 19               |
|    | Total       | 877               | 100.00         | 40               |

first was logarithm become form of linear function that is as follows:

Model Cob Douglass:

\[
Y = aL^{b_1}T^{b_2}M^{b_3}
\]  

(1)

Linear function model:

\[
\log Y = \log a + b_1 \log L + b_2 \log T + b_3 \log M
\]

(2)

Where:
- \(Y\) = income level of farmers members of cooperatives;
- \(L\) = variable level of cooperative service to member;
- \(T\) = the variable level of member participation to the cooperative;
- \(M\) = the degree of partnership between farmers and cooperatives;
- \(a\) = intercept;
- \(b_1, b_2, b_3\) = the level of elasticity or contribution of each independent variable.

To find out the predictor contribution (X) to the dependent variable (Y) used the concept of elasticity and for hypothesis testing used t and F test [7].

While to test the second hypothesis used Output-Input Ratio (OIR) formula that is:

\[
OIR = \frac{Output \ (Result)}{Input \ (Cost)}
\]

Where if:
- \(OIR > 1\) the business has been efficient
- \(OIR = 1\) the business is in a state of breakeven point (BEP)
- \(OIR < 1\) the business is inefficient [8].

3. Result and discussion

3.1. Partnership service, partnership and farmer cooperative

The level of service given by the cooperative in this case is the readiness / alertness of the provision of production facilities (tools) required by the farmers in their farming efforts, the speed and accuracy in collecting the farmers harvest, the marketing of agricultural products, the distribution of daily necessities, And speed of credit giving to farmers, electricity bill services and agricultural extension services. From the result of the research, it can be seen that the level of service provided by the
cooperative to the member farmers with the criteria used is very good 75% -100%, both 50% -75%, less 25% - 50% and 0% -25% bad as shown in table of the following:

Table 2. Level of service given by KUD to member farmers

| Number | Cooperative type services to members | Rating (%) |
|--------|--------------------------------------|------------|
| 1      | Tools provision                      | 66.7       |
| 2      | Result collection                    | 65.8       |
| 3      | Result marketing                     | 63.3       |
| 4      | Daily goods production               | 65.0       |
| 5      | Credit giving                        | 60.0       |
| 6      | Electrical account service           | 81.6       |
| 7      | Counseling                           | 66.7       |

From table it is clear that the level of service given by the cooperative to members is look relatively good where the electricity bill payment service is the highest level of service although the service is actually not directly related to the farming activities. Therefore, the levels of agricultural cooperative services in essence still have a very big opportunity to be improved especially services that are directly related to the production process of farming.

While the level of participation contributed by the farmers in the business of agricultural cooperatives, especially in terms of purchasing the needs of production facilities associated with farming activities, the accuracy of harvesting the results of farming, willingness in buying daily needs, accuracy and paying credits that have matured, accuracy in paying electricity bills and activitation in following the activities of cooperatives and the idea of the development of cooperatives, more clearly can be seen in table below:

Table 3. Participation rate given by farmers to cooperatives

| Number | Cooperatives services type given farmers to cooperatives | Rating (%) |
|--------|---------------------------------------------------------|------------|
| 1      | Buying tools production                                | 73.3       |
| 2      | Accurate harvest                                       | 62.5       |
| 3      | Selling harvest                                        | 67.5       |
| 4      | Buying daily needs                                     | 84.2       |
| 5      | Accurate buying credits                                | 55.0       |
| 6      | Accurate buying electricity accounts                   | 80.0       |
| 7      | Giving ideas                                           | 46.7       |

According the table, the level of participants on the context of empowerment cooperative has been relatively well although it is still to improve continually. It looks that the level of member participants concerning direct something about live or die a cooperative institute such as giving ideas, buying accurate credit are still low. It shows that actually, the member participants concerning existence cooperative are still more improved especially things be an example cooperatives for farmers to the development his business agriculture.

Partnerships or partnerships between farmers and cooperatives include the provision and purchase of production facilities for farmers, the accuracy of harvesting and harvesting, marketing of crops, credit and accuracy in paying due credits, provision of daily necessities, In terms of electricity bill payments for members of the cooperative, agricultural extension and distribution of ideas/aspirations from members to cooperatives. The results of the research can be seen in table below. According to the table, the relationships between farmer and cooperative is relatively good although there are some components partnership researched to look the bad condition. Variable indicating the bad level is counseling and aspiration channel. It is essential factor for cooperative life future. This fact also
provides a strong indication that the aspects directly related to the empowerment of cooperatives precisely provide an unfavorable value while the aspects that are actually less related to the essence of the presence of a cooperative proved to provide good value (e.g. provision of daily needs). Therefore, there is still a need to increase the quality of partnership between farmers and cooperatives so that it will give more benefit to both parties that cooperate.

Table 4. The Level of Partnerships Between Farmers and Cooperatives

| Number | Type of done partnership                  | Rating (%) |
|--------|------------------------------------------|------------|
| 1      | Provision and tools purchase             | 75.0       |
| 2      | Accurate harvest and result collection   | 75.0       |
| 3      | Marketing and purchasing of result       | 67.5       |
| 4      | Purchasing of credits and purchasing accurately | 71.7   |
| 5      | Daily needs Provision                    | 72.5       |
| 6      | Consultation and aspiration channel      | 49.2       |

3.2. Influence analysis of service level, participation and partnership concerning farmers members farmers income level

To see the extent of simultaneous or simultaneous influence of the three variables studied on farmer member farmer's income, an analysis is performed with Coob-Douglass production function model and can be seen in table below:

Table 5. The results of analyze of influence level service, participants and partnership concerning level of incoming the cooperative member

| Variable                  | Regression coefficient | Error standard | t-count (df=36) | Probability | r² partial |
|---------------------------|------------------------|----------------|-----------------|-------------|------------|
| Service logarithm         | 1.0621                 | 0.9228         | 1.151           | 0.2602      | 0.0485     |
| Participant logarithm     | 1.7543                 | 1.2303         | 1.826           | 0.1658      | 0.0725     |
| Partnership logarithm     | 2.8475                 | 1.0422         | 4.732           | 0.0111      | 0.2231     |
| Constant                  | -1.3209                |                |                 |             |            |
| Std error of est          | 0.0280                 |                |                 |             |            |
| adj. R-squared            | 0.9694                 |                |                 |             |            |
| R-squared                 | 0.9726                 |                |                 |             |            |
| Multiple R                | 0.9862                 |                |                 |             |            |
| F-Count                   | 30.7328                |                |                 |             |            |

Based on the results of test from table can be formulated linear function of the analysis are:

Log Y = -1.3209 + 1.0621log L + 1.7543log T + 2.8475log M

So if converted to Coob Douglass rank function becomes:

Y = 0.05 L^{1.06}T^{1.75}M^{2.85}

Based on the results of hypothesis testing above it is seen that simultaneously the variables studied can explain the change in income of 97.26% indicated by the value of R-squared or coefficient of determination of 0.9726. While the rest is explained by other variables that are not researched.

Simultaneously, the three independent variables are the level of real cooperative service to the income level of the farmers of the cooperative members so that if these variables are proportionally increased, it will give the farmers income increase at 95% confidence level. This is also evidenced by the existence of a very high relationship between independent variables with dependent variable. While the influence of each independent variable to the dependent variable partially or individually can be explained follows:

3.2.1. Influence the level of service concerning the level of incoming. Partially, this variable has positive effect to income because it has positive elasticity value that is equal to 1.06 which means if
service level added 1% then it will raise income level equal to 1.06% where other variables are considered fixed (ceteris paribus). While based on t test obtained that the value of t arithmetic smaller than t table which means the influence of service is not significant at 95% confidence level. This means that although the elasticity is positive but it does not show any real effect. The above indicates that the level of cooperative services to members is still not good and optimal so it needs to be improved because based on the results of interviews with respondents in the field looks strong impression as if the board of cooperatives put forward the interests of a group of people, especially the management of the cooperative itself. It is precisely this that makes agricultural cooperatives less desirable by some farmers.

3.2.2. Influence the level of participants concerning the level of incoming. Partially, participants level variable have positive elasticity value 1.75 that mean increasing participants level are amount 1 %. It will give influence concerning increasing amount 1.75%. Moreover, according to t-amount, it is got t-amount bigger t-table so that there is real influence or significant from member participants level concerning cooperative in increasing the member farmer incoming on the truth level 95%. The objective condition in field shows that actually, farmers are relatively response about cooperative attendance especially thing of tools provision so that it must look for other alternative to finish it. Therefore, farmers must be insisted and cared about the agriculture cooperative existence.

3.2.3. Influence the level of partnership concerning the level of incoming. Partially, the variable of partnership between farmers and cooperatives has a very real effect on the increase of income at 99% confidence level. This partnership variable is what should be further developed if there is intention to increase farmer's income. Based on the value of elasticity as positive as 2.85 then this means with the addition of 1% level of partnership will increase the income level by 2.85%. If it is related to the situation in the field it is seen that if the cooperative really shows its identity as the extension of farmer's hand in this case marketing of agricultural products, then real farmers are helped and apart from the trick of price manipulation that has been a scourge for farmers. From the interview results obtained a resume that farmers really hope that the concept of this partnership can be developed and expanded in more integrated forms again.

3.2.4. Analyse of the efficiency business farm level. Based on the results of research obtained data that the average level of farming efficiency managed by cooperative member farmers is very good because from the calculation results using Output-Input Ratio method obtained the average level of efficiency of palm oil farming from members of the cooperative was very high of 19.23 or 1923% means that it goes far beyond the 1 or 100% feasibility. Thus economically, the farming that is held in partnership between farmer and cooperative institution give benefit which multiply to both side although in essence managerial handling has not been optimally implemented yet.

4. Conclusion
Hence, the research result that the services level given by cooperative to the member farmers are relatively good although it is still good enough opportunity/potential to improve [4,9]. The participant’s level from members farmer cooperative concerning cooperative existence are relatively good although it is not total to show to be back. It happens because member farmer’s cooperative ideas are limited. The partnerships level between member farmer and cooperative institution also show relatively good indicator.

Simultaneously, there is influence or real contribution and positive from variables researched. It is the service level, the participant and partnership concerning the incoming level member farmer cooperative. Partially, variable of the participant level and partnership shows significant contribution but variable of the service level is not significant.

Farmer business of the member cooperative has very good or comfortable the efficiency level.
5. Suggestion
Looking for big contribution showed by the partnership level between farmer and cooperative so suggested to both partner to increasingly focus on improving cooperation with other institutions or agencies that have more relevance to the oil palm farming. And suggested to farmer in order to use more technology well in handling farming so that can improve harvest productivity because the efficiency business level is very high or comfortable.

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