Social capital and income of cocoa farmers in peta village, Sendana District, Palopo City, South Sulawesi Province

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Abstract. Social capital has been tested by history as an important mechanism in achieving economic growth and equity in society. In terms of farmers' income, one that can be used as an alternative in changing the farmer's standard of living is through social capital. There are three elements of social capital that can be examined in this study, namely the element of trust, the element of network and the element of reciprocity. Research on the relationship between social capital and income of cocoa farmers aims to determine how strong the relationship between the three elements of social capital is to the income of cocoa farmers. This research was conducted from December 2018 to March 2019 in Peta Village, Sendana District, Palopo City, South Sulawesi Province. This location was determined by purposive sampling. The results of the study found that the recapitulation of the elements of social capital, trust, network and reciprocity of cocoa farmers were in the high category, with the income of cocoa farmers in the high category.

For the relationship between social capital and income of cocoa farmers, the trust element has a sufficient coefficient value, while the network and reciprocity elements have a weak coefficient value. The relationship between social capital and income of cocoa farmers for the element of trust is in the quite significant category, while for the network elements and reciprocity on the income of cocoa farmers, it is in the weak category.

1. Introduction
The agricultural sector as an integral part of the national development system is increasingly important and strategic in line with current changes in the national and international scope. The main objective of national development is to improve the standard of living, intelligence and welfare of all people. One indicator of farmer welfare is an increased level of income. Increased income can be obtained by diversifying farms and by providing other income outside of farming [1].

*Thebroma cacao* L or Cocoa is one of the plantation commodities that is suitable for smallholder plantations, because this plant can flower and bear fruit throughout the year, so that it can be a source of daily or weekly income for planters. Cultivation centers for cocoa cultivation in Indonesia are managed by State and Private Plantation Companies as well as Community Plantations [2].

The plantation crop which plays an important role in the regional income sector of South Sulawesi is the cocoa plant. Especially in Palopo City, where this area is one of the cocoa producing areas in South
Sulawesi in terms of history. With a planted area of 3,224 hectares with a production of 1,809 tons, making cocoa is the main commodity in the plantation sector in this city. [3].

Cocoa is also one of the mainstay commodities in the plantation sector in Sendana District, especially in Peta Village. Sendana Subdistrict is a sub-district that has fairly good cocoa plants in Palopo City with a planted area of 407.14 hectares and a production yield of 158.22 tons. This area has 4 sub-districts namely Sendana Village, Purangi Village, Peta Village, and Mawa Village [4].

In terms of farmers income, one thing that can be used as an alternative in changing the farmer’s standard of living is through social capital. In Indonesian society, quite a lot of social values can be developed as part of modern economic culture. Social capital has been tested by history as an important mechanism both in achieving growth and economic equality in society. Therefore, in empowerment of a community economy that has a strong role of social capital, it is very important to pay attention to it [5].

This condition is a challenge for regions to re-enforce social capital, especially the mutual trust between the community and the government. The condition of a society that used to be faithful with the characteristics of a traditional society that relied on the nature of tolerance, mutual trust and mutual cooperation has now turned into a feeling of mutual suspicion between ethnicities, between tribes, between religions, between political parties, between the community and the government must receive the main attention in starting autonomous regional development process [6].

2. Research methods

This research was conducted in Peta Village, Sendana District, Palopo City, South Sulawesi. The location of this research was chosen purposively with the consideration that the location is the dominant farmer in the cocoa sector.

This research is a descriptive quantitative research, which is an analysis used to measure the elements of social capital owned by farmers (networks, trust, and reciprocal relationships) and their relationship to farm income of cocoa farmers. Descriptive research can be carried out quantitatively so that statistical analysis can be carried out. In this case, it is necessary to understand that the quantitative method is a method that prioritizes information through numbers so that the symptoms in the study can be measured with scales. [7].

In this study, the authors determine the sample using Probability sampling technique. The population in this study were 163 cocoa farmers. Sampling or respondents in this study were 33 people, namely 20% of the total population, if the population is large than 100, the research subject (sample) can be taken 10-15% or 20-25% [8].

The analysis used in this research is quantitative descriptive analysis which aims to determine the income of farmers. To calculate farm income, it can be calculated using the following formula:

\[ \pi = TR - TC \]

information:

\( \pi \) = Income (IDR/planting season)

\( TR \) = Receipt (IDR/planting season)

\( TC \) = Total Cost (IDR/planting season)

To determine the magnitude of the relationship between social capital and farm income, the Spearman Rank correlation analysis method is used, while the formula is used to determine the Spearman rho correlation coefficient. [9].

\[ r_s = 1 - \frac{6}{n(n^2-1)} \sum D^2 \]

\( D \) = Differences between the ranks of two variables

\( n \) = Sample size
information:
D2 = Multiply the difference between two ordered sets of scores;
\( n \) = Score of cases or samples ordered

3. Results and discussion
In Peta village, Sendana District, Palopo City, there are 6 farmer groups that still cultivate cocoa commodities. The number of farmers who are members of the 6 farmer groups is 163 people.

3.1 Social capital
Social capital in the community of Peta Kelurahan, Kota Palopo is reflected in its business activities. Starting from maintenance to post-harvest, all have social capital values. There are three elements of social capital studied in Peta Village, Sendana District, Palopo City, namely trust, network and reciprocity.

3.1.1 Trust
Mutual trust in this study is measured by the respondents' trust in fellow farmers, the respondents' trust in fellow citizens, and the respondents' trust in cocoa traders. The elements of confidence in cocoa farmers in Peta Village, Sendana District, Palopo City based on the trust indicators can be seen in Table 1.

| No | Indicator                     | Total Weight | Category |
|----|-------------------------------|--------------|----------|
| 1  | Trust in Fellow Farmers       | 90           | High     |
| 2  | Trust in Fellow Citizens      | 96           | High     |
| 3  | Trust in Cocoa Traders        | 72           | Medium   |
|    | Total                         | 258          | High     |

The confidence score of cocoa farmers is based on the overall confidence indicator, which is 258, if you look at the score or weight obtained based on the answers of the respondent cocoa farmers on the element of trust by using the interval score, it can be said to be in the high category.

Trust is at the heart of social interactions and is an important thing in everyday life. The effect of the element of trust that is currently in the organization is that each member will focus on their respective work, but the creativity and innovation of the group is still relatively strong [10]. In personal relationships, medium trust can result in a person being able to establish positive communication, close cooperation, focus on increasing strength.

3.1.2 Network
Network is a relationship that occurs in social activities based on similarity. In this study, social networks were measured through: networks among farmers, networks of fellow citizens, and networks in marketing activities. Network elements of cocoa farmers in Peta Village, Sendana District, Palopo City can be seen in table 2.

| No | Indicator                          | Total Weight | Category |
|----|------------------------------------|--------------|----------|
| 1  | Networking with fellow farmers     | 94           | High     |
| 2  | Networking with fellow citizens    | 91           | High     |
3.1.3 Reciprocity (reciprocal relations)

In this study, reciprocity is measured through: reciprocity among farmers, reciprocity among citizens, and reciprocity in marketing activities. The reciprocal elements of cocoa farmers in Peta Village, Sendana District, Palopo City can be seen in Table 3.

| No | Indikator                          | Total Bobot | Kategori |
|----|------------------------------------|-------------|----------|
| 1  | Resiporitas Terhadap Sesama Petani | 92          | Tinggi   |
| 2  | Resiporitas Terhadap Sesama Warga  | 99          | Tinggi   |
| 3  | Resiporitas Terhadap Pedagang Kakao| 96          | Tinggi   |

The priority of cocoa farmers based on all indicators is in the high category with an overall total weight of 287, if you look at the score or weight obtained based on the respondent's answer to the network element, it can be said that using the interval score value is in the high category. This study also supports previous research, namely that the element of mutual assistance in Salukanan Village is still high because residents help each other complete their work, this is reflected especially during planting and harvesting. Even without being called, the villagers gathered and helped each other to plant and harvest [10].

3.2 Income

The total production / hectare of 33 cocoa respondents in Peta Village is 11.660 kg with an average amount of 353 kg / ha. The largest amount of production in the 17th respondent Mr. Rustam reached 650 Kg while the lowest production amount was in the 32nd respondent, namely Mr. Mirsan at 120 Kg. The productivity of the respondent farmers varies greatly due to the different types of production facilities such as fertilizers and pesticides. Besides that, the dosage and dosage used by the respondent farmers also varies.

Respondent farmers generally sell for IDR 32,000 / kg so it can be seen that the total income of the respondent farmers is IDR 339,019,600, - with an average of IDR 10,273,300. The income of these respondent farmers will then be reduced by the costs incurred in the process of planting to selling. After
that, the income of the respondent farmers will be known. To find out the income of farmers in Map Village can be seen in table 4.

| No. | Description                          | Total (IDR)   |
|-----|--------------------------------------|---------------|
| 1.  | Farming income (a x b)               | 406.562.600,- |
|     | a. Cocoa’s production (Kg)           | 11.660        |
|     | b. Cocoa’s price (IDR/Kg)            | 32.500,-      |
| 2.  | Costs                                | 64.788.000,-  |
|     | a. Total variable cost (IDR)         |               |
|     | b. Total fixed costs (IDR)           | 2.279.300,-   |
| 3.  | Total production cost (a + b)        | 67.067.300,-  |
| 4.  | Respondents income (1 - 3)           | 339.495.300,- |
| 5.  | Average income (Ha/year)             | 10.273.400,-  |

The total income of cocoa farming is IDR 406.562.600, while the total cost incurred by the respondent farmers is IDR 67.067.300 consisting of variable costs per hectare of IDR 64.788.000 and fixed costs of IDR 2.279.300. Then it can be seen that the income of the respondent farmers in one planting season is IDR 339.495.300,- or the average income of each respondent farmer is IDR 10.273.400 / hectare.

The results obtained by cocoa farmers in Peta Village, Sendana District, Palopo City are in the sufficient category. Farming income is a measure of income received by farmers from their farming. In farming analysis, farmers income is used as an important indicator because it is the main source to meet the daily needs of farmers [12].

To see the relationship between the respondent's income variable and the elements using cross tabulation. The cross tabulation of respondents in Map Village, Sendana District, Palopo City aims to provide a detailed description of the number of respondents who have high, medium and low income and elements of social capital. For more details, see table 5

| P        | M.S  | High | Medium | Low |
|----------|------|------|--------|-----|
| High     |      | 8    | 16     | 7   |
| Medium   | 0    |      | 2      | 0   |
| Low      | 0    | 0    |        | 0   |
Total respondents who had elements of high social capital and high income were 8 people. Then there are 16 people who have high social capital and moderate income, 2 people have medium social capital and moderate income, and the last one who has high social capital but has low income is 7 people. So the conclusion is that on average cocoa farmers in Peta Village, Sendana District, Palopo City have high social capital with a moderate amount of income.

3.3 The relationship between elements of social capital and income level of cocoa farmers

To analyze the relationship between cocoa farmers' income and social capital in Peta Village, Sendana District, Palopo City, the Spearman Rank Correlation analysis is used. The income variable is called (Y). Meanwhile, the social capital variable is divided into three, namely trust (X1), distance (X2), and reciprocity (X3). The results of calculation the Spearman Rank analysis using SPSS in the form of a correlation coefficient can be seen in table 6.

| Pendapatan (Y) | Coefficient correlation | N | Relationship | (X1) | (X2) | (X3) |
|---------------|------------------------|---|--------------|------|------|------|
|               |                        | 33|              | .270*| .219*| .202*|

*Correlation is significant at the 0.05 level (1-tailed).

The relationship between social capital consisting of trust (X1), network (X2), and reciprocity (X3) with income (Y) has a weak coefficient value, meaning that the social capital of farmers does not significantly influence their income.

From the three elements of social capital seen, only the element of trust has sufficient and unidirectional coefficients (the value of the rank spearman coefficient is positive 0.27> 0.25 and exceeds the significant correlation of 0.05). This is because farmers in Peta Village have a good level of trust. This can be seen in the mutual trust of farmers when borrowing and borrowing money which greatly affects the income of cocoa farmers in Peta Village because maintenance costs are not hampered so that costs do not increase and make farmers are encouraged to be more active in carrying out their farming activities with the trust that get from others. The trust that is built between each other indirectly affects the income of farmers, although it does not have a significant effect because only on financing by building high trust between one individual and another, the interaction process will run smoothly and quickly and costs can be reduced as low as possible [10].

In contrast to the other two elements of social capital, namely the network element and the element of reciprocal relationship (reciprocity) both have only weak and unidirectional coefficients. This is because although the network and reciprocity of farmers in Peta is high, it does not significantly affect farmers income because no matter how big the networks and reciprocity of farmers are if they are not accompanied by farmers' efforts to work more actively on the land, the farmers' income will not increase.

4. Conclusion

The elements of social capital for cocoa farmers in Peta Village, Sendana District, Palopo City are in the high category. The income yield of cocoa farming in Peta Village, Sendana District, Palopo City is
IDR 339,495.300, - or the average income of each respondent farmer is IDR 10,273,400 / hectare. The relationship between social capital and income of cocoa farmers in Peta Village, Sendana District, Palopo City, South Sulawesi Province on the element of trust has a variable related to income with sufficient and unidirectional coefficients, while the network elements and reciprocity have a relationship with income but are at a weak coefficient scores.

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