The Influence of Characteristics and Institutions on the Empowerment of Cocoa Agribusiness Farmer Groups in South Sulawesi, Indonesia

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ABSTRACT

Agricultural development, specifically cocoa agribusiness, is largely determined by the human resource. When human resources possess high motivation, creativity, and the ability to develop innovation, agricultural development is significantly improved. This phenomenon shows the necessity to strive for empowerment of farmer for capacity improvement. Therefore, this study aimed to (1) describe the level of empowerment of individual farmer and their groups, and (2) analyze influence of individual characteristics of farmer, groups, and the role of counseling in empowerment of groups member. The analysis was carried out in Soppeng Regency, South Sulawesi, Indonesia, using a combined quantitative and qualitative design. A total of 70 respondents and 12 informants were included, consisting of farmer groups administrator, extension workers, and heads of estate services. Data collection was carried out through surveys and in-depth interviews. Meanwhile, data processing and analysis for this study used Structural Equation Modeling (SEM) Partial Least Square (PLS). The results showed that both farmer and groups empowerment were mostly in the medium category. Furthermore, characteristics of individuals, farmer groups, and the role of counseling significantly affected empowerment of members, including groups. Empowerment of farmer groups also influenced the success of cocoa agribusiness. These results showed that the development of cocoa agribusiness required high empowerment of individual farmer and groups as farmer institutions.

INTRODUCTION

Plantation management is a compre-hensive activity capable of addressing various problems and challenges (Marina, 2017). In Indonesia, cocoa is the leading commodity plantation subsector, making the country the third largest producer worldwide after Ivory Coast and Ghana (Hadinata and Marianti, 2020). Furthermore, the country ranks second (15.89%) and third (14.09%) in terms of area

and production (Kementerian Pertanian, 2020). The main centers for cocoa production are located in the eastern part of Indonesia, including the provinces of South Sulawesi, Southeast Sulawesi, and Central Sulawesi. According to the contribution area, Sulawesi Island has the highest, accounting for 71.73% of the total cocoa production, showing its important role in cocoa trade (Arsyad, Nuddin and Yusuf, 2013). When the government is considering cocoa economic policies, the island should be prioritized. Based on Arsyad *et al.* (2015), the disruption of cocoa production on the island can cause instability in Indonesian output. Bulkis *et al.* (2019) stated that policies causing a reduction in input costs and an increase in output values enhance the competitiveness of cocoa commodities and vice versa.

The development of cocoa agribusiness is significantly determined by human resources (Arsyad *et al.*, 2020). Among tree species with high economic value, including coconut, rubber, cloves, and coffee (Kurniasari, Raya, and Witjaksono, 2019), cocoa is the leading export commodity (Wardhany and Adzim, 2018). Agricultural development is ascertained when human resources have high motivation, creativity, and ability to develop innovation. Consequently, it is necessary to seek empowerment of farmer to improve the ability of human resources. Government policies in supporting agribusiness development can also encourage the enthusiasm of farmer for production

(Narulita, Winandi and Jahroh, 2014). The success of an agricultural development program is achieved due to support received from farmer participation, coupled with effective implementation in the field that is in line with specific targets (Ganda Elizabeth, 2019). One of the activities capable of increasing awareness and changing the behavior of individuals is extension services (Managanta, Sadono and Tjitropranoto, 2019).

The driving factors in agricultural development are natural and human resources, technology, and institutions (Bulkis, Rahmadanih and Nasruddin, 2020). However, the main problem could be due to the lack of ability of human resources to manage and maximize their potential. To develop cocoa agribusiness, the aim of empowerment is to achieve better agriculture, foster business, and enhance the quality of life (Astari and Bulkis, 2020). Therefore, the government is implementing various empowerment programs through agribusiness development based on the participation of the surrounding community (Sugiarso, Riyadi and Rusmadi, 2018). The perceived failure lies in the inadequacy of traditional economic development models in addressing persistent issues of poverty and environmental problems. An alternative development method that incorporates democratic values, gender, and intergenerational equality, including economic growth has recently gained attention. The widely accepted strategy of community empowerment in literature includes economic development through the

integration of social values. This concept reflects a new paradigm of development, consisting of *people-centered, participatory, empowering, and sustainable* (Sumbi and Firdausi, 2016). According to Zubaedi, (2016), the concept of community empowerment positions humans as subjects of their world. Empowerment is considered important in increasing living standards, welfare levels, and community economic development (Iryana, 2018). In 1990, this concept was believed to be an alternative development to growth-centered development models (Fawcett *et al.*, 1994). Furthermore, it is a pattern of development centered on the people to achieve community independence.

Agribusiness development strategy focuses on strengthening the capacity of members through farmer groups. The existence of farmer groups aims to increase knowledge and provide assistance, and relevant experience (Suryana and Ningsih, 2018). Farmer groups consist of individuals who are formally bound based on harmony, similarity in environmental conditions (social, economic, resources), familiarity, common interests, mutual trust, and have leaders to achieve common goals (Wangke and Benu, 2016). Based on the Regulation of the Minister of Agriculture No.237/Kpts/OT.160/4/2007, groups of farmer/breeders/planters are formed based on common interests, conditions, environment (social, economic, resources), and familiarity to improve member businesses. These groups also serve as communities facilitating the procurement of agricultural production facilities.

Cocoa assistance is provided in South Sulawesi regarding management strategy to ensure sustained productivity and effective production. According to Eman and Loho, (2017), facilitators play a very important role in empowering cocoa farmer groups both at beginner and advanced levels to intensify and rehabilitate activities. However, a significant obstacle faced by assistants in South Sulawesi, specifically at the beginner level, is the apprehension regarding the risk of production failure. This phenomenon inhibits the adoption of new technologies, resulting in a preference for traditional cultivation practices. Facilitators still encounter difficulty in changing the mindset of farmer to achieve greater independence and reduce dependence on assistance from the government.

The role of farmer groups to increase production and income is still a difficult problem (Arsyad *et al.*, 2018). Empowerment of farmer groups is the output process carried out by business actors through the application of participatory development communication in farming management. Consequently, farming actors must engage in communication activities during deliberations (Tanjung, Sadono and Wibowo, 2017). Setiawan (2012) added that farmer empowerment is the power to make decisions and determine related actions, including reducing the effects of personal and social barriers to taking action.

Short-term empowerment is usually realized due to stimuli, such as farmer cooperatives funding, and efforts to improve economic position. Meanwhile, long-term empowerment is the ability and readiness of the community to be independent, in developing, fulfilling, and solving problems. For example, the ability to carry out farming and participate in various groups.

Fidyansari, Hastuty and Arianto (2017) reported that the strategy of empowering farmer groups was in the form of training for each member, regional regulations supporting agribusiness activities, and active participation from the local government. According to Damanik (2017), the strategy of empowering includes training to improve mastery of technology and optimize the support of extension facilities. Although several efforts to develop cocoa agribusiness have been carried out by the government, the innovations still focused on developing superior seeds, increasing production, crop productivity, and product quality. Cocoa is a leading commodity in Soppeng Regency, but its potential requires the development of cocoa commodities through farmer groups. Therefore, this study aimed to describe the level of empowerment, characteristics, and role of counseling in individual farmer and groups.

METHODS

This study was carried out in Soppeng Regency, South Sulawesi, Indonesia, using a combination of quantitative and qualitative methods. Questionnaires and interviews with farmer was conducted to collect primary data, which included individual characteristics of farmer (X_1), Characteristics of Farmer Groups (X_2), Role of Extension (X_3), Farmer Empowerment (Y_1), Farmer Groups Empowerment (Y_2), and Agribusiness Development (Y_3). For the analysis, a total of 70 respondents and 12 informants were included, consisting of farmer groups administrator, extension workers, and heads of estate services. The number of samples was determined using the *random sampling method* formula with the Slovin formula and produced 70 respondents from 250 populations. Although several empowerment programs have been implemented, the selection of Soppeng Regency was based on the prominence of cocoa as a superior commodity in the region, with consistent production from 2016 to 2017 (Asrul *et al.*, 2021).

The hypotheses of this study are (1) Farmer characteristics have a positive and significant effect on empowerment; (2) Farmer groups characteristic have a positive and significant effect on farmer empowerment; (3) Role of counseling has a positive and significant effect on empowerment; (4) Empowerment of farmer has a positive and significant effect on their groups; and (5) Empowerment of farmer groups has a positive and significant effect on the development of agribusiness.

Data analysis is carried out using *Structural Equation Modeling* (SEM) – *Partial Least Square* (PLS). SEM is

Table 1. Latent Variables and Manifest Variables

Latent Variable	Manifest Variable
X_1 Characteristics of Farmers	$X_{1,1}$ Age
	$X_{1,2}$ Education Level
	$X_{1,3}$ Farming Experience
X_2 Characteristics of Farmer Groups	$X_{2,1}$ Definitive Plan of Farmer Group Needs Planning
	$X_{2,2}$ Partnership
	$X_{2,3}$ Institutional
	$X_{2,4}$ Utilization of Information and Technology
X_3 Counseling Role	$X_{3,1}$ The Role of Education
	$X_{3,2}$ The Role of Dissemination
	$X_{3,3}$ Facilitating Role
	$X_{3,4}$ The Role of Consulting
	$X_{3,5}$ Role of Supervision
	$X_{3,6}$ The Role of Monitoring and Evaluation
Y_1 Farmer Empowerment	$Y_{1,1}$ Attitude
	$Y_{1,2}$ Knowledge
	$Y_{1,3}$ Skills
Y_2 Empowerment of Farmer Groups	$Y_{2,1}$ Intellectual Capital
	$Y_{2,2}$ Social Capital
	$Y_{2,3}$ Financial Capital
	$Y_{2,4}$ Natural Capital
	$Y_{2,5}$ Physical Capital
Y_3 Agribusiness Development	$Y_{3,1}$ Upstream Agribusiness Subsystem
	$Y_{3,2}$ Farming Subsystem
	$Y_{3,3}$ Treatment Subsystem
	$Y_{3,4}$ Marketing Subsystem
	$Y_{3,5}$ Supporting Subsystem

used to calculate the effect that arises from the relationship between the variables analyzed based on the results of the data collection of respondent (Lowry and Gaskin, 2014). SEM-PLS functions efficiently with small sample sizes and complex models. Furthermore, it is capable of analyzing reflective and formative measurement models and latent variables with one indicator without causing identification problems.

RESULTS AND DISCUSSION
Level of Empowerment of Farmer and Farmer Groups
1. Empowerment of Farmer as Individuals

Empowerment activities have been carried out by 60 farmer groups, each comprising 25 members, resulting in a total population of 250 individuals. Farmer empowerment is measured by increasing knowledge, skills, and attitudes after participation. The programs that have been carried out include 1) Development of Superior Seeds, 2) Good Cocoa Cultivation Field Schools, 3) Training Program and Guidance on the Operation of Appropriate Plantation Technology, 4) Cocoa Processing Training Program, and 5) Groups Dynamic Training Program.

Knowledge is the ability of farmer to remember all educational material and apply the information acquired during empowerment activities. In this study, farmer skills were assessed based on their expertise in cultivating land, eradicating pests, and harvesting. Meanwhile, the attitude of farmer is formed from experience through the learning process, the reaction to feelings, and the tendency to accept or reject innovation. Based on the results presented in Table 2, farmer empowerment can be observed from the change in attitude after participation in the program.

Table 2 shows a significant increase in farmer knowledge in the medium and high categories by 91% after participating in empowerment activities. This increase spans across various aspects, such as understanding good quality cocoa, recommended cultivation methods, methods to address pests and diseases, and processing of cocoa cultivation products and marketing methods. Knowledge acquisition often triggers changes in the behavior of farmer, as awareness benefits of something tends to foster a positive (Riani, 2017).

The increase in the skills of cocoa farmer after participating in empowerment activities was mostly in the medium and high categories at

Table 2. Cocoa Farmers in Soppeng Regency Based on Knowledge, Attitudes, and Skills

Variable	Category	Range	Amount (Person)	Percentage (%)
Knowledge	Low	4 – 8	6	9
	Moderate	9 – 12	51	73
	High	13 – 16	13	18
Total			**70**	**100**
Skill	Low	4 – 8	8	11
	Moderate	9 – 12	46	66
	High	13 – 16	16	23
Total			**70**	**100**
Attitude	Low	4 – 8	37	53
	Moderate	9 – 12	32	46
	High	13 – 16	1	1
Total			**70**	**100**

Data Source: Primary data that has been processed, 2022.

89%. By participating in empowerment activities, farmer gained skills in the form of cocoa cultivation and product processing methods such as bean fermentation. These skills were obtained from training and mentoring activities during empowerment activities. According to Euriga et al. (2018), the implementation of extension began to focus on aspects of sustainability, namely increasing awareness in the preservation of environmental functions. Based on participation in groups activity, and the willingness to apply knowledge and skills to their farming business, this study found that 53% of farmer attitudes were classified as low, while 47% were in the medium and high categories. The attitude of some farmer was low due to the risks of changes in farming business. Furthermore, the attitude of farmer is more enthusiastic about the production facilities development program, accompanied by provided assistance. The role of agricultural extension workers was found to be essential in assisting farmer empowerment programs (Sundari, Yusra and Nurliza, 2015).

2. Empowerment of Farmer Groups

Empowerment of farmer groups is an output process for farming business actors through the application of participatory development communication in management activities. To increase employment, farming actors must carry out a process, including deliberations and decision-making related to the planning, implementation, monitoring, and evaluation of agricultural development programs. This is because new information obtained from empowerment activities will open insights into thinking for farmer (Christyanto and Mayulu, 2021).

An indicator of empowerment of farmer groups as part of the community is increased access to intellectual, social, financial, and natural/ physical capital (David and Asamoah, 2011). This method aims at improving cocoa handling to enhance the welfare of farmer. According to Purba and Sipayung, (2017), global cocoa development is directed at real-izing efficient and effective agribusi-ness to improve the welfare of farmer, producing highly competitive yields, through increased productivity. This integrated and sustainable strategy is supported by strengthening business institutions and empowerment. Based on the perceptions of farmer both as administrators and as groups member, it is evident that farmer groups access to intellectual capital is in the medium (84%) and high (16%) categories. This shows that access to intellectual capital in the form of knowledge and skills in business farm-ing is easier, including other groups and the government (Plantation Ser-vice and other institutions). The level of empowerment of farmer groups based on the perceptions of farmer as administrators and members of farmer groups is shown in Table 3.

The perception of farmer on social capital in the form of their social networks with other institutions and the participation of groups

Table 3. Distribution of Perceptions of Cocoa Farmers on the Empowerment of Farmer Groups in Soppeng District, South Sulawesi.

Variable	Category	Range	Amount (Person)	Percentage (%)
Intellectual Capital	Low	4 – 8	0	0
	Moderate	9 – 12	59	84
	High	13 – 16	11	16
Total			70	100
Social Capital	Low	4 – 8	41	59
	Moderate	9 – 12	27	38
	High	13 – 16	2	3
Total			70	100
Financial Capital	Low	4 – 8	51	73
	Moderate	9 – 12	15	21
	High	13 – 16	4	6
Total			70	100
Natural Capital	Low	4 – 8	54	77
	Moderate	9 – 12	11	16
	High	13 – 16	5	7
Total			70	100
Physical Capital	Low	4 – 8	0	0
	Moderate	9 – 12	63	90
	High	13 – 16	7	10
Total			70	100

Data Sources: Primary data that has been processed, 2022.

member is still low (59%), which is categorized in the medium 41% and high categories. This shows that some farmer as groups member have a wider network with other institutions to obtain information and other resources needed in their farming activities. The perception of some farmer regarding the participation of members is still low due to passivity in groups, limiting the spread of information related to farming. Consequently, the development of social capital based on social networks, responsibility, and cooperation among groups member determines and influence the level of income and groups independence (Wuysang, 2014).

The access of cocoa farmer to financial capital is in the low category in Soppeng Regency, based on the opinions of 51 (73%) farmer. Farmer groups are only facilitated by the Plantations Office in the form of production inputs, such as seeds and

fertilizers. However, one of the problems experienced by groups member is the large number of pests and diseases attacking cocoa trees, resulting in higher expenditure. Groups member also allocate some of their income in small amounts as cash which can be borrowed by others to meet farming business needs. To overcome these problems, members need sources of capital from non-members to improve agricultural production. Similarly, Ye et al. (2021) stated that access to finance for agricultural production is achieved by increasing financial benefits for agricultural producers, growth in production value, and improving the competitiveness of industrial exports.

Natural capital includes land resources consisting of land tenure and productivity, water resources, and environmental services. Empowerment of farmer groups is carried out through the provision of natural/ natural capital, including the existence of forums and local management rules, the level of use, and preservation. Based on the perception of the majority (77%) of farmer, the access of cocoa farmer groups to natural capital is in a low category. This is because groups member gain knowledge about land sustainability and increase productivity. However, most members carrying out farming activities do not engage in conserva- tion activities regularly or consider the impact on land preservation, leading to decreased productivity. Agricultural land ownership has an important role in farmer productivity (Rahmadi and Santoso, 2016).

Physical capital is basic infrastructure and other facilities built to support community livelihood processes (Saleh, 2015). Based on the perception of 63 (90%), empowerment of farmer groups also includes access to physical capital, which is in the medium category as shown in Table 3. This shows that farmer groups have functioned as managers of physical capital. Furthermore, these groups have a secretariat as a place to gather and store facilities, including infrastructure for optimal agricultural technology in farming activities. This availability can be a challenge and an opportunity for the sustainability of agricultural activities (Prihantini and Lutfiyanto, 2019).

Level of Empowerment of Farmer and Farmer Groups
1. Preliminary Study Model

Influence of individual characteristics of farmer, groups, and the role of counseling on empowerment was analyzed using the PLS-SEM. This model analyzed two variables, namely individual farmer characteristics (X_1), Farmer Groups Characteristic (X_2), Extension Role (X_3), Farmer Empowerment (Y_1), Farmer Groups Empowerment (Y_2), and Agribusiness Development (Y_3).

2. Evaluation of the Measurement Model (Outer Model)

The evaluation is carried out to ensure that each indicator used is reliable and valid by testing convergent and discriminant validity. The results of the analysis of the
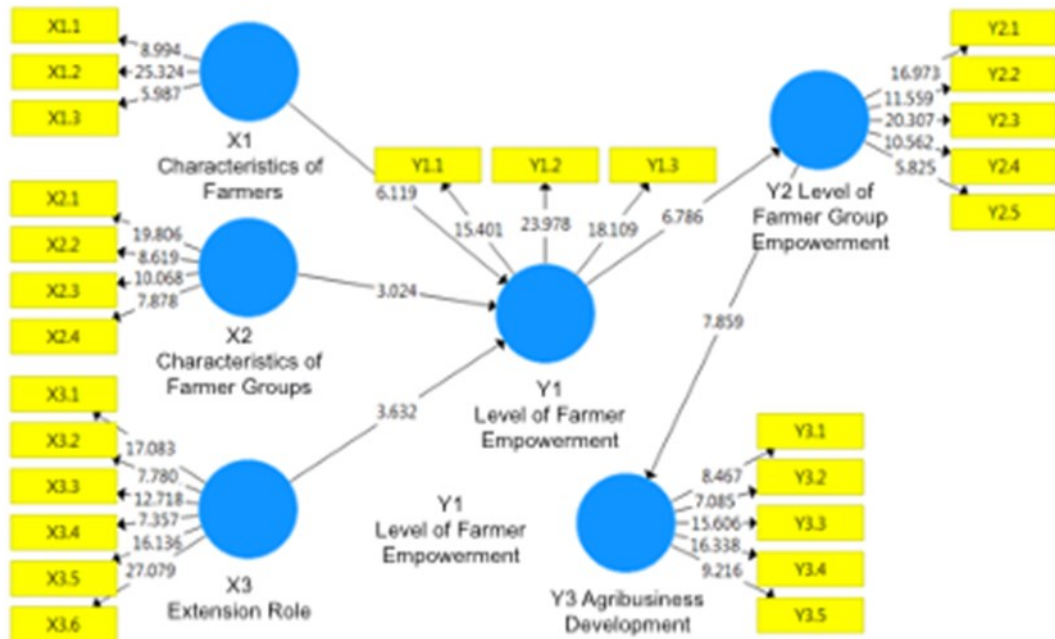
Figure 1. *Outer Model* Measuring the Level of Empowerment of Cocoa Farmer
Groups in Soppeng Regency
Data Source: Primary data that has been processed, 2022.

PLS-SEM model are presented in Figure 1.

Table 4 shows the results of measurements using the router model to assess the effect of the individual farmer characteristics, groups, and the role of counseling on empowerment. Table 4 shows that all variable indicators have an outer loading value of > 0.7, except for $Y_{3.2}$ (Farming Subsystem), which is below 0.7. This result is included in the model because of the standard value of 0.4. Study variable indicators with an outer loading value of > 0.7 are considered feasible or valid for use. This shows that enhanced characteristics of farmer such as education, farming experience, motivation, perceptions, and the desire to engage in farming, contribute to improved agricultural performance.

Furthermore, formal and informal farmer education plays a role in increasing the productivity, profits, and performance of farmer households (Paltasingh and Goyari, 2018; Rahman *et al.*, 2020).

Table 5 describes the reliability test of each variable showing that all values are satisfactory, indicating consistency. The AVE (Average Variance Extracted) value shows the best measure of convergent validity, indicating that the variable can explain most of the indicator variances. Based on these results, all variables have *discriminant validity,* with a composite reliability value > 0.7 (Shrestha, 2021). These results show that all variables have a high level of reliability, which is similar to Cronbach's alpha value for each variable > 0.7.

Table 4. Value *Outer Loading*

Variable	Indicator	Value *Outer Loading*
Characteristics of Farmers (X_1)	$X_{1,1}$ Age	0.799
	$X_{1,2}$ Level of Education	0.845
	$X_{1,3}$ Farming Experience	0.773
Characteristics of Farmer Groups (X_2)	$X_{2,1}$ Definitive Plan of Farmer Group Needs Planning	0.824
	$X_{2,2}$ Partnership	0.885
	$X_{2,3}$ Institutional	0.936
	$X_{2,4}$ Utilization of Information and Technology	0.845
Extension Role (X_3)	$X_{3,1}$ Educational Role	0.815
	$X_{3,2}$ Dissemination Role	0.750
	$X_{3,3}$ Facilitation Role	0.833
	$X_{3,4}$ Consultation Role	0.716
	$X_{3,5}$ Supervision Role	0.841
	$X_{3,6}$ The Role of Monitoring and Evaluation	0.852
Level of Farmer Empowerment (Y_1)	$Y_{1,1}$ Attitude	0.780
	$Y_{1,2}$ Knowledge	0.856
	$Y_{1,3}$ Skill	0.826
Level of Farmer Group Empowerment (Y_2)	$Y_{2,1}$ Intellectual Capital	0.856
	$Y_{2,2}$ Social Capital	0.785
	$Y_{2,3}$ Financial Capital	0.905
	$Y_{2,4}$ Natural Capital	0.773
	$Y_{2,5}$ Physical capital	0.707
Agribusiness Development (Y_3)	$Y_{3,1}$ Upstream Agribusiness Subsystem	0.756
	$Y_{3,2}$ Farming Subsystem	0.698
	$Y_{3,3}$ Processing Subsystem	0.817
	$Y_{3,4}$ Subsystem Marketing	0.801
	$Y_{3,5}$ Supporting Subsystem	0.770

Data Source: Primary data that already been processed, 2022.

Table 5. Reliability Test of Each Variable

Variable	AVE	Composite Reliability	Cronbach's Alpha
Individual characteristics of farmers (X_1)	0.650	0.848	0.766
Characteristics of Farmer Groups (X_2)	0.765	0.928	0.897
Extension Role (X_3)	0.644	0.915	0.891
Farmer Empowerment (Y_1)	0.675	0.861	0.758
Group farmer Empowerment (Y_2)	0.653	0.903	0.866
Agribusiness Development(Y_3)	0.592	0.879	0.832

Source: Primary Data, 2022.

3. Structural Evaluation of the Model (Inner Model)

The Inner Model was evaluated by testing the hypothesis and the Goodness of Fit. The hypothesis test was observed from the path coefficient, showing the effect or influence of the independent variable on the dependent variable. The following is the path coefficient for each variable.

Based on Table 6, the path coefficient shows influence of each variable.

1. The relationship between farmer characteristics and the level of empowerment is significantly influential, with a T-statistic value of 6.119 (> 1.96) and a p-value of 0.000 (< 0.05). Consequently, the H1 hypothesis in this study, stating that " characteristics of farmer affect the level of empowerment"

is accepted. The original sample value shows a positive value of 0.501, showing that influence of farmer characteristics on the level of empowerment is 50.1%, and 49.9% is affected by other variables. This is in line with (Arifin, 2013), who stated that characteristics of farmer influence the level of empowerment based on their experience and education.

2. The relationship between characteristics of farmer groups and the level of empowerment is not significant with a T-statistic value of 3.024 (> 1.96) and p-value of 0.003 (< 0.05). Therefore, the H2 hypothesis is accepted, stating that "Characteristics of farmer groups influence the level of empowerment of farmer groups". The original sample value shows a

Table 6. Value of Path Coefficient

Variable	Original Sample	Sample Mean	Standard Deviation	T Statistic	P Value
Characteristics of Farmers → Level of Farmer Empowerment	0.501	0.516	0.082	6.119	0.000
Characteristics of Farmer Groups → Level of Farmer Empowerment	0.208	0.214	0.069	3.024	0.003
Role of Extension → Level of Farmer	0.340	0.322	0.094	3.632	0.000
Farmer Empowerment Level → Farmer Group Empowerment Level	0.571	0.576	0.084	6.786	0.000
Group Empowerment Level → Agribusiness Development	0.544	0.567	0.069	7.859	0.000

Source: Primary data that has been processed, 2022.

positive value of 0.208, indicating that influence of farmer characteristics on the level of empowerment is 20.8%, and the remaining 79.2% is affected by other variables. This suggests that characteristicsof farmer groups influence the level of farmer empowerment. Moreover, the relationship between groups char acteristic and farmer empower ment relationships can be formed based on the common interests of each member (Perdana, 2016). Shared interests are formed as a result of a close sense of kinship and a collective understanding among farmer that working together can be mutually beneficial.

3. The relationship between the role of counseling and the level of farmer empowerment is significant, with a T-statistic value of 3.632 (> 1.96) and a p-value of 0.000 (< 0.05). Consequently, the H3 hypothesis in accepted, stating that "the role of extension influence the level of farmer empowerment". The original sample value shows a positive value of 0.332, indicating that influence of farmer characteristics on the level of empowerment is 34.0%, and the remaining 66.0% is affected by other variables. Tanjungsari, (2016) stated that counseling played a significant role in improving the welfare of farmer. Counseling can act as a bridge for farmer to obtain the latest information, followed by examples and practical applications.

4. The relationship between the level of farmer empowerment and groups is significant with a T-statistic value of 6.786 (>1.96) and a p-value of 0.000 (<0.05). This shows that the H4 hypothesis is accepted, stating that "the level of farmer empowerment affects the level of empowerment of farmer groups". The original sample value is 0.571, showing that influence of farmer characteristics on the level of empowerment is 57.1%, and the remaining 42.8% is affected by other variables. Generally, farmer capacity affects groups performance in achieving goals, significantly reducing internal conflicts (Fischer and Qaim, 2012).

The relationship between the level of farmer groups empowerment on agribusiness development is significant with a t-statistic value of 7.859 (> 1.96) and a p-value of 0.000 (<0.05). Consequently, the H5 hypothesis is accepted, stating that "the level of empowerment of farmer groups influence the development of agribusiness". The original sample value is 0.544, showing that influence of the level of empowerment on agribusiness development is 54.4%, and the remaining 45.6% is affected by other variables. Agribusiness is a series of interrelated subsystems of a system, requiring effective farmer performance and adequate functioning (Banson *et al.*, 2015).

Evaluation *of Goodness of Fit* was carried out to show how well the study model fit with the data. The

Table 7. Value *R-square*

Variabel	Nilai *R-square*
Farmer Empowerment Level	0.734
Farmer Group Empowerment Level	0.326
Agribusiness Development	0.296

Data Source: Primary data that has been processed, 2022.

value *of Goodness of Fit* is seen from *the R-square,* which is used to measure how much the endogenous variables are influenced by others. When the R^2 value is above 0.67 for the endogenous latent variable in the structural model, it shows that the effect of exogenous variables on endogenous variables is included in the good category. Meanwhile, at 0.33 - 0.67, and 0.19 - 0.33, the values are in the medium and weak categories. The following is the *R-square* for each variable.

Based on Table 7, the *R-square* on farmer empowerment level variable is 0.734. This value shows that the percentage of the level of farmer empowerment can be explained by their characteristics, groups, and the role of extension services 73.7%, with a relatively strong effect. Meanwhile, the *R-square* for the level of farmer groups empowerment is 0.326. This value shows that the percentage of the variable level of farmer groups empowerment can be explained by farmer empowerment level of 32.6% and the effect is relatively weak. The

variable is 0.296, showing that the large percentage of the variables can be explained by the level of farmer groups empowerment of 29.6% and the effect is relatively weak.

The *Goodness of Fit* is obtained from the *Q-square,* which is calculated below. Based on the calculation results, a *Q-square* of 4.207 is obtained, showing a great diversity of study data as explained by the model of 87.4%. Meanwhile, the remaining 12.6% is explained by other factors that are outside the model, indicating the presence of *goodness of Fit*.

CONCLUSION AND SUGGESTION
In conclusion, this study showed that the level of empowerment among individual farmer including knowledge, attitudes, and skills was mostly in the "medium" category. The level of empowerment of farmer groups in access to intellectual capital was found to be in the "medium" category, while social, financial, natural, and physical were in the "low" category. Furthermore, there was a significant influence on characteristics

$$
\begin{aligned}
\textbf{\textit{Q-square}} \quad &= \quad 1 - [(1 - R^2 1) \times (1 - R^2 2) \times (1 - R^2 3)] \\
&= \quad 1 - [(1 - 0.734) \times (1 - 0.326) \times (1 - 0.296)] \\
&= \quad 1 - (0.266 \times 0.674 \times 0.704) \\
&= \quad 1 - 0.126 \\
&= \quad 0.874
\end{aligned}
$$

of individual farmer, groups, and the role of extension services in empowerment of members.

Based on these results, suggestions that can be made are to increase the role of the facilitator in terms of monitoring and evaluation to optimize the process of empowering cocoa farmer groups. This increase would make empowerment program more sensitive to the problems faced by farmer groups, thereby ensuring effective operation.

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