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## Individual factors and performance of agricultural extension officer and impact on competence of cocoa farmers

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## Individual factors and performance of agricultural extension officer and impact on competence of cocoa farmers

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**Abstract.** The purpose of this study was to examine the effect of individual factors on performance of agricultural extension officer and impact on competence of cocoa farmers. The sample used in this study consisted of 106 agricultural extension officers, 106 farmer group leaders and 212 cocoa farmers. Data analysis in this study used Structural Equation Model (SEM). The results of this study indicate that the individual extension factors that influence to performance were competence, motivation and independence.

### 1. Introduction

A good agricultural extension performance is the dream of every agricultural stakeholder. The current state of farmers who are still shackled in poverty is a characteristic that agricultural extension still needs to continue to improve its role to help farmers in solving their problems, especially in terms of their overall farming. This is consistent with the definition of agricultural extension as non-formal education for farmers and their families to improve the welfare of farmers with a focus on knowledge changes, attitudes, and skills.

The state of an agricultural extension has continued to change well since the old order government; the new order to the reform order also influenced the image of agricultural extension. During the new order, an agricultural extension was imaged as a government tool in helping the government create food self-sufficiency with an approach to increasing farm production by farmers. Agricultural extension at that time was very considered and be judged successful in delivering food self-sufficiency. Furthermore, during the reformation era, agricultural extension experienced a bleak period, especially with changes in the extension institutions themselves with the issuance of regional autonomy laws that impacted agricultural extension performance directly.

The performance of agricultural extension officers is strongly influenced by various factors. In general, the performance of agricultural extension officers is strongly influenced by individual extension, psychological and organization variables. Individual variables can be classified in the ability and skill variables, personal and demographic backgrounds. Furthermore, psychological



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variables can be formulated in the variables of perception, attitude, personality, learning, and motivation, while organizational variables can be classified into resource, leadership, rewards, structure, and design of work.

The purpose of this study is to identify the influence of individual factors on the performance of agricultural extension officer and analyze the impact on the competence of cocoa farmers in four regions of South Sulawesi. This research is expected to strengthen the performance theory in the context of agricultural extension and be a reference for policymaking by the central and regional government.

## 2. Methodology

This study was conducted in four regions of South Sulawesi consisting of Palopo City, District of Luwu, North Luwu and East Luwu. The unit of analysis of this study was agricultural extension officers. Based on the Slovin formula a sample of 106 agricultural extension officers was obtained. Samples were taken a proportionally random sampling from Palopo (22 peoples), Luwu (34 peoples), North Luwu (26 peoples) and East Luwu (24 peoples). The Chairperson is farmer groups of (106 peoples) and cocoa farmers (212 peoples). This study used a survey method by filling out questionnaires supported by interviews. The validity of the instrument had consulted by five experts. The results of the improvement of this instrument were tested on 15 agricultural extension officers, 15 farmer group leaders, and 15 farmer group members. The data was analyzed using SEM (Structural Equation Model) with the LISREL (Linear Structural Relationships) program.

## 3. Results and discussion

The hypothetical model proposed includes 60 indicators derived from three independent variables and four dependent variables. After estimating the variables that influence the performance of an agricultural extension officer, we find a structural model of agricultural extension officer shows the influence path between variables.

**Table 1.** Characteristic variables on the competency of agricultural officer

	Relationship	Direct effect	t-stat	R <sup>2</sup>
Officer characteristics	→ <i>Competence of agricultural extension officers</i>	0.28	2.85	0.08

Table 1 shows the direct effect of the officer characteristic variable on the competency of the agricultural officer at 0.28. The effect coefficient is real at  $\alpha = 0.05$ . The results of this study show that the variable characteristics significantly influence the competency of agricultural officers. This means that the characteristics of agricultural extension officer determine the poor good of their competencies with an effective coefficient of 0.28 which is significant at  $\alpha = 0.05$ . The characteristic influence on the competency of agricultural extension officer is seen in the good and bad performance of extension officers in conducting extension planning, evaluation, and reporting of extension, development of agricultural extension and technology dissemination. This indicates, if there is an increase in a one-unit characteristic of agricultural extension officer, it will increase the results of extension work planning by 0.24 units, evaluation and extension reports by 0.25 units and development of agricultural extension services by 0.25.

This study consistent with the World Bank's research stating that the performance of PPL is very low, among others, indicated the knowledge and skills of extension officers are very lacking, often not suitable with farmers' needs, PPL is very less prepared and less trained to carry out agricultural extension activities. If the PPL is trained, most of the exercises are irrelevant to their duties as PPLs in their working area, and PPL has missed information from the farmers and fishermen. Theoretically this study consistent with Robbins[1] who explaining that some individual characteristics which include age, gender, marital status, number of responsibilities, and work experience has an effect on

performance. Characteristics of these individuals will make someone behave positively which means discipline, and vice versa if it is not appropriate tends to behave undisciplined.

**Table 2.** Competency, motivation and independence variables on the performance of agricultural extension officers

	Relationship	Direct effect	t-stat	R <sup>2</sup>
Competence	→ <i>Performance of agricultural extension officers</i>	0.71	10.64	67%
Motivation	→ <i>Performance of agricultural extension officers</i>	0.24	3.52	
Independence	→ <i>Performance of agricultural extension officers</i>	0.33	4.95	

The results showed that the competency variables of agricultural officers had a significant effect on their performance. This means that the competence of agricultural officers determines the deterioration of their performance with an effective coefficient of 0.71 which is real at  $\alpha = 0.05$ . The influence of competency on the performance of agricultural extension officers is evident in the good and poor planning of education, evaluation, and reporting of extension, development of extension and dissemination of technology. This indicates, if there is an increase in the competency unit of an agricultural officer, it will improve the extension planning work by 0.60 units, evaluation and extension reports by 0.64 units, and development of agricultural extension services by 0.64 and technology dissemination of 0.52 units.

The results of this study are consistent with Muliady [2] who found that influence the performance of agricultural extension officers and their impact on behaviour of the rice farmers in the three districts of West Java, concluding that extension competencies positively influence their performance with an effective coefficient of 0, 40 which is real at  $\alpha = 0.05$ . Theoretically this research consistent with Robbins[1] which states that performance as a function of the interaction between ability, motivation, and opportunity. Siagian [3] suggests the formula  $P = M \times K \times T$ , where P is the performance, M is motivation, K is ability and T is the right task. Gibson[4] states that individual employee performance is influenced by motivation, ability and work environment. Whereas Atmosoeperto [5] states that performance is a function of motivation and ability which are two factors that can cause synergic effects. High ability and supported by high motivation will also provide good performance.

The variable motivation of agricultural officer had a significant effect on their performance. This means that the motivation of the agricultural officer determines the deterioration of their performance with an effective coefficient of 0, 24 which is real at  $\alpha = 0.05$ . The influence of motivation on the performance of agricultural extension officer is seen in the good and poor planning of education, evaluation, and reporting of extension, development of extension and dissemination of technology. This indicates, if there is an increase in one agricultural extension unit motivation, it will increase the results of extension planning work by 0.20 units, evaluation and extension reports by 0.21 units, development of agricultural extension by 0.21 and technology dissemination of 0.17 units. The results of this study consistent with Muliady [2] who found the influence the performance of agricultural extension officer and their impact on the behaviour of rice farmers in the three districts of West Java, concluding that the motivation of extension officer has a positive effect on their performance with an effective coefficient of 0, 27 which is real at  $\alpha = 0.05$ .

Bestina et al., [6] concluded that the officer's motivation had a positive effect on their performance with a significant coefficient of 0.513 at  $\alpha = 0.05$ . Theoretically, this research is consistent with Atmosoeperto [5] states that performance is a function of motivation and ability, two factors that can cause synergic effects. High ability and supported by high motivation will also provide good performance in the form of better productivity.

The independence variables of agricultural extension officer had a significant effect on their performance. This means that the independence of the agricultural extension officer determines the deterioration of their performance with an effective coefficient of 0.33 which is significant at  $\alpha = 0.05$ . The influence of independence on the performance of agricultural extension officer appears in both the poor planning of education, evaluation and reporting of extension, development of extension and dissemination of technology. This indicates, if there is an increase in an independent unit of agricultural extension, it will improve the work of extension planning work by 0.28 units, evaluation and extension reports by 0.30 units, and development of agricultural extension by 0.29 and technology dissemination of 0.24 units.

The results of this study consistent with Mardin [7] that influence the independence of demersal fish in Wangi-Wangi Selatan, Southeast Sulawesi Province, concluding that fishermen's experience, the pioneering nature of fishermen and the competency of fishermen have an effect on independence with a determination coefficient of 54.5 percent which is real at  $\alpha = 0.05$ . Marliati [8] research on empowering farmers to fulfil the development needs of agribusiness farmers in Kampar Regency, Riau Province, which concluded that the level of fulfilment of the development needs of agribusiness farmers, the performance of agricultural extension officer empowered farmers, characteristics of farmers (formal and non-formal education) jointly influential directly on the independence of agribusiness farmers with a determination coefficient of 95 percent that is real at  $\alpha = 0.05$ .

The results of Bahua[9] show influence the performance of agricultural extension officers and their impact on the behaviour of corn farmers in Gorontalo Province stated that the independence of agricultural extension officer directly determines their poor performance with a significant coefficient of -0.31 on  $\alpha = 0.05$ . Theoretically, the results of this study consistent with Godfrey[10] stating that economic independence is the ability of an entity to support its welfare. Havighurst [11] explains that intellectual independence includes the notion of freedom to act, not dependent on others, is not affected by the environment and is free to regulate one's own needs. Social independence is an individual attitude that obtained cumulatively during development.

**Table 3.** Characteristics, competencies, motivation, independence, officer performance and competency of farmer group leaders on the competency of cocoa farmers

	Relationship	Coefficient		t-stat
		Direct	Indirect	
Characteristics	→ competency of cocoa farmers	-	0.03	1.60
Competency	→ competency of cocoa farmers	-	<b>0.12</b>	<b>2.03</b>
Motivation	→ competency of cocoa farmers	-	0.04	1.55
Independency	→ competency of cocoa farmers	-	0.05	1.81
Performance	→ competency of cocoa farmers	<b>0.19</b>	-	<b>2.09</b>
Competency group leaders	→ competency of cocoa farmers	<b>0.24</b>	-	<b>2.64</b>

**Table 4.** Performance of agricultural extension officer and the competency of farmer group leaders on the competency of cocoa farmers

	Relationship	Coefficient		<i>t</i> -stat	R <sup>2</sup>
		Direct	Indirect		
Performance	→ competency of cocoa farmers	0.19	-	2.09	10%
Performance	→ competency of cocoa farmers	-	0.16	2.05	
Performance	→ competency of cocoa farmers	-	0.20	2.07	
Competency of farmer group	→ competency of cocoa farmers	0.24	-	2.64	
Competency of farmer group	→ competency of cocoa farmers	-	0.20	2.64	
Competency of farmer group	→ competency of cocoa farmers	-	0.24	2.68	

**Table 5.** Characteristics, motivation and independence of agricultural extension officer

	Relationship	Coefficient	<i>t</i> -stat
Characteristics	↔ Motivation	- 0.21	-2.11
Characteristics	↔ Independency	+ 0.36	4.34
Motivation	↔ Independency	- 0.21	-2.15

The results of the study indicate that there is a relationship between the three independent variables, consisting of characteristics, motivation, and independence of agricultural officer. The results of this study are consistent with Lusthaus [12] which states that organizational performance is influenced by three factors, namely organizational capacity, organizational motivation, and organizational environment and each has an association with one another. The relationship of characteristics and motivation is negative; meaning changes that occur in the characteristics of the officer will also be followed by changes in the opposite of his motivation. But the closeness of the relationship between the two variables is classified as weak, this is indicated by the correlation coefficient of 0.21, which is smaller than 0.5.

The relationship of characteristics and independence is positive, meaning that changes that occur in the characteristics of the extension officer will also be followed by unidirectional changes in the independence of extension officer and vice versa. But the closeness of the relationship between the two variables is classified as weak, this is indicated by the correlation coefficient of 0.36, which is smaller than 0.5. Thus, if the age, training and work experience of agricultural extension officer increase, it will also be followed by an increase in their independence in terms of economic independence. The relationship between motivation and independence is negative, meaning that the changes that occur in the instructor's motivation will also be followed by the opposite changes in the independence of the instructor and vice versa. But the closeness of the relationship between the two variables is classified as weak, this is indicated by the correlation coefficient of 0.21, which is smaller than 0.5. Thus if the need for achievement and the need for affiliation increases, there will also be a decrease in economic independence

#### 4. Conclusion

Individual factors that influenced on the performance of agricultural extension officer are competency, motivation, and independence. There was a relationship between the factors that influence the performance of the agricultural extension officer consisting of characteristics with motivation, characteristics with independence, and motivation with independence. There was the impact of the performance of agricultural extension officer and competency of farmer group leaders through the ability to plan extension, the ability to evaluate and report extension, leadership capabilities and communication skills of farmer group leaders on farmer competencies cocoa. Suggestions for this finding were addressed to the central and regional governments and agricultural extension officers in order to improve the performance of agricultural extension officers, which in turn was aimed at better changes in cocoa farmers' competencies towards the central and regional governments need to continuously improve the performance of agricultural extension workers through increased competence in the form of the ability to plan extension, the ability to evaluate and report on extension, the ability to develop extension, an increase in motivation in the form of the need for achievement and the need to affiliate and increased independence through economic independence. Agricultural extension officer needed to increase self-motivation to be more productive in fostering cocoa farmers.

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