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SINTA 2

Farmer to Farmer Extension Approach to increase Coffee Farmers' Food Security

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ABSTRACT

This study aimed to determine what factors influence the food security of coffee farmers, primarily through the Farmer-to-Farmer approach (or independent extension officer), and formulate a food security model for coffee farmer families. This approach uses a quantitative approach with survey research methods. The research was conducted in Malang Regency, East Java Province, especially in the Districts of Ampelgading, Sumbermanjing Wetan, Trirtoyudo, and Dampit. This study's population was 2,622 coffee farmers with a total sample size of 96 people selected using the Propositional random sampling technique. Data were analyzed using Structural Equation Modeling (SEM) based on the variant Generalized structured component analysis (GSCA). The results showed that the Family Farmers' Food Security was more dominantly influenced by independent Extension Officers' Roles. Meanwhile, the role of independent extension officers is more dominantly influenced by the role of civil servant extension officers. The conclusion of this study is to increase the role of Independent Extension Workers in increasing the food security of coffee farmers. It is necessary to increase the role of independent extension officers, especially in providing consultation to farmers.

Keywords: Food security, Coffee Farmers, Independent extension officer, Farmer to farmer, Extension approach

INTRODUCTION

Running a coffee farming business is the main occupation of farmer households in the Amstirdam (Ampelgading, Sumber-manjing Wetan, Tirtoyudo, and Dampit) area on coffee production for their livelihood. The lower the coffee production, the lower the income, and vice versa. The low income of coffee farmers' households will determine the type and amount of food consumed, which indirectly affects the level of food security of farmers' households. The majority of coffee farming households do not have direct access to food because they do not own fields. However, they can obtain vegetable food from commodities grown in and around the coffee plantations of each household or obtain food from food purchases and from giving or asking directly to other parties (Meilia et al., 2014).

Coffee farming households must anticipate coffee income in such a way or by seeking income from other incomes to avoid food insecurity conditions. This is because income from coffee is only once a year, while household food needs must fulfill throughout the year. One of the efforts to increase the income of coffee farmers is to implement the Integrated Farming System. Farming carried out by most farmers is generally integrative, and it is rare for farmers only to cultivate one commodity (a single commodity). Although some cultivate one commodity, judging from the resources controlled by this integration system, it is possible to do it (Sudana, 2005). Human resources,

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especially to support the sustainability of people's coffee business Positions in the community, including young coffee farmers (Sumarti & Falatehan, 2016).

Coffee farmers in the Amstirdam area collaborate with the Barista community, NGOs, and exporters to maintain the quality and value of the coffee. Farmers provide education and assistance to other coffee farmers from on-farm to marketing. Coffee farmers have started to providecounseling and assistance to fellow farmers based on the standards demanded by the market, both for the needs of the export and local markets (barista). This phenomenon is interesting to see that the role of farmers as extension officers has started, and farmers have begun to assist farmers based on market needs to improve their food security. This is under Law no. 16 of 2006 concerning Extension Systems for Agriculture, Forestry and Fisheries, one side of which is involving farmers as objects and as extension subjects, namely by raising the role of Independent Extension Workers from among the farmers themselves. The law divides extension officers into three parts: civil servant extension officers, independent extension officers, and private extension officers. Agricultural extension plays a vital role in Indonesia's agricultural revitalization program from 2005 to 2025, which considers sugar cane to be one of the 14 priority crops. Providing targeted agricultural extension improves farmers' income and productivity (Rokhani et al., 2021). A group of farmers who sell their products in bulk can strengthen their capabilities and make their cultivation more sustainable if they succeed in establishing clear rules for their members (Talerngsri-Teerasuwannajak & Pongkijvorasin, 2021).

Traditional agriculture extension services are limited by a lack of extension workers, expertise, up-to-date information on market access, timeliness, and retention of information (Mahantesha B.N. Naika et al., 2021). The results of previous studies stated that the dominant role of independent extension agents in empowering farmers was as facilitators, environmental analysts, farmer assistants, and motivators. The results show that the role of Independent Extension Workers is quite effective in helping farmers obtain the information needed for their farming, increasing cooperation among farmers, and choosing innovations suitable for specific locations or applying local innovations in their area. Several studies have shown that the role of extension officer is very effective in conducting counselling. In the future, Independent Extension Workers will grow and be the spearhead of extension in increasing the resilience of farming families. Based on this background, it is necessary to know what factors influence the food security of coffee farmers through Independent Extension Workers and how to model the food security of coffee farmers based on independent extension officer. This study aims to analyze the factors that influence the food security of coffee farmers through Independent Extension Workers and formulate a model for increasing the food security of coffee farmers based on independent extension officer.

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RESEARCH METHODS

This study examines the factors that influence the food security of coffee farming families through the role of independent extension officer. The research approach uses a quantitative approach with survey research methods. The research locations selected were the Ampelgading area, Sumber Manjing Wetan, Trirtoyudo and Dampit, Malang Regency. The population of this research is coffee farmers who are members of farmer groups of as many as 2,622 people. The number of samples in the study was determined using the Yamane formula with a total sample of 96 people. The sampling technique in this study used proportional random sampling. The data needed in this study are primary data and secondary data. The independent variables are processing results (X1), implementation of the integrated farming system (X2), and the role of civil servant extension officer (X3). The intervening variable or

intermediate variable is Independent Extension Workers (Y1), and the dependent variable is farmers' food security (Y2). Data collection techniques were applied in collecting data using a questionnaire using a Likert scale. Data analysis used Structural Equation Modeling (SEM) based on Generalized structured component analysis (GSCA) variants.

RESULT AND DISCUSSION

Factors that affect the food security of coffee farming families (Y2), seen from several variables, including independent variables, namely processing results (X1), Implementation of Integrated Farming System (X2), and the role of civil servant extension officer (X3). The intervening variable or intermediate variable is the role of Independent Extension Workers (Y1). Before analyzing the influencing factors in the SEM-GSCA, some assumptions must be fulfilled, because regardless of the data scale used, from the nominal scale to the ratio scale. The most important thing is that the relationship between constructs must be linear, so hypothesis testing in the SEM-GSCA can be used and estimated correctly. In general, the linearity test aims to test whether the form of the relationship between the independent variable and the dependent variable is linear or not. In this case, the researcher uses SPSS assistance in testing the linearity assumption. The relationship between the two variables is linear if the test significance value is smaller than the alpha (5% / 0.05) used. The test results are presented below:

Table 1
Linearity Test Results

Pola Hubungan Variabel			*P-Value Linierity*	Conclusion
Exogenous Variable	-->	Endogenous Variable		
Agricultural Product Processing (X1)	-->	Independent Extension Workers (Y1)	0,000	Linear
Integrated Farming System (X2)	-->	Independent Extension Workers (Y1)	0,000	Linear
Civil Servant Extension Officer (X3)	-->	Independent Extension Workers (Y1)	0,000	Linear
Independent Extension Workers (Y1)	-->	Household Food Security (Y2)	0,000	Linear
Agricultural Product Processing (X1)	-->	Household Food Security (Y2)	0,000	Linear
Integrated Farming System (X2)	-->	Household Food Security (Y2)	0,000	Linear
Civil Servant Extension Officer (X3)	-->	Household Food Security (Y2)	0,000	Linear

Source: Primary data processed, 2021

Based on the summary of the results of the linearity test, it can be seen whether the SEM-GSCA model is appropriate or not. The test results show that the significance value of the Agricultural Product Processing variable (X1) on the Role of Independent Extension Workers (Y1) is 0.000, which means that the relationship pattern of the variables is stated to be linear, the significance value of the Integrated Farming System (X2) variable on the Role of Independent Extension (Y1) is 0.000, which means that the relationship pattern of the variable is stated to be linear, the significance value of the variable of the role of civil servant extension officer (X3) to the role of Independent Extension Workers (Y1) is 0.000 which means that the relationship pattern of the variables is stated to be linear, the significance value of the variable of the role of extension officer Independent(Y1) on Household Food Security (Y2) is 0.000, which means that

the relationship pattern of the variable is stated to be linear, the significance value of the Agricultural Product Processing variable (X1) on Household Food Security (Y2) is 0.000, which means the relationship pattern of the variable expressed as linear pattern . The significance value of the Integrated Farming System (X2) variable on Household Food Security (Y2) is 0.000, which means that the relationship pattern of the variable is stated to be linear, the significance value of the variable Role of Civil Servant Extension (X3) on Household Food Security (Y2) is equal to 0.000 which means that the pattern of the relationship between the variables is stated to be linear.

Outer Model

A measurement model is a model with calculation results based on calculations using the GSCA program. The method used is Confirmatory Factor Analysis, whereby using this tool, it will be known that existing indicators can explain a construct. The purpose of the measurement model is to describe how well the indicators in this study can be used to measure latent variables. Evaluation of the validity of the measurement model can be done by looking at the estimation results of the factor loads. A variable is said to have good validity on the construct or latent variable if the t-value of the factor load is greater than the critical value (≥ 1.96) and the standard factor load is 0.50. While evaluating the reliability of the measurement model in the GSCA can use Construct Reliability (CR 0.70) and Average Variance Extracted (AVE 0.50). The recapitulation of the results of the evaluation of validity and reliability can be seen in the following table:

Table 2
Outer Model Evaluation

Construct /Variable	Indicator/ factor	Partial Validity (LF > 0,5=Valid)		Rank	OverAll Validity (AVE > 0,5=Valid)		Construct Reliability (CR > 0,7)	
		Loading Factors	Desc.		AVE	Conc.	CR	Desc.
Agricultural Product Processing (X1)	X1.1 (Ability to process)	0,903	Valid	1	0,808	Valid	0,761	Reliable
	X1.2 (Types of processed products)	0,895	Valid	2				
Integrated Farming System (X2)	X2.1 (Income)	0,677	Valid	6	0,573	Valid	0,881	Reliable
	X2.2 (benefit)	0,675	Valid	7				
	X2.3 (Plant type)	0,835	Valid	2				
	X2.4 (Type of livestock)	0,742	Valid	5				
	X2.5 (Income)	0,798	Valid	3				
	X2.6 (Economic benefits)	0,794	Valid	4				
	X2.7 (Ecology benefits)	0,856	Valid	1				
	X2.8 (Agronomic benefits)	0,652	Valid	8				
Civil Servant Extension Officer (X3)	X3.1 (Education)	0,646	Valid	7	0,609	Valid	0,890	Reliable
	X3.2 (Dissemination)	0,737	Valid	6				
	X3.3 (Facilitation)	0,834	Valid	2				
	X3.4 (Consultation)	0,848	Valid	1				

	X3.5 (Supervision)	0,784	Valid	5				
	X3.6 (Monitoring)	0,809	Valid	3				
	X3.7 (Evaluation)	0,787	Valid	4				
Independent Extension Workers (Y1)	Y1.1 (Facilitator)	0,840	Valid	1	0,553	Valid	0,796	Reliable
	Y1.2 (Marketing partner)	0,628	Valid	5				
	Y1.3 (Farmer mediator)	0,791	Valid	2				
	Y1.4 (Farmer Advocacy)	0,661	Valid	4				
	Y1.5 (Farmer's Companion)	0,777	Valid	3				
Household food security (Y2)	Y2.1 (Availability)	0,765	Valid	2	0,530	Valid	0,767	Reliable
	Y2.2 (Food Access)	0,768	Valid	1				
	Y2.3 (Food Quality)	0,604	Valid	5				
	Y2.4 (Food Diversification)	0,760	Valid	3				
	Y2.5	0,731	Valid	4				

Source: Primary data processed, 2021

Based on the table above, it can be seen that all Loading factor values are 0.50 (Valid) and AVE values 0.50 (Valid), while the results of the reliability calculations show that all Cronbach Reliability (CR) values are 0.70 (Reliable). Thus it can be concluded that all these latent variables have excellent and proper indicators. In detail, to determine the most dominant indicator in contributing to the exogenous latent construct, it is explained as follows.

1. The best indicator in forming the Agricultural Product Processing variable (X1) is X1.1 (Ability in processing) with the highest loading factor of 0.903 so that if the decision-maker wants to increase the value of Agricultural Product Processing (X1), the statistical recommendation is prioritizing improvement in the value of the X1.1 indicator (Ability to process).
2. The best indicator in forming the Integrated Farming System (X2) variable is X2.7 (Social benefits) with the highest loading factor of 0.856 so that if the decision-maker wants to increase the value of the Integrated Farming System (X2), the statistical recommendation is to prioritize improvement in the value of the X2.7 indicator (Social benefits).
3. The best indicator in forming the variable of the role of civil servant extension officer (X3) is X3.4 (consultation) with the highest loading factor of 0.848 so that if the decision-maker wants to increase the value of the role of civil servant extension officer (X3), the statistical recommendation is to prioritize improvements value on indicator X3.4 (Consultation).
4. The best indicator in forming the variable of the Role of Independent Extension Workers (Y1) is Y1.1 (Facilitator) with the highest loading factor of 0.84 so that if the decision-maker wants to increase the value of the Role of Independent Extension (Y1), the statistical recommendation is to prioritize the improvement of the score on the Y1.1 indicator (Facilitator).
5. The best indicator in forming the Family Food Security variable (Y2) is Y2.2 (Food Access), with the highest loading factor of 0.768, so that if the decision-maker wants to increase the value of

Family Food Security (Y2), the statistical recommendation is to prioritize improvement in the value of the Y2.2 (Food Access) indicator.

Structural Model

This section deals with evaluating the coefficients or parameters that indicate a causal relationship or the effect of one latent variable on another latent variable. A causal relationship is declared insignificant if the critical ratio (C.R) value is between the ranges of -1.96 and 1.96 with a significance level of 0.05. With the help of the GSCA program application, the results of the estimation of the critical ratio value of the structural model are obtained. In summary, the results of the calculation of these coefficients are presented in the following table:

Table 3
Result of Estimation and Test of Direct Effect

Influence between Latent variables			Hypo-thesis	Path Coefficient	CR	p-value	Conclusions
Exogenous Variable	-->	Endogenous variables					
Agricultural Product Processing (X1)	-->	Independent Extension Workers (Y1)	H_1	0,061	1,01	0,314	not significant
Integrated Farming System (X2)	-->	Independent Extension Workers (Y1)	H_2	0,410	2,92	0,004	significant
Civil servant extension officer (X3)	-->	Independent Extension Workers (Y1)	H_3	0,470	3,26	0,001	significant
Independent Extension Workers (Y1)	-->	Household food security (Y2)	H_4	0,502	2,8	0,006	significant
Agricultural product processing (X1)	-->	Household food security (Y2)	H_5	0,252	3,61	0,000	significant
Integrated Farming System (X2)	-->	Household food security (Y2)	H_6	0,196	1,52	0,131	not significant
Civil servant extension officer (X3)	-->	Household food security (Y2)	H_7	0,042	0,26	0,795	not significant

Source: Primary data processed, 2021

The Agricultural Product Processing variable (X1) has a positive influence on the Role of Independent Extension Workers (Y1), meaning that the higher the Agricultural Product Processing (X1), the result will be an increase in the Role of Independent Extension Workers (Y1). With critical value 1,96, the statistical hypothesis states that H0 is accepted, meaning that the Agricultural Products Processing variable (X1) has a non-significant effect on the Role of Independent Extension Workers (Y1). Independent extension workers can also be assumed as *Lead Farmers*. This Lead-Farmer approach is applied to support government extension workers to deploy technology, and these lead-farmers demonstrate a positive role and contribution. Lead-farmer quality, lead-farmer adoption behavior and regular training have an effect on awareness and adoption of the taught material (Ragasa, 2020)

The Integrated Farming System (X2) variable has a positive influence on the Role of an Independent Extension Workers (Y1), meaning that the higher the Integrated Farming System (X2), the result will be an increase in the Role of Independent Extension Workers (Y1). The

Integrated Farming System (X2) variable significantly affects the role of the Independent Extension Workers (Y1). The study results by (Anderzén et al., 2020) provide further evidence that diversification can be an essential agroecological strategy for strengthening livelihoods and increasing coffee farmers' food security and sovereignty. More than 70% of farm households reported experiencing food insecurity, and many farmers felt that their income was not sufficient to meet the basic needs of their household. Collaborative and participatory initiatives between farmers and extension workers, academia, policymakers, and industry can lead to more sustainable livelihoods for coffee farmers.

The role of civil servant extension officer (X3) has a positive influence on the role of Independent Extension Workers (Y1), meaning that the higher the role of civil servant extension officer (X3), the result will increase the role of Independent Extension Workers (Y1). The role of civil servants (X3) has a significant influence on the variable of the role of Independent Extension Workers (Y1). The role of extension officer is very important to promote innovative technologies as well as create awareness among farming communities to implement guidelines to meet the country's food needs (Fiaz et al., 2018). The civil servant extension officer has empowered farmers not only as an extension object but also to be an extension agent, so it needs to be introduced about how to access information digitally. Some cases in developing countries instructors are trained in competency through communication techniques and information technology (ICT) to be an extension method (Warnaen et al., 2020).
The variable Role of Independent Extension Workers (Y1) has a positive influence on Household Food Security (Y2), meaning that the higher the Role of Independent Extension Workers (Y1), the result will increase the Household Food Security variable (Y2). The variable Role of Independent Extension Workers (Y1) significantly influences the Household Food Security variable (Y2). The independent extension model can be interpreted as a form of community-based extension approach. Farmer-to-farmer extension is now the dominant approach in many countries, especially on the African continent (Simpson et al., 2015). Farmer-to-farmer extension is defined as providing training by farmers to farmers (Franzel et al., 2015)

The agricultural product processing variable (X1) has a positive influence on Household food security (Y2), meaning that the higher the agricultural product processing (X1), the result will increase the household food security variable (Y2). The Agricultural Product Processing variable (X1) significantly affects the Family Food Security variable (Y2). This result is in line with the statement that food processing and adding value is the key to food security, where currently, food resources are also increasingly limited. Environmental sustainability, agricultural production and the food processing sector are fundamental (Alamu & Mooya, 2017; Augustin et al., 2016).

Integrated Farming System (X2) variable has a positive influence on Family Food Security (Y2), meaning that the higher the Integrated Farming System (X2), the result will be an increase in the Family Food Security variable (Y2), where the Path coefficient obtained is 0.196 with a CR value of 1.52. It is smaller than the critical value (1.52 < 1.96), the statistical hypothesis states that H0 is accepted, meaning that the Integrated Farming System (X2) variable has a non-significant effect on the Family Food Security variable (Y2). All coffee farmers in Amstirdam are integrating goat farming with their coffee plants. Goats are a new source of income through the sale of goats. Besides that, goats produce manure which can be used as fertilizer to fertilize farmers' coffee plants. Research (Wodajo et al., 2020) states that small ruminants contribute to food security.

The role of civil servant extension officer (X3) has a positive influence on family food security (Y2), meaning that the higher the role of civil servant extension

officer (X3), the result will increase the family food security variable (Y2), where the path coefficient obtained is 0.042 with a CR value of 0.26. The CR value is smaller than the critical value (0.26 < 1.96), the statistical hypothesis states that H0 is accepted, meaning that the role of civil servant extension officer (X3) has a non-significant effect on the family food security variable (Y2). The achievement of food security for family farmers is influenced by several factors, such as plant pests, markets, food processing, social perceptions and knowledge of farmers (Reincke et al., 2018) age of the head of the household, household size, monthly agricultural income and food expenditure (Mannaf & Uddin, 2012). The distance to the city, housing infrastructure, family size, the presence of parents at home, and per capita income also affect food security (Rahim et al., 2011).

The path coefficients in the structural model and the weight value of the manifest variable factors in the measurement model can be described through the path diagram of the measurement model and the structural model below.

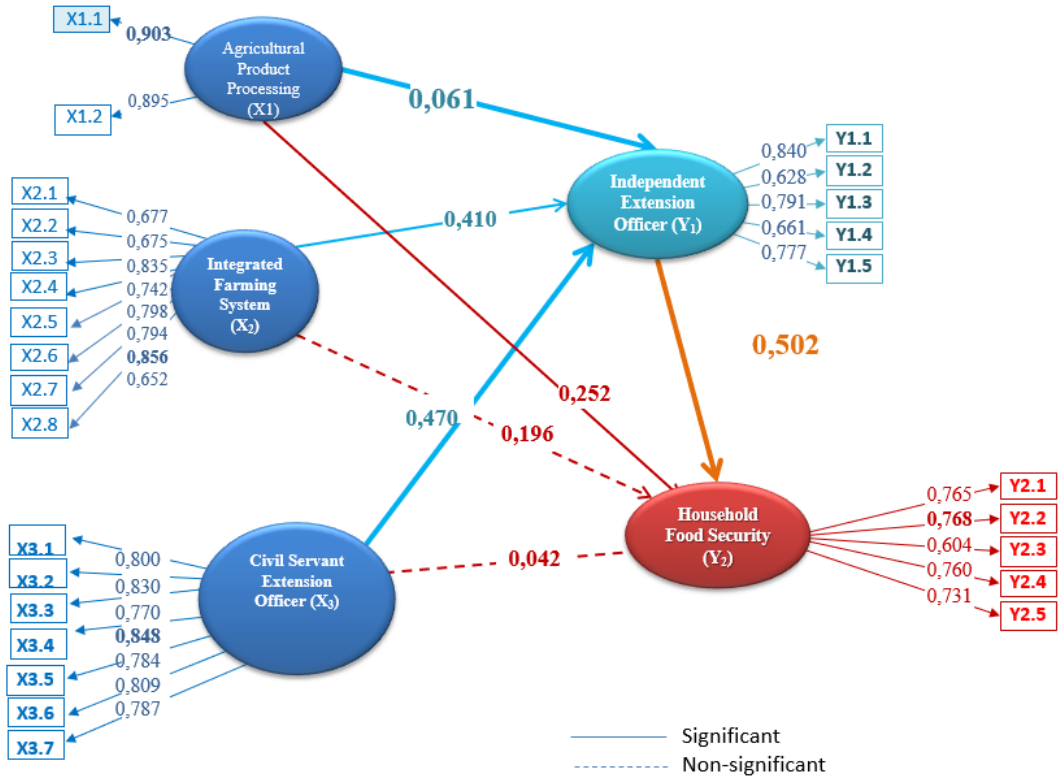

Figure 1
Measurement Model and Structural Model

From the structural equation above, it can be seen the relationship between exogenous latent constructs and endogenous latent constructs. The Household food security variable (Y2) is more dominantly influenced by the latent variable of the role of Independent Extension Workers (Y1). Meanwhile, the role of Independent Extension Workers (Y1) is more dominantly influenced by the role of civil servant extension officer (X3). The best indicator (manifest variable) in shaping the variable of the role of civil servant extension officer (X3) is X3.4 (Consultation), with the highest loading factor (0.848). So if the decision-maker wants to increase the value of the Role of Civil Servant Extension (X3), the statistical recommendation is to prioritize the improvement of the consultation role. The

farmer model approach (independent extension officer) has increased the scope of extension, increased the possibility of disseminating information and technology, and enabled the inclusion of almost all farmer households in the extension and consultation network (Hailemichael & Haug, 2020).

After knowing the factors that have a significant and insignificant effect on the endogenous variables in each sub-structure, then the results of the calculation of the indirect influence between variables are presented.

Table 4
Indirect Effects Between Latent Variables

Indirect Effects	Calculation	Results	CR	p-value	Description
Agricultural Product Processing (X1) on Household Food Security (Y2) through the Role of Independent Extension Workers (Y1)	0,061 x 0,502	0,031	0,950	0,344	Not-significant
Integrated Farming System (X2) on Household Food Security (Y2) through the Role of Independent Extension Workers (Y1)	0,41 x 0,502	0,206	2,021	0,046	significant
The Role of Civil Servant Extension (X3) on Household Food Security (Y2) through the Role of Independent Extension Workers (Y1)	0,47 x 0,502	0,236	2,124	0,036	significant

Source: Primary data processed, 2021

Based on the table above, it is known that there is an indirect effect between latent variables. The indirect effect of the Agricultural Product Processing variable (X1) on Family Food Security (Y2) through the Role of Independent Extension Officers (Y1) is 0.031 with t-statistics of 0.950 (Not Significant). The indirect effect of the Integrated Farming System (X2) variable on Family Food Security (Y2) through the Role of Independent Extension Officers (Y1) is 0.206 with t-statistics of 2.021 (Significant). The indirect effect of the role of civil servant extension officer (X3) on family food security (Y2) through the role of Independent Extension Workers (Y1) is 0.236 with t-statistics of 2.124 (significant).

Model Fit Test (Goodness of Fit)

This fit test is intended to generally evaluate the degree of fit or Goodness of Fit (GOF) between the data and the model. Structural Equation does not have one statistical test that best explains the predictive power of the model. Instead, several GOF or Goodness of Fit Indices (GOFI) measures can be used together or in combination. Neither GOF or GOFI measures can exclusively be used as a basis for evaluating the overall fit of the model. The best guide in assessing the fit of the model is a solid substantive theory. If the model only shows or represents a substantive theory that is not strong, and even though the model has a perfect model fit, it is difficult for us to judge it.

The overall fittest of the model relates to the analysis of the GOF statistics generated by the GSCA program. By using the guidelines for the GOF measures and the results of the GOF statistics, it is possible to analyze the overall fit of the model as follows:

Table 5
Goodness of fit Index (Inner Model) results

Goodness of fit Index	Cut of Value	Results	Description
FIT	> 0,500	0,547	Good Fit Model
AFIT	> 0,500	0,536	Good Fit Model
GFI	> 0,900	0,959	Good Fit Model
SRMR	< 0,080	0,294	Marginal fit Model

Source: Primary data processed, 2021

FIT = 0.547
FIT shows the total variance of all variables that a particular model can explain. The FIT value ranges from 0 to 1. So, the model formed can explain all the existing variables of 0.547. Exogenous variables that the model can explain are 54.7%, and other variables can explain the rest (45.3%). It means a model to explain the phenomenon under study.
AFIT = 0.536
Adjusted from FIT is almost the same as FIT. However, because there is more than one exogenous variable that affects endogenous variables, it would be better if the interpretation of the model's accuracy uses the corrected FIT or uses AFIT. Because the more variables that affect the value of FIT will be even more significant because the proportion of diversity will also increase, so to adjust to the existing variables, we can use the corrected FIT. When viewed from the AFIT value of 0.536, the model explained by the model is 53.6%, and other variables can explain the rest (46.4%).
The goodness of Fit Indices (GFI) = 0.959
The goodness of Fit Indices (GFI) is a measure of the model's accuracy in producing the observed covariance matrix. This GFI value must range from 0 to 1. Although GFI may have a negative value, this should not happen in theory because the model with a negative value is the worst. GFI value greater than or equal to 0.9 (0.959 > 0.900) indicates the fit of a model (Diamantopaulus, 2000 in Ghozali, 2005).
SRMR (Standardized Root Mean Square Residual) = 0.294
SRMR represents the average value of all standardized residuals and has a range from 0 to 1. A model that has a good fit will have an SRMR value less than 0.08. The model proposed in this study has an SRMR value of 0.294. Because the SRMR value is more significant than 0.08, it can be concluded that the model is declared marginal fit.

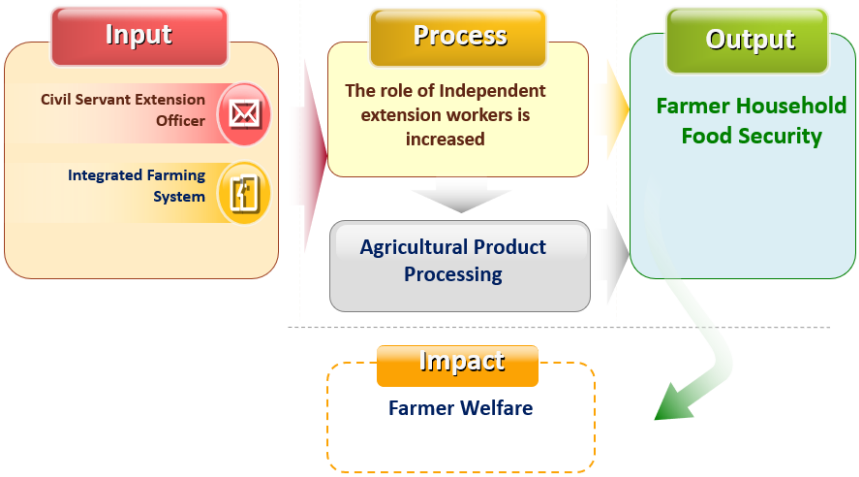

Figure 2

From the Goodness of Fit Test exposure above, it is known that 3 of the 4 Model accuracy tests are declared to be Good (Good Fit). Thus, it can be concluded that the model of increasing food security for coffee farming families through the role of Independent Extension Workers is declared feasible. To increase the role of extension workers, they need to focus more on their personal relationships with farmers and include a networking approach as a priority for increasing their knowledge (Alotaibi et al., 2021).

CONCLUSIONS

Factors that affect Family Food Security more dominantly influenced by the role of independent extension officer. While the role of Independent Extension Workers is more dominantly influenced by the role of civil servant extension officer. If the decision maker wants to increase the role of civil servant extension officer, it is recommended to prioritize the role of civil servant extension officer in providing consultation to extension officer Independent Significantly, agricultural product processing, Integrated Farming System, and civil servant extension officer have an indirect effect on family food security through the role of independent extension officer.

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