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THE ROLE OF EXTENSION OFFICERS IN IMPLEMENTING IDEAL FOOD CONSUMPTION PATTERN STRATEGY OF CORN FARMERS' HOUSEHOLDS IN DOMPU DISTRICT, INDONESIA

Awaluddin*

Doctoral Program in Agricultural Science, University of Brawijaya, Malang, Indonesia

Sugiyanto, Suksesi Keppy, Yuliati Yayuk

Faculty of Agriculture, University of Brawijaya, Malang, Indonesia

*E-mail: awalbima@gmail.com**ABSTRACT**

Fulfillment of food at the household level is a benchmark for food independence, namely by looking at the ability of food production that can guarantee the fulfillment of sufficient food needs at the household level, both in quantity, quality, safety, and at affordable prices, supported by sources diverse food sources according to local diversity. Food security turned out to be the weakest in the food-producing community itself, in this case, corn farmers. To achieve ideal food consumption pattern strategy of corn farmers' household, increase the independence and capacity of producers to play an active role in realizing food availability, food distribution and food consumption from time to time. Based on this background, the objectives of this research are; Identify factors related to household ideal food consumption pattern strategy of corn farmers in Dompu Regency, West Nusa Tenggara Province, Indonesia. The research approach uses mixed methods, which combines quantitative and qualitative approaches. The research was conducted in Dompu Regency by taking the population of corn farmer households. The samples were selected using the purposive sampling method with a sample of 150 farmers. The data analysis used to answer the objectives consisted of descriptive analysis, Miles and Huberman analysis techniques, Enumeration analysis, SEM Generalized Structure Component Analysis (GSCA). Factors that have a high correlation with ideal food consumption pattern in corn farmer households were participation, the role of extension and behaviour change while production, innovation, post-harvest and marketing factors have a moderate relationship with food security in corn farmer households in Dompu Regency. The model of ideal food consumption pattern of corn farmers through the role of agricultural extension agents in Dompu Regency was: Farmers' participation in achieving food security must be supported by production factors, innovation, post-harvest activities and marketing. Participation can affected food security if it is the role of agricultural extension agents that causes behavioural changes. If there is a behaviour change, food security can be achieved, with the achievement of food security, welfare will increase.

KEY WORDS

Generalized structure component analysis, household, participation, ideal consumption pattern.

Food security has a strategic role in national development, to fulfil this, it is necessary to have the availability, affordability, and fulfilment of sufficient food at all times, which is safe, quality, nutritionally balanced, and diverse both at the national and regional levels so that it is evenly distributed all the time by utilizing resources, institutions and local culture (Law No. 18 of 2012). The Food Security Council (2011), Anderson (2013), Eide et al. (1991), Rusliyadi et al. (2020), Pawlak & Kołodziejczak (2020), Emadi & Rahmadian (2020) identified domestic problems that have become obstacles in the effort to realize national food security, namely: (1) the population growth rate is relatively high (1.2% per year on average), (2) the number of vulnerable population food is still quite large, although it shows a declining trend, (3)

agricultural land conversion is still high and difficult to control, (4) competition for water resource utilization is increasing, (5) high dependence on rice has not been balanced with optimal utilization of local food, (6) government food reserves are still limited (only rice and only in the central government), while local government and community food reserves have not developed, (7) food consumption quality and quantity are still low, due to cultural influences and people's eating habits are not appropriate with the consumption of food that is safe, diverse and nutritionally balanced, (8) the material-based food industry is still underdeveloped local communities to support food diversification, (9) cases of food poisoning are still common which causes low nutritional quality of the community, (10) inadequate infrastructure and transportation facilities cause the high cost of marketing food ingredients in some consumer areas.

Extension as an empowerment process, will create a dynamic and progressive society sustainably (Surya et al., 2020; Rinaldi et al., 2020; Medina-García et al., 2021), form a community that can choose the best alternative for themselves in developing themselves and facilitate the community in adopting production and marketing techniques to increase their income. With adequate facilities, these socio-economic changes can occur quickly so that people's living standards increase. However, the purpose of the extension has not been achieved optimally due to several things including: (1) extension activities are more in the process of not educating farmers in making decisions from various alternative problem solving (2) extension activities that are less organized (3) inadequate knowledge of extension officers (4) decreasing farmers' trust in extension officers which causes a decrease in farmer participation (5) extension institutions that have not been managed properly (Setiawan, 2005). The low role and participation of the community, especially farmer institutions and stakeholders involved in food security is an obstacle in the development of food security, which is indicated by the absence of the community in assessing development needs, problems, and opportunities, this is due to the dominance of the government's role in developing food security occurred since the early 1970s has caused narrow space for people to participate. All physical development activities and the procurement of various public facilities are carried out by government institutions, placing the community as passive participants. Whereas the community has the potential and strength from the natural and socio-cultural resources they have. This potential must be explored through strategies that suit the needs of the entire community.

Based on data from the Central Statistics Agency for Dompu Regency (2020), it is a district with an area of 2,324.55 km² or 11.53% of the area of West Nusa Tenggara Province, with a population of 248.879 people. The largest Regional Gross Regional Domestic Income (PDRB) of Dompu Regency comes from the agriculture, forestry and fishery sectors (39.88%) while the trade sector (15.34%), this means that the agricultural sector in Dompu Regency is the dominant sector, however the existing potential can still be developed, especially horticultural commodities, food crops, livestock and fisheries.

The income received by each resident (PDRB per capita) of Dompu Regency during the period 2015 - 2019 shows an increasing development from 25.30 million rupiah to 29.91 million rupiah, however, the problem of food security still exists, this is caused by because; (1) differences in people's affordability to food (2) limited natural resources due to land conversion (3) rigidity of food consumption patterns due to habits and culture. With geographical conditions located at an altitude of 15 - 62 meters above sea level, including the island of Satonda covering an area of 472 ha under the Decree of the Governor of West Nusa Tenggara Province dated 26 December No. 678 of 1995 concerning the position of Satonda Island which states that Santonda Island is included in the Dompu Regency area. Dompu Regency is included in the lowland area so that only certain commodities can be cultivated and grow well. The types of commodities include lowland horticulture and secondary crops. In addition, the soil structure that is less supportive for agricultural cultivation requires the application of appropriate technology with an intensification system therefore the food needs for the residents of Dompu Regency can be met (Dompu Regency Agriculture and Plantation Office, 2020).

Dompu Regency is not a food-producing area, because more food availability comes from supplies from outside the region, for example, the need for vegetables is still very dependent on outside the region, so the management of food stocks must be of great concern to ensure food availability. Community empowerment programs both sourced from the central government and local governments (provincial/district) implemented in Dompu Regency, especially in agricultural activities, do not cover the concepts of human development, business development, environmental development and institutional development. Most of the efforts made are only on business development aimed at developing business activities through capital assistance, but other efforts such as increasing the capacity of human resources through extension and training on environmental conservation efforts and developing organizational forms are still lacking.

Another problem is the development of food security in Dompu Regency is related to food security institutions and extension institutions, based on the organizational structure of Dompu Regency although it already has its food security technical institutions and extension institutions, technical institutions are still under the Department of Agriculture and Plantation of Dompu Regency so that the supervision of related parties in food security institutions is still not focused and the performance of extension officers is not optimal, besides that the number of extension officers in Dompu Regency is still lacking and many have become structural officials. Based on data from the Department of Agriculture and Plantation of the Dompu Regency in 2020, the number of extension officers is 100 people consisting of 23 civil servants and contract extension officers, with a total number of 130 farmer groups, each extension officer holds a minimum of 2 farmer groups, this causes the implementation to be less effective due to the lack of intensity of meetings between extension officers and beneficiaries.

In bridging the obstacles and challenges of developing food security, the development of agricultural potential must be optimized, in addition to community participation supported by various elements that affect food availability, increasing access to food both physically and economically, as well as balanced and nutritious food absorption which is very important, so that food security will increase which in turn will achieve community welfare. From the description above, it is necessary to formulate an ideal food consumption pattern model through the role of extension officers as well as a strategy for developing the agricultural potential to achieve food security in the Dompu Regency, West Nusa Tenggara Province of Indonesia.

LITERATURE REVIEW

Food security is an integrated food economic system consisting of several subsystems (Suryana, 2003). Food security has at least two main elements, namely the availability of sufficient food and the accessibility of the community to adequate food, where these two elements are fulfilled to achieve the health and welfare of the community (Hasan, 2006). Food security is a unified whole that consists of dimensions of availability, accessibility, and stability of food prices (Arifin, 2005).

Jokolelono (2011) revealed that the concept of food security changes according to its development, this can be seen from the changes in its definition, and the following definitions of food security have undergone changes and complement each other: (1) World Food Conference 1974, UN 1975, food security is a situation where humans have full access both physically and economically, can fulfill food nutrition and security in providing food needs in a healthy life in accordance with local values and culture (Shaw, 2007); (2) Food Agriculture Organization (FAO) 1992, food security is a situation where all people at all times have sufficient, safe, nutritious food for a healthy and active life (Creswell, 2010); (3) Food Agriculture Organization (FAO) 1996, food security is a condition where all people can access at all times, are physically and economically affordable, have sufficient nutrition, variety, and are safe for consumption, healthy for life for activities; (4) Rome Declaration on World Food Security (World Food Summit) 1996, food security is a condition in which all people have access, at all times physically and economically, to adequate nutrition for food

that is safe for consumption for a healthy life, in accordance with the values and local culture; (5) World Bank 1996, food security is a condition for all people to have access at any time to obtain sufficient food in order to be active and live a healthy life; (6) Oxfam 2001, food security is a condition where everyone can access (economically and locally), control over sufficient amount of food, guaranteed quality for a healthy life; (7) Public Health Association of British Columbia (PHABC) 2004, food security is a condition of the availability of food for all people that is obtained safely, both personally, through a sustainable and diverse food system; (8) Indonesian Food Law No.18 Tahun 2012, defines food security as a condition of fulfilling food for the state to individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, equitable and affordable and not contrary to religion, belief, and community culture, to be able to live a healthy, active and productive life in a sustainable manner. Food security is a condition of food availability for all people obtained safely, both personally, through a sustainable and diverse food system.

The components that must be met to achieve food security, based on the definition of food security by FAO (1996) and UU RI No 7 Tahun 1996, are; (1) adequacy of food availability; (2) stability of food availability without fluctuation from season to season or from year to year; (3) accessibility/affordability to food; (4) food quality/safety.

As stated in Law 18 Tahun 2012, to realize food availability through domestic food production is carried out by; (1) develop food production that relies on local resources, institutions, and culture; (2) develop the efficiency of the food business system; (3) develop facilities, infrastructure, and technology for food production, post-harvest handling, processing and storage; (4) build, rehabilitate, and develop food production infrastructure; (5) maintain and develop productive land; (6) build a food production centre area.

Law 18 Tahun 2012 further explains the purpose of food administration which includes; (1) increasing the ability to produce food independently; (2) provide food that is diverse and meets the requirements of safety, quality, and nutrition for; (3) public consumption; (4) realizing the level of food sufficiency, especially staple food at reasonable and affordable prices by the needs of the community; (5) facilitate or improve access to food for the community, especially people in food and nutrition insecurity; (6) increase added value and competitiveness of food commodities in domestic and foreign markets; (7) increase public knowledge and awareness about safe, quality, and nutritious food for public consumption; (8) improve welfare for farmers, fishers, fish cultivators, and food business actors; and protect and develop the wealth of national food resources.

MATERIALS AND METHODS OF RESEARCH

This research was conducted using a combined approach (mixed methods), which combines quantitative and qualitative approaches. Creswell (2010) states that mixed methods are procedures in which research brings together or unites quantitative data and qualitative data to obtain a comprehensive analysis of research problems. According to Sarwono (2013), the parallel method design is carried out using a joint method. These namely qualitative and quantitative approaches are carried out in separate studies but in the same research project. Another term is mentioned by Brennan (1992) as a quantitative and qualitative approach with equal weight, where the researcher develops two research designs simultaneously, namely quantitative and qualitative research.

The use of a combined approach (mixed methods) between quantitative and qualitative according to Bryman (2010), is intended as a means of complementing each other between methods, meaning that the researcher hopes that the findings with one method will complement the findings of the other methods so that the findings are more comprehensive. Another reason for using a combined approach is that not all problems in the study of social science (social phenomena) can be explained or solved by the application of statistical analysis alone (quantitative research), so that researchers must use qualitative analysis (qualitative research). The combination of quantitative and qualitative approaches is also a combination of explanations about a phenomenon or research phenomenon that is given emic and ethical. According to Suharjito (2002), citing the opinion of Pelto & Pelto (1978), an

explanation of a symptom or phenomenon in research can be given emically. The emic explanation is intended to reveal what the informant thinks, knows, does, and hopes according to what the informant conveys (native's perspective).

Some of the characteristics of the emic approach are (1) the main method is in-depth interviews in the local language; (2) the intent was to look for the categories of meanings, as close as possible to how local people define things; (3) definitions of meaning by local people and their system of ideas are seen as important explanations of their behaviour. The emic approach allows an informant's idea or behaviour to be linked to its context (context-bound). In addition to the emic approach, this research also uses an ethical approach.

RESULTS AND DISCUSSION

Structural Equation of Ideal Household Food Consumption Pattern of Corn Farmers in Dompu District. Test the Fit of the Model (Goodness of Fit) was intended to 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 of the 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 strong substantive theory. If the model only shows or represents a substantive theory that is not strong, and even though the model has a very good model fit, it is difficult for us to judge it. The overall fit of the model relates to the analysis of the GOF statistics generated by the program, in this case, the GSCA. 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 Table 1.

Table 1 – Result Goodness of fit Index (Inner Model) Corn Farmer Household Food Security Model

The goodness of fit Index	Cut of Value	Result	Information
FIT	> 0.500	0.604	good fit model
AFTER	> 0.500	0.597	good fit model
GFI	> 0.900	0.909	good fit model
SOME	< 0.080	0.314	Marginal fit model

FIT = 0.604. FIT shows the total Variance of all variables that a particular model can explain. The FIT value ranges from 0 to 1. Therefore, the model formed can explain all the variables by 0.604. The exogenous variable explained by the model is 60.4%, and other variables can explain the rest (39.6%). It means a model to explain the phenomenon under study.

AFIT = 0.597. 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 to interpret the model's accuracy using the corrected FIT or uses AFIT. Because the more variables that affect the value of FIT will be even greater because the proportion of diversity will also increase, therefore to adjust to the existing variables, we can use the corrected FIT. When viewed from the AFIT value, namely 0.597, the model explained by the model is 59.7%, and other variables can explain the rest (40.3%).

The goodness of Fit Indices (GFI) = 0.909. The goodness of Fit Indices (GFI) is a size regarding the model's accuracy in producing the observed covariance matrix. This GFI value must range from 0 to 1. Although, in theory, GFI may have a negative value, this should not happen because the model that has a negative value is the worst. GFI value greater than or equal to 0.9 (0.909 > 0.900) indicates the fit of a model (Diamantopaulus, 2000 in Ghazali, 2005).

SRMR (Standardized Root Mean Square Residual) = 0.314. Standardized RMR 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 a Standardized RMR value less than 0.08. The model proposed in this study has an SRMR value of 0.314; because the SRMR value is greater than 0.08, it can be concluded that the model is declared marginal fit.

Measurement model is a model with calculation results based on calculations using the GSCA program. The method used was Confirmatory Factor Analysis, whereby using this tool, it will be known that existing indicators can explain a construct. The purpose of the measurement model was 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 formula:

$$\alpha = \frac{N}{N-1} \left(1 - \frac{\sum_{i=1}^N \sigma_i^2}{\sigma_t^2} \right)$$

Where :

N = equivalent of indicator;

σ_i^2 = Variance of each indicator;

σ_t^2 = The Variance of the number of structural equations of indicators.

The recapitulation of the results of the evaluation of validity and reliability can be seen in the Table 2.

Table 2 – Evaluation of the Validity and Reliability of Exogenous Variables (before Elimination) of the ideal consumption pattern strategy of Corn Farmer Household Model

Constructs / Latent Variables	Indicators / Factors / Manifest	Partial Validity (LF > 0.5=Valid)		Rank	Over All Validity (AVE > 0.5=Valid)		Construct Reliability (CR > 0.7)	
		Loading Factors	Notes:		AVE	Conclusion	CR	Notes:
The factor of Production (X1)	X1.1	0.610	Valid	4	0.552	Valid	0.725	Reliable
	X1.2	0.735	Valid	3				
	X1.3	0.775	Valid	2				
	X1.4	0.833	Valid	1				
Innovation (X2)	X2.1	0.705	Valid	5	0.589	Valid	0.824	Reliable
	X2.2	0.768	Valid	3				
	X2.3	0.845	Valid	1				
	X2.4	0.732	Valid	4				
	X2.5	0.782	Valid	2				
Post-Harvest (X3)	X3.1	0.879	Valid	1	0.772	Valid	0.704	Reliable
	X3.2	0.878	Valid	2				
Marketing (X4)	X4.1	0.894	Valid	2	0.803	Valid	0.755	Reliable
	X4.2	0.899	Valid	1				
Institutional Role (X5)	X5.1	0.831	Valid	3	0.721	Valid	0.869	Reliable
	X5.2	0.896	Valid	1				
	X5.3	0.810	Valid	4				
	X5.4	0.856	Valid	2				

Based on the Table 2, it can be seen that all loading factor values 0.50 (Valid) and AVE values 0.50 (Valid). At the same time, the results of the reliability calculations show that all Cronbach Reliability (CR) values 0.70 (Reliable). Thus, it can be concluded that all these latent exogenous variables have good 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 informing the Production Factor variable (X1) is X1.4 (Management) with the highest factor loading of 0.833 so that if the decision-maker wants to increase the value of the Production Factor (X1), the statistical recommendation is to prioritize improving the value of the X1 indicator 4 (Management);

2. The best indicator informing the Innovation variable (X2) is X2.3 (Complexity) with the highest loading factor of 0.845 so that if the decision-maker wants to increase the value of Innovation (X2), the statistical recommendation is to prioritize the improvement of the value on the X2.3 indicator;

3. The best indicator informing the Post Harvest variable (X3) is X3.1 (Sortation) with the highest loading factor of 0.879 so that if the decision-maker wants to increase the Post Harvest value (X3), the statistical recommendation is to prioritize the improvement of the value on the X3 indicator 1 (Sort);

4. The best indicator informing the Marketing variable (X4) is X4.2 (Promotion) with the highest loading factor of 0.899 therefore if the decision-maker wants to increase the Marketing value (X4), the statistical recommendation is to prioritize the improvement of the value on the X4.2 indicator (Promotion);

5. The best indicator informing the Institutional Role variable (X5) is X5.2 (Capital Provider Institution) with the highest loading factor of 0.896 therefore if the decision-maker wants to increase the value of the Institution's Role (X5), the statistical recommendation is to prioritize improvement in the value of indicator X5.2 (Capital provider agency).

Table 3 – Evaluation of the Latent Endogenous Outer Model

Constructs / Variables	Indicators / Factors	Partial Validity		Rank	Over All Validity		Construct Reliability	
		(LF > 0.5=Valid)			(AVE > 0.5=Valid)		(CR > 0.7)	
		Loading Factors	Note:		AVE	Conclusion	CR	Note:
Role of Extension (Y1)	Y1.1	0.797	Valid	4	0.663	Valid	0.915	Reliable
	Y1.2	0.867	Valid	2				
	Y1.3	0.883	Valid	1				
	Y1.4	0.720	Valid	7				
	Y1.5	0.794	Valid	5				
	Y1.6	0.774	Valid	6				
	Y1.7	0.853	Valid	3				
Participation (Y2)	Y2.1	0.893	Valid	2	0.688	Valid	0.768	Reliable
	Y2.2	0.899	Valid	1				
	Y2.3	0.676	Valid	3				
Behaviour Change (Y3)	Y3.1	0.765	Valid	3	0.673	Valid	0.758	Reliable
	Y3.2	0.833	Valid	2				
	Y3.3	0.861	Valid	1				
Food Security Level (Y4)	Y4.1	0.856	Valid	1	0.708	Valid	0.792	Reliable
	Y4.2	0.830	Valid	3				
	Y4.3	0.838	Valid	2				
Welfare (Y5)	Y5.1	0.865	Valid	1	0.643	Valid	0.723	Reliable
	Y5.2	0.816	Valid	2				
	Y5.3	0.718	Valid	3				

Based on the Table 3, it can be seen that all loading factor values 0.50 (Valid) and AVE values 0.50 (Valid). At the same time, the results of the reliability calculations show that all Cronbach Reliability (CR) values 0.70 (Reliable). Thus, it can be concluded that all endogenous latent variables have good and proper indicators. In detail, to determine the most dominant indicator in contributing to the latent construct of Endogenous, it is explained as follows:

1. The best indicator in shaping the role of the extension agent (Y1) is Y1.3 (consultation), with the highest loading factor of 0.883, therefore if the decision-maker wants to increase the value of the role of the extension worker (Y1), the statistical recommendation is to prioritize improving the value of the Y1 indicator 3 (Consultant).

2. The best indicator informing the Participation variable (Y2) is Y2.2 (Quality of participation) with the highest loading factor of 0.899 therefore if the decision-maker wants to increase the Participation value (Y2), the statistical recommendation is to prioritize improving the value of the Y2 indicator 2 (Quality of participation).

3. The best indicator informing the Behavior Change variable (Y3) is Y3.3 (Skills) with the highest loading factor of 0.861 therefore if the decision-maker wants to increase the

value of Behavior Change (Y3), the statistical recommendation is to prioritize improving the value of the Y3 indicator 3 (Skills).

4. The best indicator informing the variable Food Security Level (Y4) is Y4.1 (Food availability) with the highest loading factor of 0.856 therefore if the decision-maker wants to increase the value of the Food Security Level (Y4), the statistical recommendation is to prioritize the improvement of the value on indicator Y4.1 (Food availability).

5. The best indicator informing the Welfare variable (Y5) is Y5.1 (Income) with the highest loading factor of 0.865 therefore if the decision-maker wants to increase the value of Welfare (Y5), the statistical recommendation is to prioritize the improvement of the value on the Y5.1 indicator (Income).

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 (CR) is between -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 Table 4.

Table 4 – Result of Estimation and Test of Direct Effect

The influence between Latent variables			Hypothesis	Path Coefficient	CR	p-value	Conclusion
var. Exogenous	-->	Var. Endogenous					
The factor of Production (X1)	-->	Role of Extension (Y1)	H1	0.012	0.26	0.795	Not significant
Innovation (X2)	-->	Role of Extension (Y1)	H2	0.375	7.18	0.000	Significant
Post-Harvest (X3)	-->	Role of Extension (Y1)	H3	0.19	3.44	0.001	Significant
Marketing (X4)	-->	Role of Extension (Y1)	H4	0.327	6.54	0.000	Significant
Institutional Role (X5)	-->	Role of Extension (Y1)	H5	0.156	3.08	0.002	Significant
The factor of Production (X1)	-->	Participation (Y2)	H6	0.16	2.38	0.018	Significant
Innovation (X2)	-->	Participation (Y2)	H8	0.047	0.75	0.454	Not significant
Post-Harvest (X3)	-->	Participation (Y2)	H9	0.177	2.88	0.005	Significant
Marketing (X4)	-->	Participation (Y2)	H10	0.017	0.26	0.795	Not significant
Institutional Role (X5)	-->	Participation (Y2)	H11	0.273	4.4	0.000	Significant
Role of Extension (Y1)	-->	Participation (Y2)	H7	0.36	4.05	0.000	Significant
Participation (Y2)	-->	Behaviour Change (Y3)	H12	0.789	23.64	0.000	Significant
Role of Extension (Y1)	-->	Food Security Level (Y4)	H13	0.136	1.5	0.136	Not significant
Participation (Y2)	-->	Food Security Level (Y4)	H14	0.197	1.65	0.101	Not significant
Behaviour Change (Y3)	-->	Food Security Level (Y4)	H15	0.533	4.33	0.000	Significant
Food Security Level (Y4)	-->	Welfare (Y5)	H16	0.881	39.94	0.000	Significant

It was known that the Production Factor variable (X1) has a positive influence on the role of the extension officers (Y1), meaning that the higher the factor of production (X1), the result will be an increase in the extension role variable (Y1), where the path coefficient obtained is 0.089 with a CR value of 1.72. Because the CR value is smaller than the critical value ($1.72 < 1.96$), the statistical hypothesis states that H0 is accepted, meaning that the Production Factor variable (X1) has a non-significant effect on the Extension Role variable (Y1).

It was known that the Innovation variable (X2) has a positive influence on the role of the instructor (Y1), meaning that the higher the innovation (X2), the result will be an increase in the role of the instructor (Y1). Because the CR value is greater than the critical value ($7.22 > 1.96$), the statistical hypothesis states that H0 is rejected, meaning that the Innovation variable (X2) has a significant influence on the Extension Role variable (Y1).

It was known that the post-harvest variable (X3) has a positive influence on the role of the extension officers (Y1), meaning that the higher the post-harvest (X3), the result will increase the role of the extension officers (Y1), where the path coefficient obtained is 0.163 with a CR value of 2.53. Because the CR value is greater than the critical value ($2.53 > 1.96$), the statistical hypothesis states that H0 is rejected, meaning that the Post-Harvest variable (X3) has a significant effect on the role of the extension officers (Y1).

It was known that the marketing variable (X4) has a positive influence on the role of the extension officers (Y1), meaning that the higher the marketing (X4), the result will increase

the variable of the role of the extension worker (Y1), where the path coefficient obtained is 0.324 with a CR value of 6.2. Because the CR value is greater than the critical value ($6.2 > 1.96$), the statistical hypothesis states that H_0 is rejected, meaning that the Marketing variable (X4) has a significant influence on the Extension Role variable (Y1).

It was known that the Institutional Role variable (X5) has a positive influence on the Instructor's Role (Y1), meaning that the higher the Institutional Role (X5), the result will increase the Instructor's Role variable (Y1), where the Path coefficient obtained is 0.13 with a CR value of 2.66. Because the CR value is greater than the critical value ($2.66 > 1.96$), the statistical hypothesis states that H_0 is rejected, meaning that the Institutional Role variable (X5) has a significant influence on the Extension Role variable (Y1).

It was known that the Production Factor variable (X1) has a positive influence on Participation (Y2), meaning that the higher the Production Factor (X1), the result will be an increase in the Participation variable (Y2), where the Path coefficient obtained is 0.173 with a CR value of 3.06. Because the CR value is greater than the critical value ($3.06 > 1.96$), the statistical hypothesis states that H_0 is rejected, meaning that the Production Factor variable (X1) has a significant effect on the Participation variable (Y2).

It was known that the Innovation variable (X2) has a positive influence on Participation (Y2), meaning that the higher the Innovation (X2), the result will increase the Participation variable (Y2), where the Path coefficient obtained is 0.045 with a CR value of 0.74 because the CR value is smaller than the critical value ($0.74 < 1.96$), the statistical hypothesis states that H_0 is accepted, meaning that the Innovation variable (X2) has a non-significant effect on the Participation variable (Y2).

It was known that the post-harvest variable (X3) has a positive influence on participation (Y2), meaning that the higher the post-harvest (X3), the result will increase the participation variable (Y2), where the path coefficient obtained is 0.153 with a CR value of 2.43. Because the CR value was greater than the critical value ($2.43 > 1.96$), the statistical hypothesis states that H_0 is rejected, meaning that the Post-Harvest variable (X3) has a significant effect on the Participation variable (Y2).

It was known that the Marketing variable (X4) has a positive influence on Participation (Y2), meaning that the higher the Marketing (X4), the result will be an increase in the Participation variable (Y2), where the Path coefficient obtained is 0.059 with a CR value of 0.86 because the CR value is smaller than the critical value ($0.86 < 1.96$), the statistical hypothesis states that H_0 is accepted, meaning that the Marketing variable (X4) has a non-significant effect on the Participation variable (Y2).

It was known that the Institutional Role variable (X5) has a positive influence on Participation (Y2), meaning that the higher the Institutional Role (X5), the result will be an increase in the Participation variable (Y2), where the Path coefficient obtained is 0.275 with a CR value of 5.61. Because the CR value is greater than the critical value ($5.61 > 1.96$), the statistical hypothesis states that H_0 is rejected, meaning that the Institutional Role variable (X5) has a significant effect on the Participation variable (Y2).

It was known that the Extension Role variable (Y1) has a positive influence on Participation (Y2), meaning that the higher the Extension Role (Y1) variable, the result will be an increase in the Participation variable (Y2), where the Path coefficient obtained is 0.336 with a CR value of 3.3. Because the CR value was greater than the critical value ($3.3 > 1.96$), the statistical hypothesis states that H_0 is rejected, meaning that the Extension Role variable (Y1) has a significant effect on the Participation variable (Y2).

It was known that the Participation variable (Y2) has a positive influence on Behavior Change (Y3), meaning that the higher the Participation (Y2), the result will be an increase in the Behavior Change variable (Y3), where the Path coefficient obtained is 0.789 with a CR value of 20.12. Because the CR value is greater than the critical value ($20.12 > 1.96$), the statistical hypothesis states that H_0 is rejected, meaning that the Participation variable (Y2) has a significant influence on the Behavior Change variable (Y3).

It was known that the role of the extension agent (Y1) has a positive influence on the level of food security (Y4), meaning that the higher the role of the extension worker (Y1), the result will increase the variable level of food security (Y4), where the path coefficient

obtained is 0.147 with a CR value of 1,21 because the CR value is smaller than the critical value ($1.21 < 1.96$), the statistical hypothesis states that H_0 is accepted, meaning that the Extension Role variable (Y_1) has a non-significant effect on the Food Security Level variable (Y_4).

It was known that the Participation variable (Y_2) has a positive influence on the Food Security Level (Y_4), meaning that the higher the Participation (Y_2), the result will increase the Food Security Level variable (Y_4), where the Path coefficient obtained is 0.188 with a CR value of 1.15 because the CR value is smaller than the critical value ($1.15 < 1.96$), the statistical hypothesis states that H_0 is accepted, meaning that the Participation variable (Y_2) has a non-significant effect on the Food Security Level variable (Y_4).

It was known that the Behavior Change variable (Y_3) has a positive influence on the Food Security Level (Y_4), meaning that the higher the Behavior Change (Y_3), the result will increase the Food Security Level variable (Y_4), where the Path coefficient obtained is 0.531 with a CR value of 3,91. Because the CR value is greater than the critical value ($3.91 > 1.96$), the statistical hypothesis states that H_0 is rejected, meaning that the Behavior Change variable (Y_3) has a significant effect on the Food Security Level variable (Y_4).

It was known that the Food Security Level variable (Y_4) has a positive influence on Welfare (Y_5), meaning that the higher the Food Security Level (Y_4), the result will increase the Welfare variable (Y_5), where the Path coefficient obtained is 0.881 with a CR value of 43.43. Because the CR value is greater than the critical value ($43.43 > 1.96$), the statistical hypothesis states that H_0 is rejected, meaning that the Food Security Level variable (Y_4) has a significant effect on the Welfare variable (Y_5).

The path coefficients in the structural model and the weight values of the manifest variables in the measurement model can be described through the path diagram of the measurement model and the structural model as seen in Figure 1.

Figure 1 – Measurement Model Path Diagram and Structural Model

From Figure 1, it can be seen that there is a causal relationship or influence between exogenous latent constructs and endogenous latent constructs. It can be seen that the welfare variable (Y_5) is influenced by the level of food security (Y_4) of 0.881. Meanwhile, the

Food Security Level (Y4) was more dominantly influenced by the Behavior Change variable (Y3), with an effect of 0.531. Meanwhile, Behavior Change (Y3) increased due to the Participation variable (Y2) role, with an effect of 0.789. In this case, the Participation variable (Y2) is more dominantly influenced by the Extension Officer (Y1), with an effect of 0.336. Furthermore, the role of the extension worker (Y1) was more dominantly influenced by the Innovation variable (X2), namely with an influence of 0.531, X2.3 (Complexity) with the highest loading factor of 0.845.

Based on the path pattern from the SEM-GSCA Path Diagram (Figure 1), it can be concluded that the Key Factor in improving Welfare (Y5), then based on the statistical recommendations in the discussion of the previous paragraph, the management decision/policymakers can prioritize improvement Innovation (X2), where the key to high innovation, in this case, is the level of complexity (X2,3 indicator). Therefore Role Extension officers (Y1) are needed therefore they will increase Participation (Y2). The higher the Quality of Participation in Participation, the higher the quality of Behavior Change (Y3). Thus, Behavioral Change (Y3) will increase the Level of Food Security (Y4), which will ultimately realize Welfare (Y5).

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 in Table 5.

Table 5 – Indirect effects between latent variables

Indirect Influence	Calculation	Result	CR	p-value	Information
Factors of Production (X1) on Participation (Y2) through the Role of Extension Officers (Y1)	0.089×0.336	0.030	1.525	0.129	Not significant
Innovation (X2) on Participation (Y2) through the Role of Extension Officers (Y1)	0.368×0.336	0.124	3,001	0.003	Significant
Post-Harvest (X3) on Participation (Y2) through the Role of Extension Officers (Y1)	0.163×0.336	0.055	2,008	0.046	Significant
Marketing (X4) on Participation (Y2) through the Role of Extension Officers (Y1)	0.324×0.336	0.109	2,913	0.004	Significant
The Role of Institutions (X5) on Participation (Y2) through the Role of Extension Officers (Y1)	0.13×0.336	0.044	2,071	0.040	Significant
Participation (Y2) on Food Security Levels (Y4) through Behavior Change (Y3)	0.789×0.531	0.419	3,838	0.000	Significant
Behaviour Change (Y3) towards Welfare (Y5) through Food Security Level (Y4)	0.531×0.881	0.468	3,894	0.000	Significant

Figure 2 – The household food security model of corn farmers through the role of extension officers in Dompu District - Indonesia

Based on the Table 5, it was known that there is an indirect effect between latent variables. The indirect effect of the Production Factor variable (X1) on Participation (Y2) through the Role of the Extension Officers (Y1) is 0.03 with t-statistics of 1.525 (Not Significant). The indirect effect of the Innovation variable (X2) on Participation (Y2) through the Role of Extension Officers (Y1) is 0.124 with t-statistics of 3.001 (Significant). The indirect effect of post-harvest variables (X3) on participation (Y2) through the role of extension officers (Y1) is 0.055 with t-statistics of 2.008 (Significant). The indirect effect of the Marketing variable (X4) on Participation (Y2) through the Role of Extension Officer (Y1) is 0.109 with t-statistics of 2.913 (Significant). The indirect effect of the Institutional Role variable (X5) on Participation (Y2) through the Role of Extension Officers (Y1) is 0.044 with t-statistics of 2.071 (Significant). The indirect effect of the Participation variable (Y2) on the Level of Food Security (Y4) through Behavior Change (Y3) is 0.419 with t-statistics of 3.838 (Significant). The indirect effect of the Behavior Change variable (Y3) on Welfare (Y5) through Food Security Level (Y4) is 0.468 with t-statistics of 3.894 (Significant).

Based on the analysis of the household food security model of corn farmers, it can be seen that the factors that influence food security are participation, the role of extension officers and behaviour change. Therefore the household food security model of corn farmers through the role of extension officers in Dompur Regency is described in Figure 2.

Figure 2 explained that community participation in achieving food security is supported by production and post-harvest factors. Participation can directly affect food security, but it can also not ignore the role of extension officers. The role of extension officers needs innovation and marketing support and must be able to change behaviour to achieve food security to achieve farmer welfare.

CONCLUSION AND SUGGESTIONS

The potential of the agricultural sector in Dompur Regency is as follows:

- (a) In achieving household food security of maize farmers in Dompur Regency, the most potential to be developed is the increase in agricultural production;
- (b) Food commodities mostly cultivated in Dompur Regency are rice, corn, cassava, sweet potatoes, and peanuts;
- (c) The number of planted area and the highest production of food crops are corn;
- (d) Horticultural commodities mostly cultivated in Dompur Regency are spinach, mustard greens, long beans, cucumbers, and kale; this can be seen from the amount of production and the wider planting area of other horticultural commodities;
- (e) The types of livestock mostly cultivated in the Dompur Regency are cattle, buffalo, chickens, ducks, and horses. The highest meat production comes from broilers.

Factors related to the food security of farmers' households are participation, the role of extension workers and behaviour change which is supported by innovation, production factors, post-harvest and marketing.

Alternative models of household food security for maize farmers through the role of extension officers in Dompur Regency are: Welfare (Z) is influenced by the level of food security (Y4), where the level of food security (Y4) is more dominantly influenced by behaviour change (Y3), while community empowerment (Y2) is not directly significant in influencing the level of food security (Y4), but will be able to have a significant effect when going through the behavioural change variable (Y3). In addition, participation (Y1) does not directly affect the level of food security (Y4).

However, it will have a significant effect when through community empowerment (Y2) and behaviour change (Y3). Community empowerment (Y2) is dominated by the influence of participation (Y1), where participation (Y1) is dominated by the influence of Innovation (X2) and post-harvest (X3).

The agricultural development strategy to achieve household food security for maize farmers in Dompur Regency is a strategy I, namely the aggressive strategy. By utilizing the opportunities and strengths, they have for developing agricultural potential in Dompur Regency, which includes:

- (a) Improve the quality of agricultural, human resources, both farmers and extension workers through quality extension;
- (b) Increase agricultural production through intensive land use;
- (c) It is increasing the added value of agricultural production with the use of technology.

Suggestions to achieve the realization of food security for corn farmers in the Dompu Regency, it is necessary to optimize the development of agricultural resource potential and support for production facilities, capital, extension, innovation, and market guarantees. Policy on land protection and other agricultural business actors is necessary to carry out further research on food security institutions and extension that supports the development of food security in Dompu Regency—increasing the added value of agricultural production with the use of technology. Suggestions to achieve the realization of food security for corn farmers in the Dompu Regency, it is necessary to optimize the development of agricultural resource potential and support for production facilities, capital, extension, innovation, and market guarantees. Policy on land protection and other agricultural business actors is necessary to carry out further research on food security institutions and extension that supports the development of food security in Dompu Regency—increasing the added value of agricultural production with the use of technology. Suggestions to achieve the realization of food security for corn farmers in the Dompu Regency, it is necessary to optimize the development of agricultural resource potential and support for production facilities, capital, extension, innovation, and market guarantees. Policy on land protection and other agricultural business actors is necessary to carry out further research on food security institutions and extension that supports the development of food security in the Dompu Regency.

CONFLICT OF INTERESTS

Authors clearly declare that they have no competing interests.

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