Vietnam Journal of Agricultural Sciences

ISSN 2588-1299

VJAS 2024; 7(2): 2146-2159
https://doi.org/10.31817/vjas.2024.7.2.05

Factors affecting members' satisfaction with the quality of support activities of cooperatives: A case of horticultural cooperatives in Son La province, Vietnam

Le Thi Minh Chau[1*], Nguyen Dang Hoc[1], Ngo Thi Thu Hang[2] & Tran Quang Trung[1]

[1]Faculty of Accounting and Business Management, Vietnam National University of Agriculture, Hanoi 131000, Vietnam

[2]Faculty of Accounting and Auditing, University of Economics and Business - Vietnam National University, Hanoi 100000, Vietnam

Abstract

This study explored the factors affecting members' satisfaction with the quality of support activities of cooperatives using data collected from 301 members of horticultural cooperatives in Son La province. The study applied the SEVERQUAL concept and cooperative principles to develop the research model. Exploratory factor analysis (EFA) and the regression model were used for data analyses. Members' satisfaction with the quality of the support activities of the cooperatives was specifically evaluated by measuring members' satisfaction with collective input purchasing; collective marketing; self-help activities; support activities for directly receiving government support; and capacity-building activities. It was found that "Responsiveness" was the prominent factor, followed by the "Assurance and Reliability", "Empathy", "Competency of cooperative managers", and "Tangibles" factors, which were found to positively affect the members' satisfaction with the quality of the support activities of the cooperatives. To enhance the members' satisfaction with the quality of the support activities of the cooperatives, the responsiveness of cooperative managers to market risks; social relationships among members; members' awareness about voluntary participation opportunities in the cooperatives; competency of managers in management and negotiation; internal control systems of the cooperatives; involvement of members in the decision-making process; investment of equipment with internet connections; and the number of members should be improved.

Keywords

Cooperative, member, satisfaction, market risk

Received: September 8, 2023
Accepted: June 3, 2024

Correspondence to
ltmchau@vnua.edu.vn

Introduction

In recent years in Vietnam, like in many other developing countries, the cooperative model has developed, especially in the

agricultural sector as it serves an important role in supporting farmers and agricultural production (Ortmann & King, 2007; Getnet & Anullo, 2012; Ma *et al.,* 2018; Wang *et al.,* 2019). The main objective of cooperative activities is primarily to benefit its members. The studies of Khong Tien Dung & Do Thi Hoai Giang (2021) and Hang *et al.* (2023) showed that by participating in a cooperative, cooperative members often receive more benefits from the cooperative's support activities than those who do not join a cooperative. Firstly, cooperative members can buy inputs (seeds, fertilizers, animal feed, etc.) at lower prices and of better quality than buying individually. Secondly, members receive support from the government in accessing new production techniques, physical support, and market information more easily and quickly than farmers who do not join a cooperative. Thirdly, cooperative members can support each other in sharing production and marketing information, exchanging labor, etc. Therefore, the members' satisfaction with the cooperative is an important factor in retaining the members of the cooperative and maintaining the existence of the cooperative. In other words, the success of a cooperative is shown through the satisfaction level as well as the long-term commitment of the members to the cooperative (Bruynis *et al.*, 2000; Liebrand & Ling, 2014; Hun *et al.*, 2017). The operating principles of the cooperative also refer to how willing the members are to volunteer when joining the cooperative as well as leaving the cooperative (ICA, 2023). Hence, when the expectations of the members are not satisfied when joining a cooperative, they will easily leave the cooperative at any time.

Cooperative member satisfaction measures the gap between the benefits received after joining the cooperative and previous expectations (Aguda *et al.,* 2022). If the actual result is lower than the expectations, the farmer is not satisfied. Vice versa is also true in that if the actual results match or exceed expectations, the member will be satisfied and value the benefit of being a member of the cooperative. In the agricultural production context, satisfaction is conceptualized as the fulfillment of the farmers' prior expectations of the quality of the cooperatives' services, especially with agricultural extension and marketing activities (Ekepu *et al.*, 2017). As a result, satisfied farmers are more willing to join the services offered by the cooperatives and to inform others about the benefits they receive (Golrang *et al.,* 2012; Liebrand & Ling, 2014).

Son La is a province in the northern mountainous region of Vietnam and has many advantages for agricultural production. The production value of agriculture in Son La in 2022 accounted for about 25% of the GRDP of this province. In recent years, agricultural cooperatives have greatly contributed to the development of agricultural commodity production in Son La province. From 2015 to now, Son La has been one of the ten provinces with the most significant number of cooperatives in the country. According to the Son La Cooperative Alliance (SLCA, 2022) and the Son La Department of Agriculture and Rural Development (SLDARD, 2022), in the year 2022, the number of cooperatives in Son La province was 680, of which about 587 were agricultural cooperatives (85%). Among the 578 agricultural cooperatives, there were 336 horticultural cooperatives, 78 livestock and aquaculture cooperatives, and 164 agricultural service cooperatives.

Previous studies have shown that farmers participating in cooperatives receive a lot of benefits through various support activities such as collective input purchasing, collective marketing, self-help activities, receiving government support, and capacity building, among others. Therefore, the farmers' incomes improved as compared to before they began participating (Le Thi Minh Chau *et al.,* 2020; Hang *et al.,* 2022). However, the planning for agricultural cooperative development indicates that the proportion of farmers participating in a cooperative is low, with less than 40% of the total number of farmers in Son La province participating (Son La People's Committee, 2023). Thus, the arising question is: if the members' satisfaction with the support from the agricultural cooperatives is limited, does this lead to a low proportion of farmers participating in the cooperatives?

So far in Vietnam, there have been only a few studies on the satisfaction of cooperative members with their cooperative's performance. There has not been any research evaluating members' satisfaction with the quality of support activities of the cooperatives in mountainous locations like Son La province. As mentioned above, horticultural cooperatives dominantly occupy the total number of cooperatives in Son La province and also provide the main proportion of agricultural commodities to markets. Therefore, this study was conducted to identify the internal factors affecting the members' satisfaction with the quality of the support activities of the horticultural cooperatives in Son La province, thereby allowing for the proposal of solutions for cooperatives to improve satisfaction for cooperative members.

Research Methodology

Research model

Based on findings of previous studies on the cooperatives conducted in Son La province (Le Thi Minh Chau *et al.*, 2020; Hang *et al.*, 2022), this study measured member satisfaction with support activities using five specific observed variables: satisfaction with collective input purchasing; satisfaction with collective marketing; satisfaction with self-help activities; satisfaction with support activities for directly receiving government support; and satisfaction with capacity building activities.

In addition, research focusing on the perception of service quality and customer satisfaction has widely applied the SEVERQUAL concept (Parasuraman, 1985). The study factors influencing household satisfaction with training methods on technological applications in rice cultivation showed that farmers' satisfaction was influenced by assurance, reliability, empathy, and tangibles (Nguyen Quoc Nghi *et al.*, 2011). Do Minh Hoang & Tran Hoai Nam (2018) showed that tangibles and responsiveness have no influence, but satisfaction with the service quality of the agricultural extension program was influenced by factors such as assurance, reliability, and sympathy. Truong (2022) found that assurance, reliability, and empathy were important factors affecting farmers' satisfaction with the quality of agricultural extension services. Dung & Giang (2021) indicated that farmers' satisfaction was determined by factors such as assurance, scale efficiency, responsibility and competency of the management board, improvement of income, and employment.

The research model of this study identified factors affecting the quality of support activities based on the SEVERQUAL concept. Moreover, the research model was also developed based on the cooperative principles defined by ICA (2023). The research model is presented in **Figure 1**. This study selected the six following internal variables/factors to measure the quality of support activities:

"Assurance" is the knowledge and courtesy of employees and their ability to convey trust and confidence. Therefore, efforts to create and retain customers must be the top priority in the cooperative to gain loyal customers. In a cooperative organization, customers are the members themselves. Therefore, this study was also based on the characteristics of the farmers living in the study site to develop observed variables. The three observed variables reflecting "Assurance" were close social relationships between managers and members; honesty of managers and members; and voluntary participation in the cooperative.

"Empathy" is the provision of caring, individualized attention to customers. This study selected three observed variables, namely the enthusiasm of the managers to give support; the willingness of members to give help; and the willingness of members to be involved in the decision-making process.

"Responsiveness" concerns the willingness or readiness of employees to provide service. This study selected three observed variables as follows: providing timely information; solving problems in a timely manner; and regularly providing support activities.

"Reliability" is the ability to perform a promised service dependably and accurately. Three observed variables were selected as follows: support activities are based on

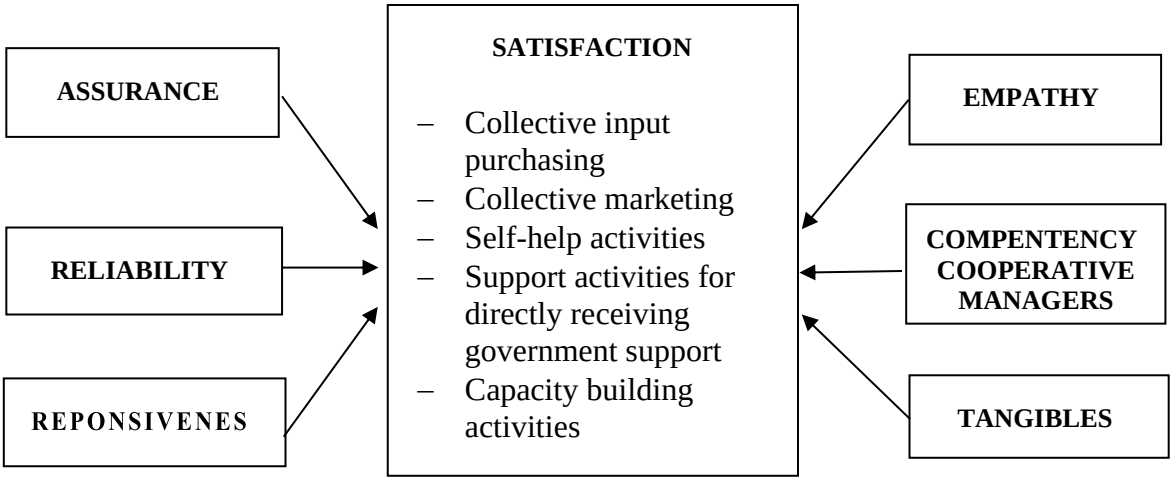

Figure 1. The research model focusing on members' satisfaction with the quality of the support activities of the horticultural cooperatives in Son La province

members' needs; convenience; and support activities operate under internal control systems.

"Competency of cooperative managers" is the knowledge, skills, and attitudes necessary to manage cooperative activities successfully, and has been shown to be an important factor in a cooperative's performance (Thuvachote & Phet-phong, 2014). Therefore, the competency of the managers is very important to give more support to members. A manager who understands the tasks and functions to be performed has a friendly personality, has a sense of responsibility, and has built good relationships with other members will be a valuable asset. The more frequent the involvement of managers in strategic planning, and meetings, and the higher level of job satisfaction positively affect the profitability of cooperatives (Zivkovic & Hudson, 2015). Five observed variables were selected, namely knowledge of production; marketing, and management; communication skills; negotiation skills; and teamwork skills.

"Tangibles" consist of the physical evidence of the service including physical facilities; the appearance of personnel; and the tools or equipment used to provide the service. In addition, some previous studies have shown that the number of members also affected cooperative performance (Nyoro & Ngugi, 2007; Tri, 2022). This study selected four observed variables to measure tangibles, namely physical assets; model equipment connecting to the internet; the website of the cooperatives; and the number of members.

In addition, based on the previous research findings of Le Thi Minh Chau *et al.* (2020) and Hang *et al.* (2022) related to cooperatives in Son La, five indicators consisting of collective input purchasing; collective marketing; self-help activities; support activities for directly receiving government support; and capacity building activities were chosen to represent the members' satisfaction with the quality of support activities. This study expected that "Assurance", "Empathy", "Responsiveness", "Reliability", "Competency of cooperative managers", and "Tangibles" will be positively correlated to members' satisfaction with the quality of the support activities of the horticultural cooperatives.

A description of the variables and observed variables used in the research model is presented in **Table 1**.

Data collection

Using the Taro formula (Taro, 1967), the sample size of cooperative members was computed as follows:

$$n = \frac{N}{1 + N * e^2}$$

where n is the sample size; N is the population size; and e is the margin of error (5%). This study randomly selected 77 horticultural cooperatives from a population of 336 horticultural cooperatives in Son La province.

Table 1. Description of the variables used in the research model

Description of variables (factors) and observed variables (items)		Code of observed variables	References
1 dependent variable (including 5 dependent observed variables)			
Satisfaction	The quality of collective input purchasing partly contributes to each member's satisfaction.	SAT1	Le Thi Minh Chau *et al.* (2020); Hang *et al.* (2022)
	The quality of collective marketing partly contributes to each member's satisfaction.	SAT2	
	The quality of self-help activities partly contributes to each member's satisfaction.	SAT3	
	The quality of support activities for directly receiving government support partly contributes to each member's satisfaction.	SAT4	
	The quality of capacity-building activities partly contributes to each member's satisfaction.	SAT5	
6 independent variables (including 21 independent observed variables)			
Assurance	A close social relationship between managers and members (due to living in the same commune) creates trust for cooperation among members.	ASS1	Parasuraman *et al.* (1985); Truong, (2022); ICA (2023)
	The honesty of managers and members creates trust for cooperation among members.	ASS2	
	Voluntary participation of members in the cooperative creates trust and willingness for cooperation among members.	ASS3	
Empathy	Cooperative managers are enthusiastic about giving support to members.	EMP1	Parasuraman *et al.* (1985); Khong Tien Dung & Do Thi Hoai Giang (2021); Anh (2022); Truong (2022); ICA (2023)
	Cooperative members are willing to help others for better cooperation among members.	EMP2	
	Members are willing to be involved in the decision-making process of their cooperative.	EMP3	
Responsiveness	The cooperative provides timely information on production, marketing, training, and government support programs to members.	RES1	Parasuraman *et al.* (1985); Khong Tien Dung & Do Thi Hoai Giang (2021); Truong (2022)
	The cooperative promptly solves any problems related to support activities that members are unclear about.	RES2	
	The cooperative regularly provides support activities.	RES3	
Reliability	Support activities are based on members' needs.	REL1	Parasuraman *et al.* (1985); Khong Tien Dung & Do Thi Hoai Giang (2021); Kassem *et al.* (2021); Truong (2022)
	Support activities are convenient in terms of instructions, place, and time for members to access.	REL2	
	Support activities operate under the internal control systems of the cooperative to provide better support for members with information transparency.	REL3	
	The cooperative's managers with knowledge of production, marketing, and management create more support for members.	CM1	Tarekegn (2017);

Description of variables (factors) and observed variables (items)		Code of observed variables	References
Competency of Cooperative managers	The cooperative's managers with good communication skills provide more support to members.	CM2	Khong Tien Dung & Do Thi Hoai Giang (2021)
	The cooperative's managers with close social relationships have timely access to information on government policies and support programs.	CM3	
	The cooperative's managers with negotiation skills effectively provide more support for members.	CM4	
	The cooperative's managers with teamwork skills have abilities to motivate and encourage members to participate in all activities.	CM5	
Tangibles	Cooperatives that own physical assets provide better support for members.	TAN1	Parasuraman *et al.* (1985); Khong Tien Dung & Do Thi Hoai Giang (2021); Tri (2022); Trung *et al.* (2023)
	Having modern equipment to connect to the internet that can be used by both cooperative managers and members rapidly provides information and support to members.	TAN2	
	Having a cooperative website increases the number of opportunities for selling products.	TAN3	
	Cooperatives with a large number of members provide better support (due to the reduction of transaction costs).	TAN4	

Source: Authors

For each cooperative, four members were invited to be interviewed. In total, 308 members were interviewed. However, 301 samples were used for data analyses due to the information bias of some samples. The data were collected in the year 2022. Respondents were asked to assess the observed variables based on a five-point scale. The ranges of answer options on the Likert scale were as follows: 1.00-1.80 - very dissatisfied; 1.81-2.60 - moderately dissatisfied; 2.61-3.40 - neither satisfied nor dissatisfied; 3.41- 4.20 - moderately satisfied; and 4.21-5.0 - very satisfied.

Data analysis

This research applied both exploratory factor analysis (EFA) and the regression model for data analyses with SPSS software support. Firstly, the reliability analysis was done. It is an indicator to measure the stability and consistency of the observed variables in the questionnaire. Cronbach's alpha, Kaiser-Meyer-Olkin (KMO), and Bartlett's tests were estimated in this step. Cronbach's alpha was used to measure the reliability and consistency of the observed variables. Following Schmitt (1996), Bland & Altman (1997), and Hair *et al.* (2010), a Cronbach's alpha coefficient that exceeds 0.6 indicates that the observed variables are reliable or have internal consistency. In addition, the KMO test presents the suitability of the data for EFA. A KMO value greater than 0.6 indicates the adequacy of each observed variable and the complete model. Bartlett's test examines whether or not the observed variables intercorrelate using the observed correlation matrix against the identity matrix. If the result is statistically insignificant, researchers should not employ EFA.

Secondly, EFA was conducted to extract the variables and observed variables used in the research model. As suggested by Hair *et al.* (2010), there were three requirements of the data analysis to retain variables in the research model: (i) Variables with eigenvalues greater than 1.0 were retained. Eigenvalues of a correlation

matrix were used in the EFA to determine the number of variables that should be retained in the research model without losing too much information; (ii) The cumulative variability of the variables retained in the research model was higher than 50%. The cumulative variability was presented in the total variance explained table, which showed how the variance was divided among the possible variables that could be used in the research model; iii) Observed variables with factor loadings greater than 0.5 were retained. Factor loading (or variable loading) interpreted the correlation of each observed variable and the factor.

Thirdly, to identify the internal factors affecting members' satisfaction with the quality of support activities of the cooperatives, an empirical regression model with standardized variables was specified as $Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \varepsilon$, where: Y denotes the independent variable (members' satisfaction); α denotes the intercept; β_i are the coefficients of the independent variables to be estimated; X_i are the independent variables (factors affecting members' satisfaction with the quality of support activities of the cooperatives); and ε is the error term. The scores of Y and X_i were automatically selected by the SPSS software in the "Dimension Deduction in Factor Analysis" step.

Results and Discussion

Demographic and economic characteristics of the surveyed cooperatives and surveyed members

Of the 77 surveyed cooperatives, the proportions of cooperatives growing vegetables, fruit trees, and herbal crops were 28%, 57%, and 14%, respectively. The number of members of each cooperative ranged from 7 to 15 persons. The number of management staff of each cooperative was from 3 to 4 persons. The proportions of managers who had obtained a bachelor's degree, college degree, high school degree, and secondary school degrees were 3.1%, 15.5%, 67.7%, and 13.3%, respectively. In general, managers mainly participated in short-term training courses in cooperative management organized by the local authorities. Most of them lacked experience in cooperative management. In terms of the value of assets, the average value of assets owned by cooperatives was 1,300 million VND, ranging from 600 million to 2,800 million VND.

Only about 46% of the surveyed cooperatives had trucks for product transportation. About 76% of the surveyed cooperatives owned computers used for accounting and management. Regarding the surveyed members, the average age of members was 45 years old. The average area of arable land of each member was about 1.3 hectares, varying from 0.5 to 3 hectares. The average income from growing vegetables was 390 million VND/hectare, varying from 260 million VND/hectare to 410 million VND/ hectare. The average income from fruit trees was 250 million VND/hectare, varying from 200 million VND/hectare to 400 million/hectare. The average income from herbal crops was 200 million VND, varying from 180 million/hectare to 230 million VND/hectare. Most respondents indicated that their income from crop production was higher than before they began participating in a cooperative because they were provided support from their cooperative.

The mean values of specific satisfaction ranged from 4.16-4.39, with an overall mean of 4.30. The results revealed that members had a relatively high satisfaction with the support activities provided by the horticultural cooperatives (**Table 2**).

In terms of collective input purchasing, the quality of this activity was evaluated by reductions in the purchasing costs of seeds and fertilizers; the quality of seeds and fertilizers, and convenience of payment. Collective purchasing inputs may be considered an easy activity because many input sellers are available in the market. The mean value of member satisfaction was 4.39, and was ranked as the highest level of satisfaction among the five indicators.

Members participating in the cooperatives were expected to improve their marketing activities to sell a high volume of their products at stable and reasonable prices. The quality of collective marketing was reflected by the quality

Table 2. Description of members' satisfaction with the quality of support activities

Criteria of members' satisfaction	Percentage of satisfaction by levels (%)					Mean of satisfaction
	1	2	3	4	5	
Collective input purchasing	0	0.3	9.3	41.2	49.2	4.39
Collective marketing	0.3	0.3	12	47.8	39.5	4.26
Self-help activities among members	0	0.3	12.3	40.9	46.5	4.34
Support activities for directly receiving government support	0	1	14	53.2	31.9	4.16
Capacity-building activities for members	0	0.7	9.3	43.2	46.8	4.36

Note: 1. Very dissatisfied; 2. Moderately dissatisfied; 3. Neither satisfied nor dissatisfied; 4. Moderately satisfied; and 5. Very satisfied.

of several specific activities, including trade-mark registration, traceability stamp printing, packaging, product sales through contracts, and a reduction of transportation costs. The mean value of member satisfaction was 4.26, of which 47.8% and 39.5% of members were moderately satisfied and very satisfied, respectively.

Regarding the capacity-building activities for members, these activities included enhancing skills for short-term business planning; price bargaining power; production risk management; and accounting bookkeeping. The mean value of member satisfaction was 4.36, of which 43.2% and 46.8% of members were moderately satisfied and very satisfied, respectively.

People in cooperatives also helped each other and received mutual benefits. In Son La province, the self-help activities among members normally consisted of borrowing money from each other for short-term periods, exchanging labor, and sharing information. The mean value of member satisfaction was 4.43, of which 40.9% and 46.5% of members were moderately satisfied and very satisfied, respectively.

In Son La province, members participating in cooperatives not only received government support through cooperatives but also directly obtained physical support (such as poly pipe irrigation systems, net houses for crop production, etc.) and access to credit at a low-interest rate. Members who normally were good at their production management were selected by the cooperatives to receive direct support. However, the mean value of members' satisfaction was 4.16, which ranked as the lowest level of satisfaction among the five indicators because the farmers spent a lot of time to complete paperwork in order to receive support.

Reliability analysis and exploratory factor analysis

Reliability analysis and exploratory factor analysis were implemented separately for the dependent variable (the five observed dependent variables) and six independent variables (the 21 observed independent variables). The detailed results from the SPSS output are not presented here but highlights can be found in **Tables 3 and 4**.

The reliability analysis results showed that Cronbach's alpha computed from the correlation coefficients for the dependent variable and independent variables were 0.84 and 0.9, respectively, indicating a very good internal consistency. In addition, the coefficient of the KMO values of the dependent variable and independent variables were 0.822 and 0.779, respectively. Both the dependent variable and independent variables had a significant Bartlett's test coefficient of 0.000. These together indicated that EFA was appropriate to apply in the study.

EFA for the dependent variable showed that the five observed dependent variables had eigenvalues greater than 1 and a cumulative variability of 61% (greater than 50%), and therefore were retained to use in the research model. None of the five observed dependent variables were excluded from the research model.

EFA for the independent variables showed that five of the dependent variables (with

Table 3. Rotated factor matrix

19 observed independent variables (items)	Independent variables (factors)					5 independent variables (factors) (after conducting exploratory factor analysis)
	1	2	3	4	5	
TAN4	.914					Tangibles (TAN)
TAN2	.908					
TAN3	.898					
TAN1	.814					
CM2		.814				Cooperative managers (CM)
CM3		.780				
CM1		.741				
CM5		.685				
CM4		.627				
ASS3			.766			Assurance and Reliability (ASS-REL)
REL2			.763			
REL1			.746			
REL3			.741			
RES2				.874		Response (RES)
RES3				.819		
RES1				.713		
EMP1					.819	Empathy (EMP)
EMP2					.806	
EMP3					.771	

eigenvalues greater than 1 and a cumulative variability of 71.7%) were extracted from the six independent variables. In addition, two observed variables (ASS1 and ASS2) were excluded from the research model because their factor loadings were lower than 0.5. Finally, five independent variables (19 observed independent variables) were retained in the research model. "Responsiveness", "Empathy", "Tangibles", and "Cooperative managers" were retained. "Assurance" and "Reliability" were combined to create one variable and its new code was "ASS-REL". **Table 3** presents the rotated factor matrix of the five dependent variables that were expected as internal factors to affect members' satisfaction with the quality of support activities.

After conducting exploratory factor analysis, Cronbach's Alpha was used again to measure the reliability and consistency of the 19 observed independent variables. The results showed a very good internal consistency. Detailed information on the reliability analysis of the "Assurance and Reliability" variable is presented in **Table 4**.

Analysis of the internal factors affecting the members' satisfaction with the quality of the support activities of the cooperatives

The results in **Table 5** show the factors affecting the members' satisfaction with the quality of the support activities. The variance inflation factor (VIF) was used to test for multicollinearity among the independent variables in the model. It was found that multicollinearity did not exist as the VIF values were less than 2. An adjusted R^2 of 0.709 showed that 70% of the variation in the members' satisfaction with the quality of the support activities was explained by the five independent variables at the significance level of 1%.

Concerning the regression results, the β coefficients of all the variables were statistically significant and positive. This confirmed that "Assurance and Reliability", "Empathy", "Responsiveness", "Cooperative managers", and "Tangibles" positively correlated with the members' satisfaction with the quality of the support activities of the cooperatives.

Table 4. Reliability analysis of the "Assurance and Reliability" variable

Variable/factor	Cronbach's Alpha	Code of observed variables/ items	Corrected item-total correlation	Cronbach's Alpha if item deleted
Assurance and Reliability (ASS-REL)	0.837	REL1	.750	.755
		REL2	.506	.863
		REL3	.718	.772
		ASS3	.712	.774

Table 5. Regression results of factors affecting the members' satisfaction with the quality of the support activities

Variables (factors)	Beta coefficients	T value	Significant	VIF
X1 (Tangibles)	0.104	3.330	.001	1.000
X2 (Cooperative managers)	0.243	7.805	.000	1.000
X3 (Assurance and Reliability)	0.370	11.890	.000	1.100
X4 (Responsiveness)	0.651	20.924	.000	1.000
X5 (Empathy)	0.288	9.242	.000	1.100
R^2	0.709			
Sig. (F)	.000			

Regarding the "Responsiveness" factor, the responsiveness of the cooperative managers was based on personal responsibility to give support to members. "Responsiveness" positively affected members' satisfaction and had the highest effect on members' satisfaction with the quality of the support activities. Regarding specific evidence, most members indicated that cooperatives provided timely information on production, marketing, training and government support programs, and production inputs. The cooperatives also effectively solved the complaints of members (production input prices, procurement of crop products, etc.), which sometimes occurred. The survey information also showed that cooperative members who engaged in crop production quite often suffered from the risks of unseasonal weather, pests, diseases, and market risks of fluctuating prices, and therefore they expected the cooperatives to provide proper solutions in a timely fashion to reduce these risks. The cooperatives were able to reduce the risks of pests and diseases through local extension services. In addition, it was found that most cooperatives provided support activities based on members' needs and regularly provided support activities. Therefore, "Responsiveness" had the highest effect on members' satisfaction. This finding is supported by Arizal & Agus (2019). However, in Son La province, the horticultural cooperatives' responsiveness to the market risk of fluctuations in prices was a weakness that should be continuously improved.

The "Assurance and Reliability" factor was also positively correlated with members' satisfaction with the support activities of the cooperativities. This result can be explained through the following evidence: (i) Members indicated that close social relationships between the members and managers, and the honesty of the managers motivated both members and managers to put forth their best efforts in cooperation to achieve the cooperative objectives; (ii) Members agreed that the voluntary participation of members in the cooperative was a very important factor relating to their satisfaction with the support activities of the cooperatives. The voluntary participation of members created an assurance to accept the cooperatives' regulations. For example, when they submitted their plan on input purchasing to their cooperative in order to be provided with enough volume of productions as needed, or

when they followed the cooperative plan for annual crop production (allocated their cultivation land for crop cultivation in specific seasons as a requirement of the cooperative) to be provided with good support from the cooperative in terms of collective marketing; (iii) In addition, the convenience of support activities in terms of instructions, place, and time was also a very important indicator affecting the satisfaction of members; and (iv) Support activities of cooperatives with internal control systems (such as accounting works for providing financial information, monitoring activities for input purchasing activity, and marketing) provided information transparency and created more trust for their members. In other words, the cooperatives with internal control activities contributed to the members' satisfaction in terms of the benefits that members received.

Regarding the "Empathy" factor, the results indicated that in the study site, both members and managers put effort into improving the quality of support activities. Specifically, the cooperative managers were very enthusiastic about serving members who may not understand how to complete documents that must be completed when registering as members or submitting application forms to collectively buy production inputs and collectively sell their products. Members were also willing to help others to improve cooperation among members. For example, members advised others to follow technical production standards to get standard requirements for products, which could create more profit for them all, and members provided market information to each other. In addition, the willingness of members to participate in the decision-making process of the cooperatives (such as attending meetings and giving proper solutions for the development of the cooperative) also affected the quality of support activities. However, it was found that the involvement of members in attending meetings and the decision-making process remained a weakness that should be improved. Members should be encouraged to express their opinions about solutions, both to improve the quality and acceptance of group decisions (Pornwisa *et al.*, 2020).

For the "Tangibles" factor, the results indicated that the cooperatives that owned physical assets (such as trucks and cool storage) provided better support for members because vegetables and fruits were quickly delivered to buyers and preserved in good condition, resulting in reduced product loss. Furthermore, most respondents agreed that modern equipment to connect to the internet (such as computers and smartphones) that could be used by both cooperative managers and members rapidly provided information on production, marketing, cooperative activities, and social information to members. Similarly, cooperative-owned websites increased opportunities for selling products, creating more benefits to members. The cooperatives cultivating strawberries, plums, and tea not only sold higher volumes of products but also increased their incomes from agri-tourism thanks to the availability of their websites. It was revealed that investments in physical assets and internet use in agricultural cooperatives is highly recommended for the cooperatives. In addition, cooperatives with a large number of members could provide better support to members due to the reduction of transportation costs of input purchasing and product selling. Tri (2022) also found that having more members was positively correlated with the economic performance of the cooperative.

In terms of "Competency of cooperative managers", the empirical results showed that the competencies of cooperative managers positively affected the members' satisfaction with the support activities of the cooperativities and were statistically significant at 1%. Based on the reasons indicated by respondents, this result can be explained by the fact that most cooperative managers who had obtained a high school degree, college degree, or bachelor's degree had a better ability to obtain managerial knowledge through short training courses organized by the local authorities and had a better response to dynamic management situations related to the support activities of the cooperatives than those who had a lower education degree. Furthermore, the cooperative managers with good communication skills could disseminate information on membership rights, duties, and

responsibilities to gain strong membership cooperation for the success of the support activities of the cooperative. In addition, because Son La province is a mountainous region, many cooperatives are located far from the commune office, and therefore the cooperative managers with close social relationships (such as relationships with local organizations and friends) were able to access information on government policies and support programs in a timely manner compared to others.

Similarly, cooperative managers with negotiation skills could provide good support to members because they could effectively work with input sellers or product buyers to negotiate better prices for their members. Teamwork skills were also an essential competency of cooperative managers influencing the attitudes and behaviours of members to achieve the desired goals of the support activities of the cooperatives.

Solutions

The study results found that to enhance members' satisfaction with the quality of the support activities of the horticultural cooperatives in Son La province, the "Responsiveness", "Assurance and Reliability", "Empathy", and "Tangibles" factors should be improved simultaneously.

To improve "Responsiveness," capacity-building for managers in response to market risk should be enhanced. Specifically, managers' knowledge of both domestic and international standards requirements of crop products, traceability, and contract farming should be enhanced for better responses to the market risks of selling the cooperatives' horticultural products.

In terms of "Assurance and Reliability", social relationships among the members of communities should be continuously improved to create trust and motivation to develop cooperation among members in each cooperative. Awareness about voluntary participation opportunities of members in the cooperative should be improved to educate farmers through training or media and communication equipment for better cooperation, resulting in a better quality of support activities. The cooperative should provide support activities based on the needs of members. In addition, the cooperatives should improve internal control systems, which would have a positive effect on the trust of members and increase their satisfaction.

To improve "Empathy", both members and managers should be aware that being enthusiastic about all activities organized by their cooperative is very important for the success of all activities and improves the quality of the support activities. The cooperative managers should encourage members to be involved in the decision-making process to improve the quality of the support activities.

In terms of "Competency of cooperative managers", the findings indicated that cooperative managers should actively self-improve their competency in running their cooperative and improve their skills in management, social relationships, negotiation, and teamwork.

The findings about a positive correlation between "Tangibles" and the members' satisfaction with the quality of the support activities indicated that the capital contributions of members are not a very important requirement for members participating in a cooperative, but capital contributions are needed to create the financial source to purchase transportation and to invest in model equipment to connect to the internet to provide better support for members. Members of cooperatives that lack transportation and equipment should contribute capital to receive better support from the cooperatives. A cooperative with a large number of members could take advantage of economies of scale to reduce transaction costs for members. The cooperative managers should pay attention to the increase in the number of members of their cooperative.

Conclusions

In Son La province, horticultural cooperatives play an important role in facilitating production, marketing, generating income, and

enhancing the capacity of members. According to the perceptions of respondents, it can be concluded that the members' satisfaction with the quality of the support activities of the cooperatives was relatively high. It was also found that "Responsiveness" was the prominent factor, followed by the "Assurance and Reliability", "Empathy", "Competency of cooperative managers", and "Tangibles" factors, which were found to positively affect the members' satisfaction with the quality of the support activities of the cooperatives. To enhance the members' satisfaction with the quality of the support activities of the horticultural cooperatives in Son La province, the responsiveness of cooperative managers to market risks; social relationships among members; members' awareness about voluntary participation opportunities in the cooperative; competency of managers in management and negotiation; internal control systems of the cooperatives; involvement of members in the decision-making process; investment of equipment with internet connections; and the number of members should be improved.

References

Anh T. T. (2022). Factors affecting member's satisfaction with high-tech agriculture cooperatives in Vietnam's northern key economic region. International Journal of Professional - Business Review. Retrieved from https://openaccessojs.com/JBReview/article/view/735 on August 2, 2023.

Aguda M. I. D., Amestoso N. T. & Casinillo L. (2022). Service quality and farmer-beneficiaries satisfaction on the Plant-Now-Pay-Later Program of Baybay City agriculture office. Review of Socio-Economic Research and Development Studies. 6(1): 1-18.

Arizal N. & Agus S. (2019). The effect of service quality on satisfaction and its impact on loyalty of cooperative members. Russian Journal of Agricultural and Socio-Economic Sciences. DOI: 10.18551/rjoas.2019-11.32.

Bland J. M. & Altman D. G. (1997). Statistical notes: Cronbach's alpha. BMJ. 7080(314). DOI: 10.1136/bmj.314.7080.570.

Bruynis C. L., Goldsmith P. D., Hahn D. E. & Taylor W. J. (2000). Key success factors for emerging agricultural marketing cooperatives. Journal of Cooperatives. 16: 14-24.

Le Thi Minh Chau, Ngo Thi Thu Hang, Phi Thi Diem Hong, Hoang Thi Mai Anh & Nguyen Thi Dao (2020). Development of cooperatives in Sơn La Province. Science Research funded by Son La province (in Vietnamese).

Khong Tien Dung & Do Thi Hoai Giang (2021). Analysis of farmers' satisfaction when participating in the agricultural cooperatives in Hau Giang province. Can Tho University Journal of Science. 57(6): 275-283 (in Vietnamse).

Hang N. T. T., Chau L. T. M., Hai V. T., Hong P. T. D. & Trung T. Q. (2022). Why government support is not so effective to boost the performance of cooperatives: a case study of Sonla province, Vietnam. The International Society for Southeast Asian Agricultural Sciences. 28(1). Retrieved from http://issaasphil.org/wp-content/uploads/2022/06/9.-Hang-et-al.-2022.-Performance-of-cooperatives-FINAL.pdf on August 2, 2023.

Hang N. T. T., Phuong M. L., Cuong T. H. & Lebailly P. (2023). How Do Cooperatives Support Their Members in Managing Aquaculture Risks? The Case Study of the Northern Coastal Provinces of Vietnam. Journal of Entrepreneurial and Organizational Diversity. 12(1): 56-74.

Do Minh Hoang & Tran Hoai Nam (2018). Farmers' satisfaction with service quality of the agricultural extension program in Ninh Phuoc district, Ninh Thuan province. The Journal of Agriculture and Development. 17(4): 1-10 (in Vietnamese).

Ekepu D., Tirivanhu P. & Nampala P. (2017). Assessing farmer involvement in collective action for enhancing the sorghum value chain in Soroti, Uganda. South African Journal of Agricultural Extension. 45(1): 118-130.

Getnet K. & Anullo T. (2012). Agricultural cooperatives and rural livelihoods: Evidence from Ethiopia. Ann of Public and Cooperative Economics. Ann of Public and Cooperative Economics. 83(2): 181-198.

Golrang B. M., Lai F. S., Mohammad R., Kamurudin M. N., Abd Kudus K. & Mojgan M. (2012). Relationship Between of People's Satisfaction of Watershed Management Operations and Level of Their Participation. World Applied Sciences Journal. 20(11): 1554-1560.

Hair J. F., Back W. C., Babin B. J. & Anderson R. E. (2010). Multivariate Data Analysis (7th ed.). New York: Prentice-Hall.

Hun S., Isoda H., Amekawa Y. & Ito S. (2017). Factors Influencing Members' Perceptions of Success in Agricultural Cooperatives in Cambodia: A Case Study in Tram Kak District, Takeo Province. JEDS. 8: 2222-2855.

Liebrand C. B. & Ling K. C. (2014). Member satisfaction with their cooperatives: insights from dairy farmers. Research Report of USDA Rural Development - Rural Business Cooperative Service. Retrieved from https://ageconsearch.umn.edu/record/280116/ on August 2, 2023.

Ma W., Abdulai A. & Goetz R. (2018). Agricultural cooperatives and investment in organic soil amendments and chemical fertilizer in China American Journal of Agricultural Economics. 100(2): 502-520.

Nguyen Quoc Nghi, Le Thị Dịeu Hien, Hoang Thi Hong Loc & Tran Lam Hoang Yen (2011). Factors influencing household satisfaction with training methods on technological application on rice cultivation in Dong Thap province. Journal of Can Tho University. 17(b): 97-105 (in Vietnamese).

ICA (2023). Cooperative identity, values & principles. Retrieved from https://www.ica.coop/en/cooperatives/cooperative-identity on August 2, 2023.

Kassem H. S., Alotaibi B. A., Muddassir M. & Herab. A. (2021). Factors influencing farmers' satisfaction with the quality of agricultural extension services. Evaluation and Program Planning. 85(2021). DOI: 10.1016/j.evalprogplan.2021.101912.

Nyoro J. & Ngugi I. (2027). A Qualitative Analysis of Success and Failure Factors of Agricultural Cooperative in Central Kenya. Decentralization and the Social Economics of Development: Lessons from Keny. DOI/10.1079/9781845932695.0012.

Ortmann G. F. & King R. P. (2007). Agricultural Cooperatives I: History, theory and problems. Agrekon. 46(1): 40-68.

Schmitt N. (1996). Uses and abuses of coefficient alpha. Psychological Assessment. 8: 350-353.

Thuvachote S. & Phetphong N. (2014). The effects of manager's characteristics and perspectives on the financial performance of Thai agricultural cooperatives. Proceedings of International Academic Conferences. International Institute of Social and Economic Sciences. Proceedings of International Academic Conferences. International Institute of Social and Economic Sciences. Retrieved from https://ideas.repec.org/p/sek/iacpro/0100604.html on August 10, 2023.

Trung T. N., Manh H. D., Rahut D. B., Viet H. N. & Panharoth C. (2023). Female leadership, internet use, and performance of agricultural cooperatives in Vietnam. Annals of Public and Cooperative Economics. 94: 877-903.

Parasuraman A., Zeithaml V. A. & Berry L. L. (1985). A conceptual model of service quality and its implications for future research. The Journal of Marketing. 49: 41-50.

Pornwisa P., Jayant.K.R & Mokbul.M.A. (2020). Factors influencing farmers' satisfaction with the activities of horticultural cooperatives in Thailand. International Journal of Value Chain Management. 11(1):42. DOI: 10.1504/IJVCM.2020.10027217.

Taro Y. (1967). Statistics: An Introductory Analysis (2nd ed.). p. 919. Harper and Row, New York.

Truong D. D. (2022). Farming household's satisfaction with quality of agricultural extension services: A case study of Quang Binh province, Vietnam. Frontiers in Sustainable Food Systems. 5: 779477. DOI : 10.3389/fsufs.2021.

Tri P. M. (2022). Influencing factors of performance of agricultural cooperatives in the Vietnamese Mekong Delta. Journal of Agriculture and Rural Development in the Tropics and Subtropics. 23(1): 97-10.

SLCA (2022). Annual report of the Son La Cooperative Alliance (in Vietnamese).

SLDARD (2022). Annual report of the Son La Department of Agriculture and Rural Development (in Vietnamese).

Son La People's Committee (2023). Planning of 195/KH-UBND's the Son La People's Committee of Son La province (Implementation of No. 106/NQ-CP dated July 18, 2023 of the Government on agricultural cooperative development in restructuring agriculture and new rural construction). Retrieved from https://sonla.gov.vn/van-ban-phap-luat-ho-tro-doanh-nghiep/ke-hoach-so-195-kh-ubnd-trien-khai-thuc-hien-nghi-quyet-so-106-nq-cp-ngay-18-7-2023-cua-chinh-ph-721051 on August 2, 2023 (in Vietnamese).

Wang B. C., Cheng P. Y., Lee B., Sun L. C. & Chang H. H. (2019). Does participation in agricultural cooperatives affect farm sustainability? Empirical evidence from Taiwan. Sustainability. 11(18): 4987. DOI: 10.3390/su11184987.

Zivkovic S. & Hudson D. (2015). Impact of relationship between managers and board of directors on performance of agricultural cooperatives. Selected Paper prepared for presentation at the Southern Agricultural Economics Association. Annual Meeting, Atlanta, Georgia, January 31-February 3, 2015. Retrieved from https://ageconsearch.umn.edu/ on August 10, 2023.