THE DEGREE OF LINKAGE BETWEEN FARM HOUSEHOLDS AND ENTERPRISES OF THAI NGUYEN TEA PRODUCTION AND CONSUMPTION

Ngo Thi Huong Giang - Duong Thi Thuy Huong
Thai Nguyen University of Economics and Business Administration

Abstract

The paper used multiple regression models to evaluate the impact of factors on the degree of linkages between farm households and enterprises of Thai Nguyen tea production and consumption. The research results have shown that the level of their linkages is affected by the following factors: i} Signing a contract, ii) Sharing information and iii) General decision making.

Keywords: farm households, enterprises, the linkage between farm households and enterprises, tea production and consumption.

Introduction

Thai Nguyen is currently the largest tea production and acreage province in Vietnam. By the end of 2020, the tea area is estimated to reach 22,500 hectares, the productivity of fresh tea buds will reach more than 119 kilograms per hectare, and the output is 239 thousand tons. The tea tree of the province is having a stable production scale and increasing over the years. Tea production has been contributing to hunger eradication, poverty reduction, enrichment, the main income of more than 90,000 households, has made a great contribution to poverty reduction in rural areas, stabilization and economic development the socio-economic situation of Thai Nguyen province.

Over the past years, Thai Nguyen tea industry has achieved achievements, such as: There has been a change in the application of science and technology from seeding, planting techniques, tending, intensive farming. Thai Nguyen tea has been well-known in the country with tea growing places, such as Tan Cuong, La Bang, Trai Cai, ... However, there are still many problems. In all stages from production to consumption, such as production is fragmented, dispersed, backward, and not organized appropriately, so the potential economic value has not been fully promoted. Many farm households cannot sell tea or have to sell fresh tea at low prices, while enterprises lack raw materials for processing. Tea production, processing, and consumption are still highly individualistic, reflected in many tea growing households, planting, harvesting, and processing by themselves for self-sale. The linkage between the parties in the tea production and business process is both lacking and weak. The quality of Thai Nguyen tea products is not uniform, does not have a strong brand name, and has to go through many intermediaries before reaching the hands of consumers. Thai Nguyen tea is mainly consumed domestically, exported to foreign countries with a low proportion and low consumption value, low competitiveness, benefits to both farmers, businesses and the customer is still low. It leads to poor investment activities, reducing productivity, quality, increasing costs, and reducing competitiveness. To improve the competitiveness of tea products, increase benefits for farm households, enterprises, and customers, it is necessary to formulate a business model under linkage, thereby helping the tea production and trading activities to change both the position and force in the market. To improve the competitiveness of products, increase benefits for parties involved in production and consumption of products, change both the position and power in the domestic and foreign markets, it is necessary to establish and develop sustainably the linkage between farm households and enterprises in production and consumption of tea in Thai Nguyen province

Literature review

Duong Dinh Giam (2007), economic integration is an urgent need for current socio-economic development. Ho Que Hau (2012), the economic linkage is an economic institution aimed at implementing a kind of action coordination between independent and autonomous economic actors, voluntarily, negotiated, and benefit and trust each other; binding each other under a predetermined, long-term or regular plan; to stabilize and improve economic efficiency.

The linkage between farm households and enterprises in tea production and consumption is a form of economic linkage. It is the link of two parties during the operation, bringing benefits to all parties, regardless of the size or type of ownership. The linked parties can help each other in the selection of input materials for the production and business process, support each other in terms of capital and technology in the production and business process. To link together in the field of product consumption to avoid price pressure to increase strength in the competition.

According to Stock et al. (2000), linking geographically dispersed members is through contracts, information technology, and decision-making. Li et al. (1996), Boyaci and Gallego (2002), Piplani and Fu (2005), Zou et al. (2009), Wu and Ouyang (2003) indicated that coordination among parties on order quantity through coordination sharing, sharing information, and making general decisions. According to Jayaraman and Pirkul (2001), Pyke and Cohen (1993), Kim et al. (2006) linkage between parties in production and distribution is through joint decision-making. According to Goyal and Deshmukh (1992), Munson and Rosenblatt (2001), linkages between parties within integration in purchasing - production are represented by contracts and joint decision-making.

Although there are many different reviews on the factors that determine the degree of linkage between parties in the production and consumption of products, in general, they focused on three factors: signing contracts, sharing information, and making general decisions.

- Contract is a tool for better operation management and risk management. The goal of contracting is to reduce costs, increase profits, and share risks between parties.

- Information sharing: Participants and connect thanks to shared information and reciprocal planning, ensuring product quality and committed output transactions. Through information sharing allows stakeholders to react to market information and distribute them better suited to consumer needs. Besides, information sharing will increase the level of trust between farm households and enterprises.

- General decision-making: Decision-making activities between parties will help maintain the flow of information, rationally use the parties' resources in the process of supplying, producing, and consuming products, solving problems that arise during implementation, organizing strategic decision-making, and preparing plans.

Framework

From the reviews of research works and after exploratory factor analysis, the research uses a model to assess the degree of linkage between farm households and enterprises in tea production and consumption in Thai Nguyen province, as follows :
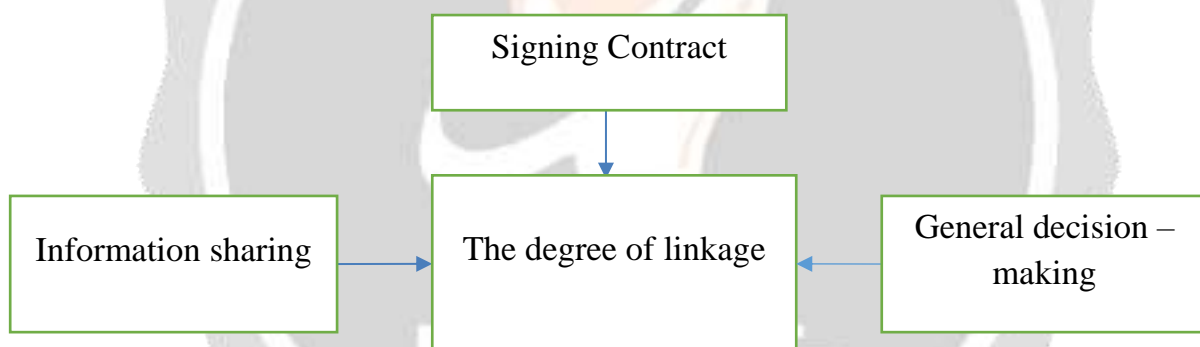

Figure 1: The degree of linkage between farm households and enterprises in the production and consumption of tea

Sources: Synthesis of research by authors

Methodology of research

Secondary data is collected through sources such as Books, newspapers, published publications, related published scientific topics of Vietnam and other countries around the world; Summary reports and relevant data and documents of Thai Nguyen Provincial People's Committee, Department of Agriculture and Rural Development, Department of Industry and Trade, Thai Nguyen Statistical Office, Thai Nguyen Tea Association; Legal documents of the State, Government and Thai Nguyen province related to the study.

The primary data were collected through sample interviews with farm households and tea enterprises in Thai Nguyen province. To achieve the research objectives, the survey site must be representative of the study area in terms of tea growing areas and the diversity of actors involved in tea production and trading. Through the survey and consultation with the Department of Agriculture and Rural Development and the Tea Association of Thai Nguyen province, the research selected Dai Tu, Dong Hy, and Thai Nguyen city as the locations for research and investigation. Because Dai Tu represents districts with large tea areas, Dong Hy represents districts with medium tea areas, Thai Nguyen represents districts with small tea areas, and these are also 3 localities with the climate and soil that are very suitable for tea cultivation in the province. These localities have all participants engaged in tea production and business, in which many tea businesses are concentrated. The sample size includes 360 farm households and 15 enterprises.

The study uses the quantitative analysis method, which is the Multiple Linear Regression (MLR) model to measure the relationship between the research problems: MLR model is used to determine the influence level of 3 factors: signing contracts, sharing information, and general decision-making factors to the degree of linkage between farm households and enterprises in producing and consuming of Thai Nguyen tea. We conducted multiple regression

analysis by SPSS 22.0 software to evaluate the relationship between the degree of association with the signing of the contract, the level of information sharing, and the number of general decision-making.

The multiple regression analysis models in the research are as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

Dependent variable

Y: The degree of linkage between farm households and enterprises of Thai Nguyen tea production and consumption

Indepentdent variables

X_1: Contract Signing.

X_2: Information sharing.

X_3: General decision-making.

The hypothesis:

H0: Contract signing, level of information sharing, number of general decision-making factors, and degree of linkage are independent of each other.

H1: Signing a contract, the level of information sharing, the number of general decision-making factors, and the degree of linkage have a dependence relationship.

The scale of dependent variables, independent variables, and explanation of parameters in the regression model is specified as follows:

Results and Discussion

Current status of linkage between farm households and enterprises

Evaluating the relationship between the degree of linkage with the contract signing, the information sharing, and the number of general decision-making

We use the coefficients Pearson Correlation to analyze the correlation between the Contract Signing, Information Sharing and the number of general decision-making factors (independent variables) and the degree of linkage among members (the dependent variable).

Table 1. Correlation coefficients

Correlations				
		Contract Signing	*Information Sharing*	*The number of general decision – making*
The degree of linkage	**Pearson Correlation**	0,851[**]	0,821[**]	0,787[**]
	Sig. (2-tailed)	0,000	0,000	0,000
[**]. Correlation is significant at the 0.05 level (2-tailed).				

Through Table 1, it can be drawn conclusions: The correlation value between the degree of with the contract signing reached 0.851; with information sharing variable reached 0.821 and with the number of the general decision - making reached 0.787, showed that these linkages are tight.

Thus, the variable of association level is strongly correlated with other research variables, and with $\alpha = 0.05$ for statistical significance, all variables have Sig. (2-tailed) less than 0.05 so are both statistically significant.

Table 2. Evaluating the suitability of the model

Model Summary				
Model	*R*	R Square	Adjusted R Square	*Estimated error of standard deviation*
1	0,897[a]	0,805	0,803	0,49963

a. Predictors:(Constant), CS, IS, DM

b. Dependent Variable: DL

The value of R is 0.8967, showing that 89.67% of the change in association level is explained by 3 independent.

The Adjusted R Square value accurately reflects the model's suitability to the population, with an adjusted R-value of 0.803 (80.3%), meaning that there exists a linear regression model between the dependent variable and three independent variables.

Table 3. Analysis of variance ANOVA[a]

ANOVA[a]					
Mô hình	*Sum of Squares*	*Df*	*Mean Square*	*F*	*Sig.*
Regression	334,8605	3	111,6202	499,073	0,000[b]
Residual	82,976	371	0,223655		
Total	417,8365	374			

a. Dependent Variable: DL

b. Predictors: (Constant), CS, IS, DM

The analysis of variance - ANOVA showed F = 499,073 and Sig statistical significance. = 0.000 is smaller than the critical index α (0.05). It means that the regression model is consistent with the collected data and the variables included are statistically significant with a 5% significance level.

The statistic of F = 499,073 is used to test the H0 hypothesis, showing that the linear relationship is very significant with p_value <0.05 and rejecting the hypothesis H0 that the degree of association is no relation to the dependent variables.

Thus, it is possible to conclude that the contracting signing variable, the information sharing, and the number of general decision-making factors with the degree of the association have a dependent relationship.

Table 4. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	Beta	*Std. Error*	*Beta*			*Tolerance*	*VIF*
(Constant)	0,047	0,047		3,5	0,047		
CS	0,524	0,042	0,543	15,367	0,000	0,361	1,872
IS	0,356	0,034	0,344	7,550	0,000	0,288	1,563
DM	0,289	0,025	0,293	10,407	0,000	0,379	1,642

a. Dependent Variable: DL

According to the Table 4, the factors have Beta value greater than 0, all values of statistical significance Sig. of the factors are smaller than critical value α (0.05), showing that all factors are statistically significant.

The results of multivariate regression analysis showed that all independent variables are positively correlated with the dependent variable and do not occur multicollinearity between the variables because the VIF index is less than 2. The regression equation is shown as follows:

$$DL = 0,543*CS + 0,344*IS + 0,293*DM + 0,047$$

Among the above factors, the contract signing factor has the greatest impact on the level of association among the participating members.

To increase the degree of linkage between farm households and Thai Nguyen tea producing and consuming enterprises, we should be more paid to the level of information sharing and the number of general decision-making factors. Although these two factors exist in the model they have low value, it is a note that cannot be ignored in the process of building Thai Nguyen tea linkage.

Evaluating the linkage between farm households and enterprises

Table 5. Results of the survey on the degree of linkage between farm households and enterprises

Producer	Contract Signing	Information Sharing	General Decision – making	The Degree of Linkage
Household members	3,21	3,02	2,45	3,12
Freedom tea-growing households	2,52	2,54	1,75	2,24

Sources: Calculating from survey data

Through Table 5, the following comments can be drawn:

- The cooperative members have a normal association with enterprises. These households can be through cooperatives or directly sign contracts with enterprises, but the signed contracts are mainly short-term according to each season and verbal agreement. Enterprises basing on the forecasting short-term demand in the market will sign contracts or verbal agreements on tea trading with cooperatives or large-scale cooperative members, so the level of information sharing is not frequent, the number of general decision-making is still small, mainly making 2-3 general decisions and focusing mainly on the issue of price and quality.

Survey results show that: the number of households signing contracts is still very low, accounting for only about 1.7% of the total tea-producing households in the investigate area. Contracts are made mainly of consumer contracts for products in which the number of enterprises signing contracts for the consumption of fresh tea is very few, most of them for the consumption of dry tea. The proportion of households who do not perform the contract is still large, about 20% of households sign a contract but do not.

Conclusion

Through the above analysis, it can be concluded that the linkage between farm households and enterprises of Thai Nguyen tea production and consumption is not yet tight and this is the main cause of unstable farm households, the company lacks raw materials or low-quality materials.

To promote sustainable linkages between farm household and enterprises of Thai Nguyen tea production and consumption, it is necessary to 1) Improving the production organization capacity and farmers' awareness of the role of linkage in increasing strengthening household strength in the tea supply chain; 2) Increasing the support from enterprises to farmers in production techniques and access to input materials; 3) The State facilitates mechanisms and policies to help businesses well fulfill their core and leading role in the linkage.

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