

# The Impact of Dependence on Trust, Relationship Commitment and Information Sharing: Based on “ a company + farmers “ Data in China



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**ABSTRACT:** *The purpose of this study is to explore the impact of dependence on trust, relationship commitment and information sharing from the perspective of farmers in “a company + farmers” organization. Subjected to 462 farmers from Guangdong and Hainan province in China, structural equation model was undertaken to examine the empirical study on the relationship among dependence, trust, relationship commitment and information sharing between farmers and companies. The results show that: dependence has a significant positive impact on trust and relationship commitment, while does not has a direct significant impact on information sharing. Trust has a significant positive impact on relationship commitment and information sharing between farmers and company. Relationship commitment has a significant positive impact on information sharing. These findings give some guidelines to agricultural managers. If managers can improve the farmers` dependence on companies, the company will establish a high level of trust and relationship commitment with farmers, which promote farmers to share the production information with companies so that enterprises can effectively monitor the process of production in order to improve the quality and safety of agricultural products.*

**Keywords:** “A company + farmers”, Dependence, Trust, Relationship Commitment, Information Sharing

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## 1. Introduction

As a folk saying goes in China, “*food is the paramount necessity of people, safety is the priority of food*”, which shows that food and food safety occupies an unquestionable role in Chinese culture. However, a series of food safety scandals continue to occur in China, such as “*leavening agent watermelon*”, “*sulfur ginger*”, “*rinse poison bean sprouts*”, “*bodybuilder pigs*” in primary agricultural and pastoral products. From the angle of economics, food safety issue is essentially an problem of information asymmetry and a form of market failure, undoubtedly eliminating information asymmetry is an important way to solve food safety problems. The results show that information sharing can reduce information asymmetry, “*bullwhip effect*” and information distortion, which could improve alliance performance<sup>[1-6]</sup>. Information sharing has a positive impact on the alliance performance among partners, which has been widely accepted in many foreign multinational companies, such as Wal-Mart and its suppliers, Dell’s online information sharing. Thus, it’s very important to guide the farmers in production source to the way of how to better share the information of production processes, which can effectively monitor the farmer’s production processes and improve the quality and safety of agricultural products.

“*A company + farmers*” operating organization is one of models for effectively improving the quality and safety of food in China, which is regarded as the leading model in Chinese agricultural industrialization. It is also known as “*contract-farming*”, which generally refers to agricultural enterprises (referred to the company) that signed a contract with the farmers who produce agricultural products and then purchased farmers’ products in accordance with the contract price<sup>[7]</sup>. As the companies in China can not buy rural land and farmers have the usage right of the land, the companies and farmers often mutually invest complementary assets in China, such as farmers invest land and labor, etc. and the companies invest own advantages like technology, entrepreneurs capabilities and marketing capabilities. Complementary assets of mutual investment make the companies and farmers form a bilateral dependent mechanism<sup>[8]</sup>. Taking “*a company + farmers*” operating organization as example, this study intends to solve the problems that whether the farmers’ dependence on companies would promote farmers’ trust, relationship commitment and encourage farmers to share production information with companies when they make cooperation with each other.

Information sharing is refer to understanding each other’s services by sharing information for establishing long-term partnership. The symmetry of the obtained information will help make both partners work more effectively<sup>[9]</sup>. Information sharing in supply chain upstream and downstream has a direct impact on inventory control, production control. Information sharing among partners is affected by a variety of factors such as dependence, trust, relationship commitment and other factors which scholars has paid more attention to. In the channel research, dependence refers to the psychology and behavioral state that the channel members need to maintain exchange relations with another channel members in order to achieve their own goals<sup>[10]</sup>. Resource Dependence Theory holds that any firms can not have all the resources they need, and a lot of resources related to firms’ survival and development exist in the relationships network that firms are embedded in<sup>[12]</sup>. In order to obtain these valuable resources, firms should exchange with another firms at the same relationships network. When a firm exchanges with other firms for long-term resources, it would develop resource dependency. In “*a company + farmers*” model, companies and farmers often invest complementary assets mutually<sup>[8]</sup>, which is similar to swap collateral. Swap collateral promotes bilateral trade cooperation, while bilateral dependence in the situation of complementary assets effectively suppresses the opportunistic behavior of farmers. Hende<sup>[12]</sup> and Ryu et al.<sup>[13]</sup> suggest that dependence among alliance members will affect relationship norms usage such as trust, relationship commitment, etc. The empirical studies from Geyskens et al.<sup>[14]</sup> show a positive correlation between interdependence and relationship commitment. Therefore, it is believed that the degree of dependence between farmers and companies makes a difference to long-term strategic partnership, thereby positively affects the levels of mutual trust, relationship commitment and the willing to share information resources.

H1a: Farmers’ trust to company is significantly positively related to farmers’ dependence to company.

H1b: Farmers’ relationship commitment to company is significantly positively related to farmers’ dependence to company.

H1c: Information sharing among farmers and is significantly positively related to farmers’ dependence to company.

Trust is considered to be the soul of supply chain management, which is based on the other’s sincerity, good intentions and the confidence of integrity<sup>[15-18]</sup>. Kim and Mauborgne<sup>[19]</sup> hold that trust strengthens cooperation and willingness to share among partners. People would be very willing to share information with each other once mutual trust relationship has been established. Trust is the prerequisite for fulfilling commitment, while commitment is the result of trust<sup>[20]</sup>. The establishment of trust relationship is helpful to the willingness to continuing relationship commitment<sup>[16]</sup> in the future. Enduring commitment is a basic requirement for the successful implementation of supply chain. Only when both sides have expressed willingness to commitments, can the relationship among the partners be sustained. Relationship commitment is seen as a lasting willingness to maintain valuable relationship and a desire to invest and take some risks to keep deeper partnership<sup>[16,20,21]</sup>. Relationship commitment is in favor of trading partners’ cooperation, of course includeing information sharing among partners<sup>[16]</sup>. Visibly, both parties in transaction focused on long-term cooperation, and would not make things detrimental to another’s interests so as to maintain stable partnership when relationship commitment increases. At this moment, both parties are more willing to achieve complementary advantages by sharing information, and then increase the overall competitive advantage in supply chain. It follows that:

H2a: Information sharing in production among farmers and company is significantly positively related to farmers’ trust to company

H2b: Information sharing in production among farmers and company is significantly positively related to farmers’ relationship commitment to company.

H2c: Farmers' relationship commitment to company is significantly positively related to farmers' trust to company.

Based on the above analysis, a theoretical model is put forward as shown in Figure. 1.

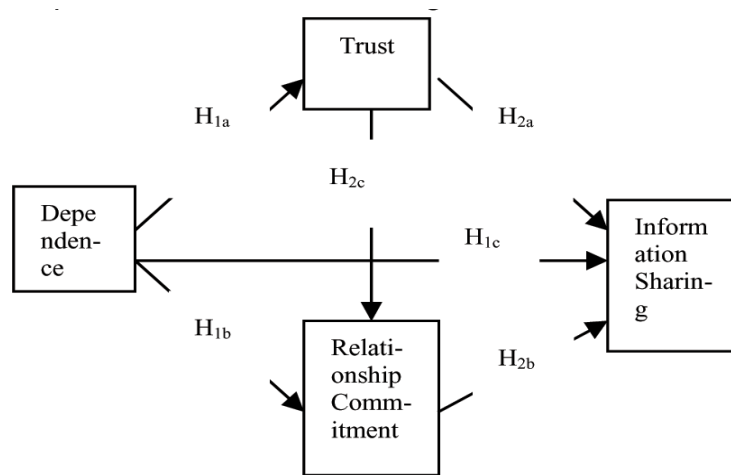


Figure 1. Conceptual Model and assumptions

This study was aimed to whether and how the “*a company + farmers*” operating organization model would promote farmers and companies to share the production information with each other. As an example for “*a company + farmers*” in Chinese situation, structural equation model was undertaken to discuss about the relationship among trust, relationship commitment and information sharing in this empirical study, which is based on 462 farmers selected from Guangdong and Hainan provinces who produce edible agricultural products, with a view of providing theoretical basis and practical guidance for Chinese agricultural firms to built “*a company + farmers*” models and then enhance competitiveness.

## 2. Materials and Methods

### 2.1 Data Collection and Variables Design

The data of this study was obtained by questionnaires which were distributed in those farmers cooperating with companies by organized undergraduate and graduate students. In view of improving the recovery rate and quality of the questionnaire, investigators were mainly chosen from rural areas and professional-related major, and well trained before investigation. Besides, appropriate payment encouraged them according to the number of valid questionnaires.

The questionnaire consists of two main parts: the variables measure table and the basic characteristics of farmers. In order to ensure the reliability and validity, the mature scale widely used in home and abroad has been first considered. Variable sources were listed in Table 1. Due to the test scales mainly from English literature, an expert in the field of agricultural business management was invited to translate the original scale into Chinese and then another expert was invited to translate the Chinese scale back into English, which compared with the original scale to correct the difference. In addition, pre-selected 20 large farmers in pre-survey were asked for their views on the questionnaire, mainly including whether questions are understandable, ambiguity and enough to reflect the actual channel relationship, to eliminate the cultural and regional differences. Based on their feedback, those ambiguous questions were further refined to modify. All the indicators involved in variables were carried out with Likert 7 point scale, in which 1 represents deeply disagree and 7 represents for deeply agree. The surveyed farmers evaluated according to their actual situation. The second part was respondents' characteristic, like agricultural products of cooperation, object of cooperation, developmental stage of cooperation and so on.

### 2.2 Data Analysis

The reliability and validity of the measure scale needs to be examined before the hypotheses test. Reliability analysis is an effective analytical method that determines whether a evaluation system has certain stability and reliability. This study adopted the software SPSS19.0 statistical to analyse reliability with Cronbach's a coefficient. The sample is considered to have good reliability if the value of “*a*” is equal to or greater than 0.6; if less than 0.35, then rejected.

Validity testing includes convergent validity and discriminant validity. This study adopted factor loading and average variance extracted (AVE) as the indicator of the test scale convergent validity. Each of factors loading in variable is above 0.5 and significant at the 0.01 level. Besides, the AVE values of all factors are above 0.5, which indicate the items of the measurement have better convergent validity. For discriminant validity test, if the AVE value's square root of each factor are greater than the correlation coefficient of other factors, the measuring model is considered to have good discriminant validity.

Finally, the software PLS-Graph 3.0 was adopted to test whether assumptions in the conceptual model would be supported by the survey data. Hypothesis testing is achieved mainly through the standardization coefficient analysis among every latent variable on the structural equation model, which shows that the larger the standardized coefficient is, the more important the path relationship is.

### 3. Results and Discussions

#### 3.1 Statistical Analysis

500 questionnaires were distributed into the farmers who come from Hainan and Guangdong Province in China, 462 of which were valid including 141 in Guangdong and 321 in Hainan. The sample is dominated by middle-aged farmers: 62.4% are between 30 and 50. In gender, 79.2% of the sample are men. In educational attainment, 79% accept secondary or higher education. Therefore, the farmers in this sample have better education, which are able to understand the options and make the questionnaire objective and accurate being filled. In the duration of cooperation, most of the farmers (74.4%) cooperate with the company in five years. The agricultural products of the cooperation are mainly vegetables, poultry and livestock, which account for 29.2%, 25.8% and 19.3% respectively. The reason why farmers cooperate with companies are primarily getting technology and service support (62.4%), reducing production and market risk (43.0%) as well as obtaining more revenue (41.8%). In the development stage of cooperation, 14.4% of the farmers argue that cooperative performance is not yet stable, 54.8% of the farmers think having reached a certain level in mutual cooperation, 23.9% of the farmers believe that the inter-sustained and long-term relationship has been established, while 2.4% of the farmers dissatisfy with the cooperation and 4.5% farmers have begun to negotiate to end it.

#### 3.2 Construct Reliability and Validity

Table 1 shows reliability testing results. The value of the Cronbach's  $\alpha$  of all the factors are greater than 0.6, which reveal that the reliability of this scale is acceptable. PLS-Graph 3.0 software is used to make confirmatory analysis on the measurement model and the results are shown in Table 1. The standard load value of all factors is above 0.5 and the average variance extracted (AVE) of each factor is greater than 0.5, which indicate that all measure items have higher level of convergent validity. To further test the reliability of the questionnaire, this study calculated the composite reliability (CR). In table 1, composite reliability of all factors is greater than 0.7, which indicate that every measure item has better internal consistency.

As can be seen in Table 2, the square root of AVE of every variable is greater than correlation coefficient of the variable and other variables, which indicate various factor has better levels of discriminant validity.

#### 3.3 Structural Equation Analysis and Hypothesis Testing

PLS-Graph 3.0 software was used to test whether the hypothesis in the conceptual model is supported by the data from the questionnaire. Each standardized path coefficients and p value of hypothesized relationships about dependence, trust, relationship commitment and information sharing in the structural equation model are showed in Fig.2. The R<sup>2</sup> value of trust, relationship commitment and information sharing are 18.1%, 49% and 41.4%, which indicate that the theory explains the variance of trust, relationship commitment and information sharing. Fig.2 shows that H1a, H1b, H2a, H2b is supported, but H1c is not.

#### 3.4 Relationship among the Constructs

Farmers' trust and relationship commitment to company are significantly positively related to farmers' dependence to company, that is, dependence has significantly positive impact on trust ( $\beta = 0.425$ ,  $p < 0.001$ ), therefore, H1a is supported; dependence has a significantly positive impact on relationship commitment ( $\beta = 0.333$ ,  $p < 0.001$ ), therefore, H1b is supported. But Information sharing among company and farmers is negatively but insignificantly related to company's dependence to farmers ( $\beta = -0.029$ ,  $p > 0.05$ ), therefore, H1c is not supported. The results show that farmers' dependence to company will help farmers give trust and make commitments to companies, but fail to help farmers share the production chain with companies together. Maybe less investment from the companies in the "a company + farmers" model would lead to the lower dependence to companies.

Variable	Measurement	Factor load	AVE	CR
Dependence( <b>Dp</b> ) (adapted from Holm et al. <sup>22</sup> , Cai and Yang <sup>23</sup> ) : <b>Cronbach's alpha</b> = 0.728				
<b>Dp<sub>1</sub></b>	It is relatively difficult to find a similar partnership if the relationship with the company terminate	0.6963		
<b>Dp<sub>2</sub></b>	Not many partners can provide similar resources like the company	0.7207		
<b>Dp<sub>3</sub></b>	Looking for a new partner will take a lot of time and effort	0.7135		
<b>Dp<sub>4</sub></b>	It is critical to continue to cooperate with the company for sales growth in the future	0.7933		
Trust( <b>Tr</b> ) (adapted from Ganesan <sup>24</sup> , Coulter and Coulter <sup>25</sup> ): <b>Cronbach's alpha</b> = 0.842				
<b>Tr<sub>1</sub></b>	The farmer believes that the company will follow the agreements and commitments based on the past experience of the cooperation	0.7424		
<b>Tr<sub>2</sub></b>	The company will offer best assistance to the farmer if situation changes	0.6806		
<b>Tr<sub>3</sub></b>	The farmer believes that the company will be candid and honest in the transaction	0.7781	0.6170	.889
<b>Tr<sub>4</sub></b>	The company will place priority on farmers' interests	0.7512		
<b>Tr<sub>5</sub></b>	The company will take into account the possible impact on the farmer when making major decisions	0.6568		
Relationship Commitment ( <b>Rc</b> ) (adapted from Zhao et al. <sup>26</sup> , Brown et al. <sup>27</sup> ): <b>Cronbach's alpha</b> = 0.770				
<b>Rc<sub>1</sub></b>	The farmer feel that the company views the farmer as "their important members of the team", not just producer	0.7350		
<b>Rc<sub>2</sub></b>	The farmer is proud to tell others that the farmer is a producers of the company	0.7927		
<b>Rc<sub>3</sub></b>	The farmer identify the method of management used by the company	0.8223	0.523	0.845
<b>Rc<sub>4</sub></b>	The farmer will positively continue to renew with the company in the future	0.8245		
<b>Rc<sub>5</sub></b>	The farmer will not easily interrupt the cooperation with the company	0.7485		
Information Sharing ( <b>Is</b> ) (adapted from Li et al. <sup>28</sup> , Li and Lin <sup>29</sup> ): <b>Cronbach's alpha</b> = 0.870				
<b>Is<sub>1</sub></b>	The farmer will share the production usage plan information in planting or breeding chain with the company (such as fertilizers, pesticides, veterinary drugs, feed, etc.)	0.7349		
<b>Is<sub>2</sub></b>	The farmer will share the production inventory information in planting or breeding chain with the company	0.7717		
<b>Is<sub>3</sub></b>	The farmer will share sales information with the company	0.8097	0.609	0.903
<b>Is<sub>4</sub></b>	The farmer will monitor the production processes with the company	0.7716		

Variable	Measurement	Factor load	AVE	CR
Is <sub>5</sub>	The farmer jointly establish and maintain performance evaluation system (eg. the degree of the production use safety, etc.) with the company	0.8295		
Is <sub>6</sub>	The farmer will improve the production processes with the company so as to better meet both needs	0.7599		

Table 1. The analysis of reliability and convergent validity of factors

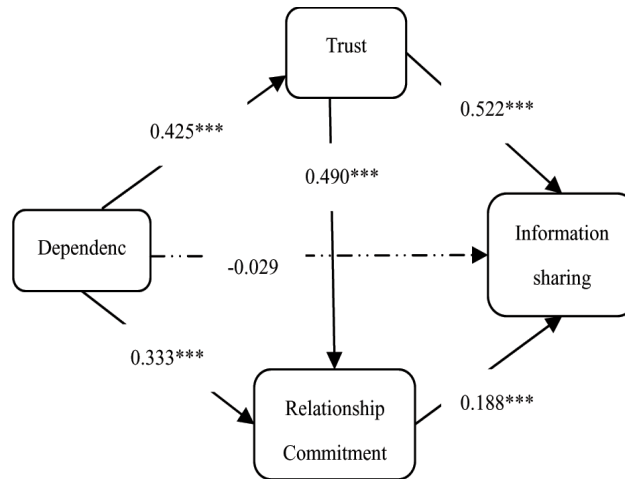
(1) With the uncertainty of the agricultural products' prices, if the market prices are higher than agreed prices, farmers tend to occur opportunistic behavior, which are unwilling to share information with companies.

	Dp	Tr	Rc	Is
Dp	0.732			
Tr	0.425	0.785		
Rc	0.542	0.632	0.723	
Is	0.295	0.628	0.502	0.780

Table 2. The analysis of discriminant validity

**Note:** The value of the diagonal represents AVE value.

The value of the non-diagonal represents the square value of correlation coefficient.



**Note: Significant at: \*\*\*p<0.001**

Figure 2. Hypotheses Testing Results

(2) Information sharing in production between company and farmers is significantly positively related to farmers' trust to company ( $\beta = 0.5220$ ,  $p < 0.001$ ), therefore, H1a is supported. It means that Chinese agricultural enterprises have the necessity to strengthen the trust relationship with farmers, which will help enhance the level of information sharing among partners and reduce information asymmetry. However, trust between farmers and companies would not be enforced to achieve by contract,

but gradually accumulated by long-term mutual communication and exchange. Hence, companies and farmers should establish broad and effective communication mechanism to ensure the flow of information and knowledge is smoothly.

(3) Information sharing in production among company and farmers is significantly positively related to farmers' relationship commitment to company ( $\beta = 0.1880$ ,  $p < 0.001$ ), therefore, H1b is supported. When farmers and companies are committed to a high level, it means that farmers will not easily give up the cooperation relationship with companies (even if by the temptation of some short-term interests), and then are willing to share information with companies, which show that relationship commitment will help improve the behavior of information sharing among partners. Also, farmer's relationship commitment plays an important role in the relationship due to the closed environment in Chinese rural area.

(4) Farmers' relationship commitment to company is significantly positively related to farmers' trust to company ( $\beta = 0.490$ ,  $p < 0.001$ ), therefore, H2c is supported. It means that trust can improve the level of relationship commitment and reduce the uncertainty risk of the external environment. Chinese agricultural enterprises can enhance the level of relationship commitment among the partners by establishing mutual trust mechanism among partnerships, which can better facilitate the information sharing among partners.

#### 4. Conclusions

Based on 462 farmers from Guangdong and Hainan province in China, this study is to explore the relationship of dependence, trust, relationship commitment and information sharing between companies and farmers by using structural equation model. The results showed that: (1) Trust and relationship commitment have significantly positive impact on information sharing, so does trust on relationship commitment. This study suggests that Chinese government departments should pay more attention to the governance practices of the companies on the farmers in assessment and selection of all levels of agricultural enterprises. So the companies can focus on cultivating mutual trust with the farmers so as to enhance relationship commitment and thus facilitate the information sharing, which the companies can effectively monitor the agricultural production process to improve the quality and safety of the agricultural products. (2) Dependence has no significant impact on information sharing but can affect information sharing through dependence on trust, relationship commitment's positive impact. Therefore, when companies cultivate farmers' trust, which can induce the complementary assets investment of farmer to increase the level of farmers' dependence on the companies and thus will help farmers trust the companies and make commitments.

The limitations of this study lies in the content of the information sharing of the variables that put more emphasis on low-level, operational level, but the content of the information sharing also includes the strategic level and financial aspects. So higher level of information sharing type can be considered in the future to test whether dependence, trust, relationship commitment have significant impact on information sharing. Moreover, this study only use the data from Guangdong and Hainan province in China to test the model and the sample only involves the companies of two provinces. So there are limitations of the potential universality of the model in this study, which the studies will be further examined in other areas to improve the model's universality in the future.

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