

**Trust as Mediating Factors in Chinese Farmers Satisfaction of Joining  
Cooperatives – Application of PLS Modeling**

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## 1. Introduction

There are different reasons for farmers to join cooperatives (hereafter referred to as coops) which includes both economic and social goals (Hansen et al., 2002). In the case of Chinese farmers, Sultan and Larsén (2011) found that economic goals are of high importance although farmers also join coops because of social reasons. The social goals may, as noted by Hansen et al, 2002, “origin from the desire to interact with other members and develop personal and business relationship” (Hansen et al., 2002, p 43). Chinese farmers incentives to join coops - both economic and social - are to a certain extent formed by informal constraints embedded in Chinese regional norms and networks. These facilitate the growth of different type of coops, such as economic and social goal oriented coops (Sultan and Larsén, 2011). Informal norms and networks build on the interests and preferences of individuals in groups or subgroups, and function as important factors to reduce the social level of transaction costs by providing a framework for trust and collective action.

The literature within economic, social and organization research provide numerous evidences that support the relevance of trust and personal interaction for organization. Scholars have linked institutions, organizations, and other formal structures to the positive and negative effects of trust (e.g., Shapiro, 1987; Zucker, 1986). Agricultural coops, hybrid organizations, are owned by and operated for the benefit of their agricultural producer members. These members/owners thus have incentive to use, control, and invest in the organization. At the governance level, coops typically use democratic principles for decision-making. Therefore, agricultural coops have a distinctly different objective and target than other type of organizations such as investor-owned enterprises (Sykuta and Cook, 2001). Sykuta and Cook (2001) suggest that this difference in organizational objectives may create greater trust in the relation between producers and producer-owned business than producers and investor-owned enterprises. Baker and Theilgaard (2004) argue that countries with a historically cooperative culture, such as Denmark and Britain, have no formal coop legislation. In those countries, coops operate within the general laws. This kind of trust embedded in the culture thus allows business to run more smoothly within organization and society. This can be compared to the findings of Golovina and Nilsson (2009a; 2009b) who suggested that the lack of positive socio-psychological incentives among Russian agricultural producers to join cooperatives is the main reason for the cooperatives failure in Russia.

In the organizational economics literature it has been suggested that trust reduce opportunistic behavior and transactions costs of exchange. This, in turn, leads to more efficient governance (e.g. Bromiley and Cummings, 1995). However, as pointed out

by Zaheer et al. (1998), the multilevel nature of trust constitutes a major challenge in attempts to conceptualize the role of trust in economic exchange. As is further argued by Zaheer et al. (1998), an unclear specification of how trust translates from individual level to organizational level leads to theoretical confusion about who trusts who as it is the individuals as members of organizations who trust and not the organizations themselves (Zaheer et al., 1998). Related to this is also the question how organizational level trust translates to cultural level trust, and how all these causal relationships finally affect individual behavior. Transaction cost economics addressed the role of trust in economic exchange by using the multilevel nature of trust (Williamson, 1975; 1985). Specifically, Williamson suggested in his earlier works that firms tend to behave opportunistically and thereby contributed to an understanding of (micro level) individual motivations in (governance level) organizations. Later, in his four level of social organization theory (2000), he linked the micro (individual motivations) and macro level (social norms and culture) and addressed how those two levels of trust tend to reduce transaction costs in organizations (governance level).

This paper analyses the role of trust for Chinese coop farmers' satisfaction with their coop membership. In particular, it will test the hypothesis that trust mediates the influence of the coops governance mode on satisfaction. The study further analyzes how economic and social goals respectively influence Chinese farmers' satisfaction with their coop membership. The analysis is performed using survey data from the Zhejiang and Sichuan provinces. The analysis builds on and extends a previous study by Sultan and Larsén (2011) that compared farmers' incentives to join coops in Zhejiang and Sichuan provinces. The results of that study suggested that farmers in Zhejiang primarily establish or join coops because of economic motivations whereas farmers in Sichuan are driven by both social and economic goals (Sultan and Larsén, 2011). In this study, more specific hypotheses are formulated and tested regarding different factors influence on the coop members' satisfaction on their coop membership.

## **2. Theory and hypotheses**

### **2.1 Cooperatives as a governance structure**

Cooperative organizations and other hybrids are important in modern food supply chains. Hendrikse (2006) argues that a cooperative is an example of governance structure which consists of a collection of rules structuring the transactions between various stakeholders. He also indicates that a standard way of delineating the "rules" is to distinguish between decision and income rights. Hansmann (1996) identifies that

decision rights concern all rights and rules regarding the deployment and use of assets. Specifically decision rights mostly clarify who directs the coop's activities, and the organizational chart roughly describes the formal structure. Income rights address the question about "Who benefits and how costs are allocated?" Income rights specify one's rights to receive benefits, and who is responsible to pay the costs associated with the use of an asset. However cooperative is beyond than a collection of rules due to it is a grass root organization that members own and operate under the respect of their common interests and incentives. First of all, there are many different interests or incentives for individual members to establish or join coops such as economic incentives (McLaughlin, 1996) and social incentives (Sultan and Larsén, 2011). Secondly, the collection of rules is not only represented at governance level, in reality it is a collection of formal and informal institutions. Against this background, we believe that Williamson's four level of social organization model (2000) is a proper analytical framework to understand the nature of agricultural cooperatives.

Williamson (2000) introduced a four-level framework linking theories with a very different scope as the framework for analysis of social organization. Williamson calls the top level "social embeddedness". As he lists customs, traditions, norms and informal institutions this level can be called as "culture". The second level is about the institutional environment concerning formal rules and property rights. The third level consists of the governance structure. Williamson (1996) defines governance structures as ways to implement order for facing potential conflicts that could threaten opportunities to realize mutual gains. The fourth and last level is focusing on how to optimize resource allocation, prices and quantities. For the purpose of this paper, we focus our theoretical discussions at first level "culture" level and third level "governance".

Culture drives both an individual and organization's economic behaviors. This can be seen in agricultural cooperatives due to the nature of agriculture, mostly family, local, and regional based characters. These culture dynamics explain the extent to which coops governances are rooted its distinctly different objective and focus as well as whether their functionality depends on the extent to which various governance mechanisms are able to create members incentives and satisfy members common interests.

When discussing the relationship between farmers incentives to establish or join coops and the coop governance which they develop and build, we should keep in mind the importance of common culture which member farmers are embedded in. There are some fundamental differences between Western business culture and Chinese business culture. For example, Western countries business networking is

mainly driven by economic incentives and in Chinese context business networking is usually driven by both economic and social incentives (Chen, 2001). Moreover, Chinese society is more complex due to its transition process. For example, some eastern coastal regions are economically well developed and central and western regions are less developed. There are also clear business cultural differences among different regions. In a previous study by Sultan and Larsén (2011), they compared farmers' incentives to join coops in Zhejiang and Sichuan provinces and they found that farmers in Zhejiang provinces establish or join coops mainly because of economic motivations whereas farmers in Sichuan province join and establish coops because of both social and economic reasons. This paper follows that study and further develops the hypotheses as follows:

*Hypothesis 1:* Both economic and social goals directly influence farmers' satisfaction of their coop membership.

*Hypothesis 2:* Economic goals have greater impact on farmers' satisfaction of joining coops in Zhejiang than in Sichuan.

*Hypothesis 3:* Social goals have greater impact on farmers' satisfaction of joining coops in Sichuan than in Zhejiang.

## **2.2 Trust as mediator for the influence of governance mode on satisfaction**

An interdisciplinary body of literatures has developed multiple definitions and typologies of trust (Wilson, 2000). Accordingly, trust is related intentional behaviors, relevant to the historical business relationship as well as the social norms (culture) and rules among individuals and groups which are often evoked as a source of trust (Martino, 2007). In general, trust is the extent to which one believes that others will not act to exploit one's vulnerabilities (McAllister, 1995; Rousseau *et al.* 1998). Luhmann (2000) argues trust is an expectation of future behaviors of other agents and a mechanism to reduce the complexity of social relationship. He emphasized it emerges after positive personal experiences. Generally, the more individual benefits from correctly trusting others, the individual behaves the greater trustworthy to others.

In new institutional economics, trust becomes operational via the transaction costs. The relationship between trust and governance structure are well discussed in various ways in the growing number of articles in the topic. With transaction cost as the focus of analysis, agriculture cooperatives involve costs because farmers need to search for cooperation partners with whom to cooperate, screen potential individuals or groups to ascertain their trustworthiness, to reach a common agreement, and monitor the agreement to see whether its conditions are fulfilled and enforced. All above costs

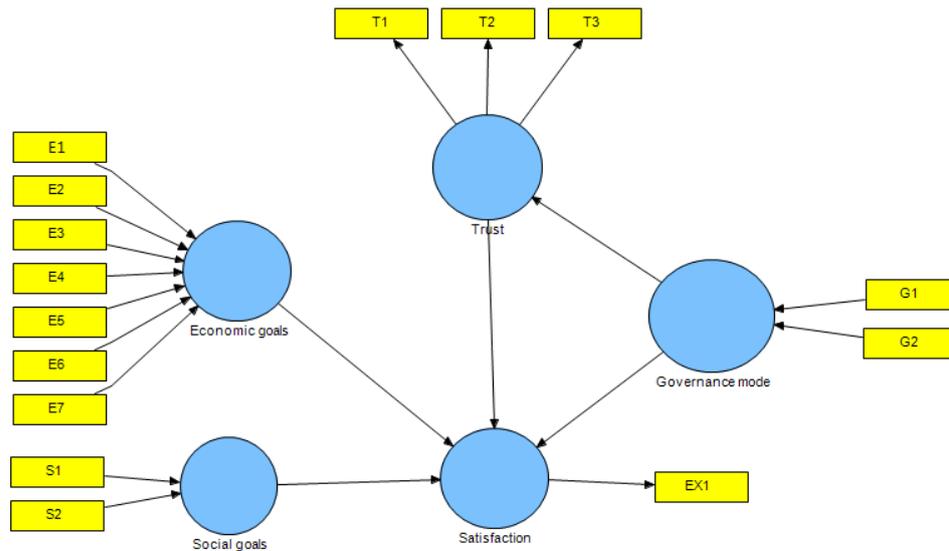
increase with the frequency of the transactions and the uncertainty of the transactions (Williamson, 1979). However, coops governance is the collection of rules which create and combine the incentives and interests of farmers. Moreover, coops are grass root organization and characterized as collective decision making or concern the interests of member farmers. This is one of the distinct characters of coops compared to investor oriented organization such as private business and enterprises. Therefore, this difference in organizational objectives may create greater trust in the relation between producers and producer-owned business than producers and investor-owned enterprises (Sykuta and Cook, 2001).

As discussed above, the impact of trust is here analyzed via the transaction costs, and transaction costs usually indirectly influences business transactions. Therefore we develop our hypothesis as follows about the relationship between coops governance and farmers' incentives, and the relationship between coops governance and trust among farmers:

*Hypothesis 4:* Coops governance mode indirectly affects the farmers' satisfaction of joining coops and it is mediated by trust.

### **3. Model**

Based on the theoretical discussion and hypotheses formulated in section 3, we suggest the model as illustrated in Figure 1. As a PLS path model, our conceptual model is also described by two models: a measurement model (outer model) relating to the manifest variables to their own latent variables and a structural model (inner model) relating to some endogenous latent variables to other latent variables. For the three measurement models such as "economic goals", "social goals" and "governance mode", we have applied confirmative mode due to all three latent variables are generated by its manifest variables. Furthermore, the formative measurement model has causal relationships from the manifest variables to the latent variable, meaning that the indicators collectively represent all the relevant dimensions of the latent variable (Henseler et al. 2009). In contrast, the latent variable "Trust" and "Satisfaction" has been applied reflective measurement model. That means manifest variables reflect its latent variables and the relationship between manifest and latent variables are more "effect" rather than "causal". For the structural model, following the theory above we discussed, "economic goals" and "social goals" have direct impact on farmers "Satisfaction" of joining coops. However, "governance mode" indirectly impact on the "satisfaction" via "trust". This model will be estimated jointly for both regions as well as separately for each of the two regions.



**Figure 1:** PLS model for farmers satisfaction of joining coops

#### 4. Data analysis and methodology

The empirical analysis of this paper builds on the same survey data as described in Sultan and Larsén (2011). The survey consisted of more than 40 agricultural cooperatives and 373 member farmers who are involved in vegetable, horticulture and livestock sectors in the two Chinese provinces Zhejiang and Sichuan. These two regions are, as described in Sultan and Larsén (2011), characterized by cultural differences as well as differences in economic development. Zhejiang, an eastern coastal well developed province, can be generally be considered as more market-oriented (or economic-goal oriented) compared to less developed western province Sichuan. The survey was conducted during July, August and September 2009 in Zhejiang and Sichuan. Two separate questionnaires were prepared for coop directors (governance level) and farmers (micro level).

The hypotheses formulated in section 2 are tested using Partial Least Squares (PLS) analysis which is a structural equation modeling technique (Wold, 1985). PLS provides a tool for testing predictive research models during the early stages of theory development (Barclay et al., 1995). It is furthermore suitable for testing mediating effects. Group and organization researchers start to propose and test models that explain how the predictor variable (X) influences the dependent variable (Y) by introducing an intervening variable (Z) (Sosik et al, 2009). Moreover, it is possible to check the existence of mediation effects with PLS whether there is partial or full mediation (Cohen et al., 2003).

The first necessary step for the measurement of the model illustrated in Figure 1 is to determine the indicators for each the latent variables. The latent variables considered

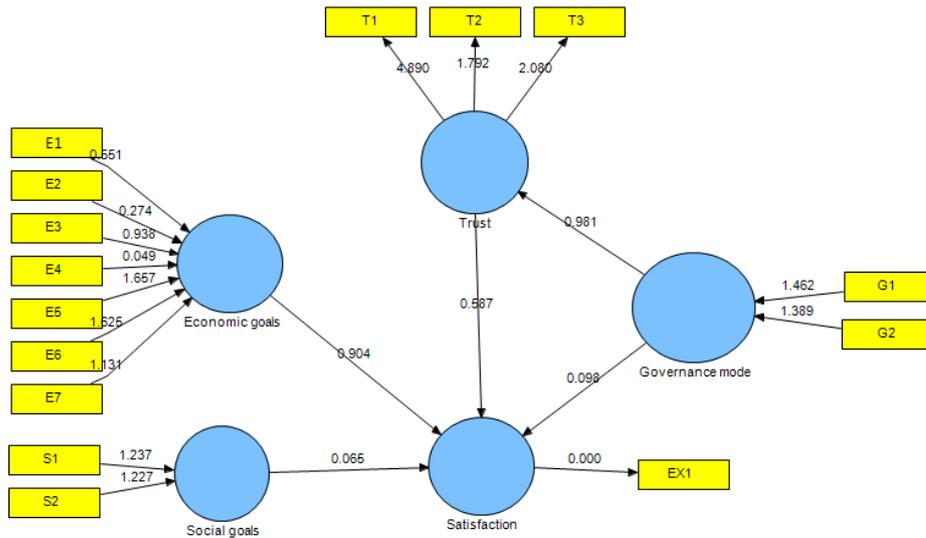
in our model are trust, satisfaction, social goals and economic goals. Variables that controls for governance mood are further considered. The indicators used for each of the latent variables are presented in Table 1. They are all measured on a scale 1-7.

**Table 1:** Variables, Latent variables and indicators

<b>Satisfaction</b>
Does the coop that you have joined meet your expectations?
<b>Trust</b>
Does your current coops director match the ideal coops director in your mind?
Do you believe that other coop member farmers are carrying out their responsibility effectively
Do you believe or support the daily decision made by core members?
<b>Social goals (importance of factors before joining coop)</b>
Better working environment
Better communication with other farmers
<b>Economic goals (importance of factors before joining coop)</b>
More beneficial prices
Secure agricultural inputs
Easier marketing
Reduced marketing costs
Increased bargaining power
Better market info
Higher profits
<b>Variables measuring governance mode (importance of factors before joining coop)</b>
One member one vote decision making policy
Collective decision making policy

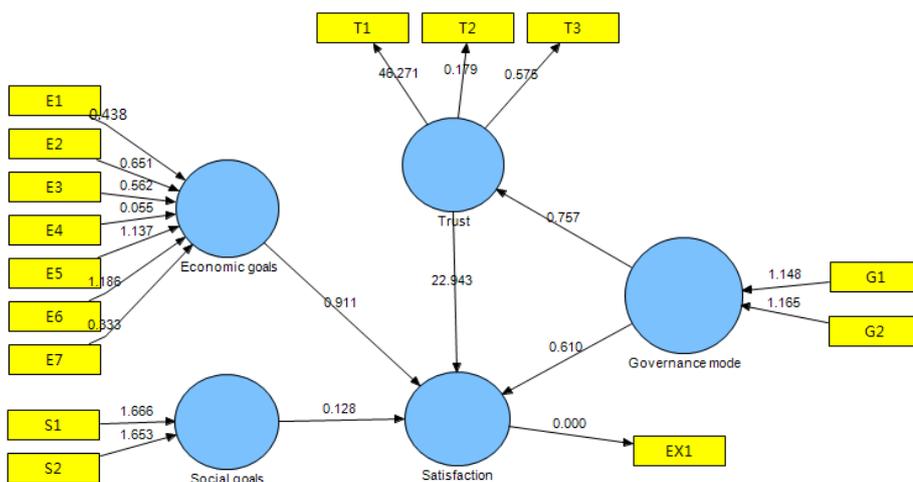
## 5. Results

In order to test those hypotheses developed in above, bootstrapping with re-samples was performed to drive the path coefficients of the structural model. The significance of path coefficients was obtained using bootstrapping with recommended sample size of 500 (Chin, 1998). Meanwhile, Hair et al (2011) recommended that number of bootstrapping cases bigger or equal to the number of valid observations (original samples). Therefore, in this PLS model respectively 160, 220 and 380 cases applied in Zhejiang, Sichuan and “both regions” (original samples: 155 samples in Zhejiang, 218 samples in Sichuan and 373 in both regions).



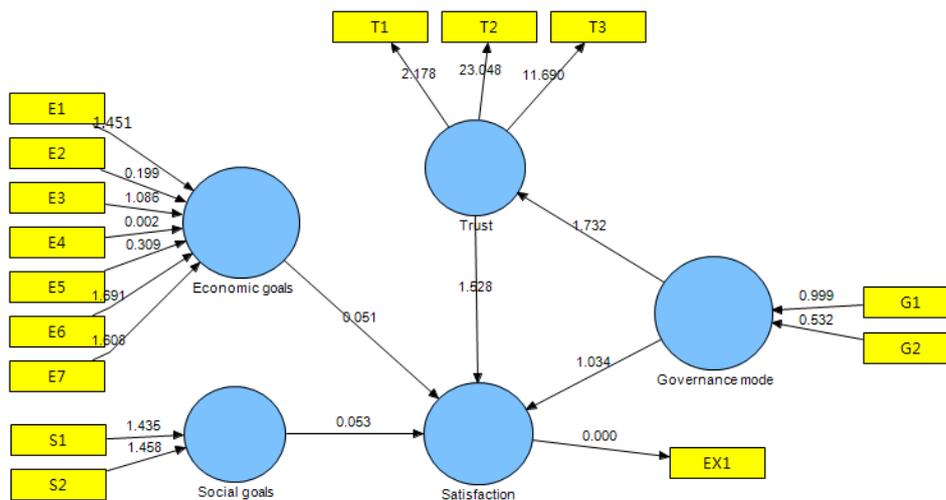
**Figure 2: Bootstrapping model results for both Zhejiang and Sichuan provinces**

Figure 2 illustrates the results of PLS analysis of structural model in both Zhejiang and Sichuan provinces. As recommended by Cohen (1988), the path coefficient values of 0.02, 0.15, and 0.35 correspond to a predictor that has a small, medium, or large effect at the structural level. Based on his guidelines, clear evidence was found that farmers' economic goals have the large and highest impact on farmers' satisfaction to join coops and its path coefficient indicates 0.904. Coops governance mode and farmers' social goals have less significant impact on satisfaction for both regions, respectively path coefficients are 0.098 and 0.065. However, fully mediation existed between coops governance mode and farmers' satisfaction due to path coefficient between governance mode and trust and between trust and satisfaction is significant, but the direct effect of governance mode and satisfaction is less significant.



**Figure 3: Bootstrapping model results in Zhejiang province**

As we discussed earlier, Zhejiang is a business oriented society and interpersonal network relationship is economic goal oriented. Figure 3 further confirms this discussion and farmers' satisfaction of joining coops is strongly affected by farmers' economic goals which indicate 0.911. In contrast, farmers' satisfaction of joining coops is less driven by social goals. Trust between coop directors and member farmers and among members have a great impact on farmers' satisfaction of joining coops in Zhejiang. Governance mode is fully mediated by trust in terms of effecting satisfaction.



**Figure 4: Bootstrapping model result in Sichuan province**

Based on the result from Figure 4, the evidence found that both economic and social goals, respectively path coefficients are 0.051 and 0,053, have small impact on farmers' satisfaction of joining coops in Sichuan province. Additionally, coops governance mode has significant strong direct impact on farmers' satisfaction of joining coops in Sichuan. Due to this reason, governance mode is partially mediated by trust in terms of effecting satisfaction.

## 6. Summary and Conclusions

This study analyzed the influence of trust for Chinese coop farmers' satisfaction with their coop membership through testing hypotheses regarding the role of trust as a mediating factor for the influence of the coops governance mode on satisfaction. The study further showed how economic and social goals respectively influence Chinese farmers' satisfaction with their coop membership. The analysis was performed using survey data from the Zhejiang and Sichuan provinces.

Our preliminary results indicate that both economic and social goals have direct impact on farmers' satisfaction of joining coops and Hypothesis 1 is fully supported. Additionally, in Zhejiang province economic incentives showed largest impact on farmers' satisfaction compared to governance mode and social goals. Therefore Hypothesis 2 is also fully supported by our findings. Among all factors, mediating factor trust played greatest impact on farmers' satisfaction of joining coops. In a given environment such as Zhejiang, trust (micro level) among farmers and between member farmers and coop directors facilitates and trust at culture level which was emerged and existed among farmers from a long history facilitate the development of coops by reducing the transaction costs both at micro and macro levels.

Hypothesis 3 was rejected due to there is small social goals impact on farmers satisfaction in Sichuan province. In contrast, coops governance mode played large impact on farmers' satisfaction in Sichuan case. This result, in a certain degree, indicates farmers in Sichuan provinces can guarantee or protect their own interest via developing coops "one member one vote policy" and "collective decision making policy". An alternative way of explain of this result might be that in an economically less development region, farmers more concern their involvement in governance of coops and everyday business of coops. Due to this reason, governance mode is partially mediated by trust in Sichuan case. However Hypothesis 4 is fully approved in Zhejiang and in the case of running "both region models". Therefore we could make an conclusions that trust has a mediating roles between governance mode and Chinese farmers satisfaction of joining coops.

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