

# **Value added efficiency and governance structure: Evidence from the pear industry in China's Zhejiang province**

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## **Abstract**

An investor-owned firm (IOF), a traditional farmer cooperative, and a new generation farmer cooperative are compared regarding their value added efficiency. The results of the case analysis regarding the pear supply chain in Zhejiang province in China indicate that the IOF has a higher value added efficiency than those of the farmer cooperatives. New generation cooperatives gain a larger share of the value added than traditional cooperatives. However, farmer cooperatives have several advantages over general firms in helping farmers.

**Key words:** Farmer cooperatives, Investor-owned firm, Value added.

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## **1. Introduction**

Due to intensified market competition and the rise of supermarkets into the supply chain, it is becoming more difficult for small farmers to negotiate with others (Hu and Reardon, 2004). Farmers often gain a limited share of the value added of the entire chain. There are imbalances between sellers and buyers regarding the distribution of benefits and risk sharing in the product value chain in China. Farmers receive hardly a reasonable share compared to the risk they shoulder, due to their weak bargaining position. Responding to the perceived imbalance, organizations with different governance structures were established to support small farmers. Stockbridge (2003) proposes that a farmer organization is an obvious candidate for solving the problems that farmers are faced with.

There is a substantial literature about the benefits and necessities of the development of organizations that help farmers to face large markets. Following the World Development Report (2002), “producers’ organizations amplify the political voice of smallholder producers, reduce the costs of marketing of input and outputs, and...create opportunities for producers to get more involved in value-adding activities”. Zusman and Rauser (1994) point out that under market failure, collective action yields efficiency improvements over uncoordinated private action. However, Stockbridge (2003) concludes that the transaction costs of doing business with third parties are replaced in part by the transaction costs of organizing themselves together. Jonathan (1999) observes that farmer cooperatives, farmer associations and contracts with private agri-business companies all provide farmers with access to markets.

Farmer cooperatives and investor-owned firms are the two most common organizations that closely relate to farmers. This paper focuses on the objectives and the residual claims of the two organizations. An investor-owned firm is characterized by the objective of pursuing benefits maximization of the shareholders or investors holding the residual claims, while a cooperative is defined as an association of persons joining together to achieve a common objective (both profit related and non-profit related), and have both a transaction and ownership relationship with the organization.

There is a lot of literature regarding the comparison between these two forms of governance structures. Albaek and Scholtz (1998) develop a model of competition between a cooperative and an IOF, and show that the members of the cooperative will earn more than the vertically integrated profit per farmer generated in the IOF. Hendrikse (1998) constructs a screening model to determine the conditions and circumstances under which the cooperatives or the IOFs will be preferred or coexist. Karantininis and Zago (2001) model the decision of farmers to join the cooperative versus the IOF. One of their conclusions is that inefficient producers tend to choose the cooperative instead of the IOF. Lacking from all these analyses is a value added efficiency differential between cooperatives and IOFs. All the above mentioned researches are prone to explain how farmers decide or choose between the alternative organizations and/or under different conditions. What we are interested to exploit is if there are endogenous differences in value added efficiency due to different governance structures.

As a governance structure is formed to help farmers in markets, one of the most important prerequisites should be that it can gain a larger share of value in the chain. A strong connection between the value added efficiency and the existence or development of governance structure is seen, due to farmers' decision to join a cooperative or transact with an IOF must be based mainly on economic terms (Karantininis and Zago 2001).

We investigate the claim that there are significant differences in the value adding efficiencies of products between these different structures, as well as the shares of the benefits that farmers gain. The main objectives of the study are to

- 1) identify the differences in the value added efficiencies between IOF, traditional cooperative and new generation cooperative. Which form of organization has the highest value added efficiency?

- 2) determine the key factors helping farmers to decide to participate in a cooperative while there are alternative organizations.

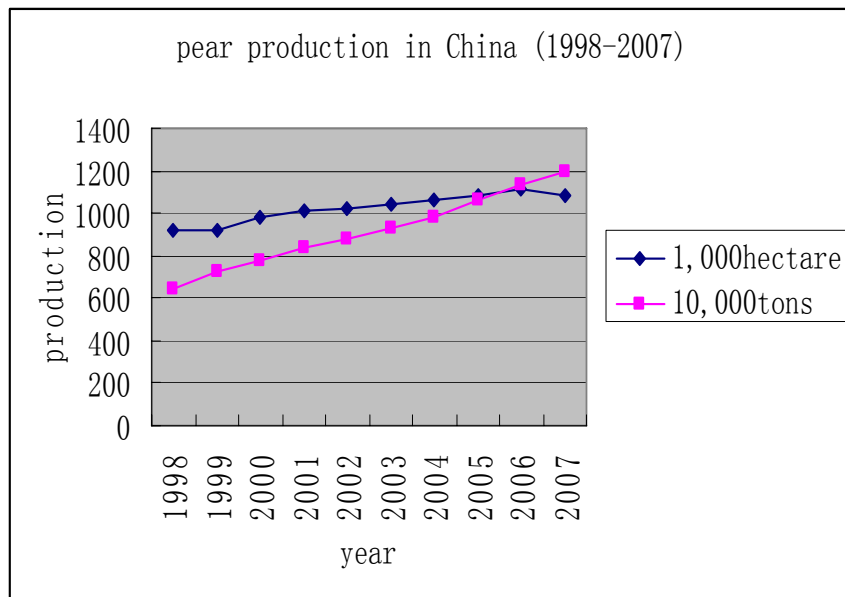
- 3) address what can be done to help farmers to gain a larger share of the value added in the chain.

The article is organized as follows. Section 2 describes the pear production in China. Section 3 reviews the literature, compares the three governance structures, and formulates hypotheses. Section 4 is dedicated to methodology. Cases and data are described and analyzed in detail in section 5. Finally, conclusions and recommendations for further research are formulated in section 6.

## **2 Pear production in China**

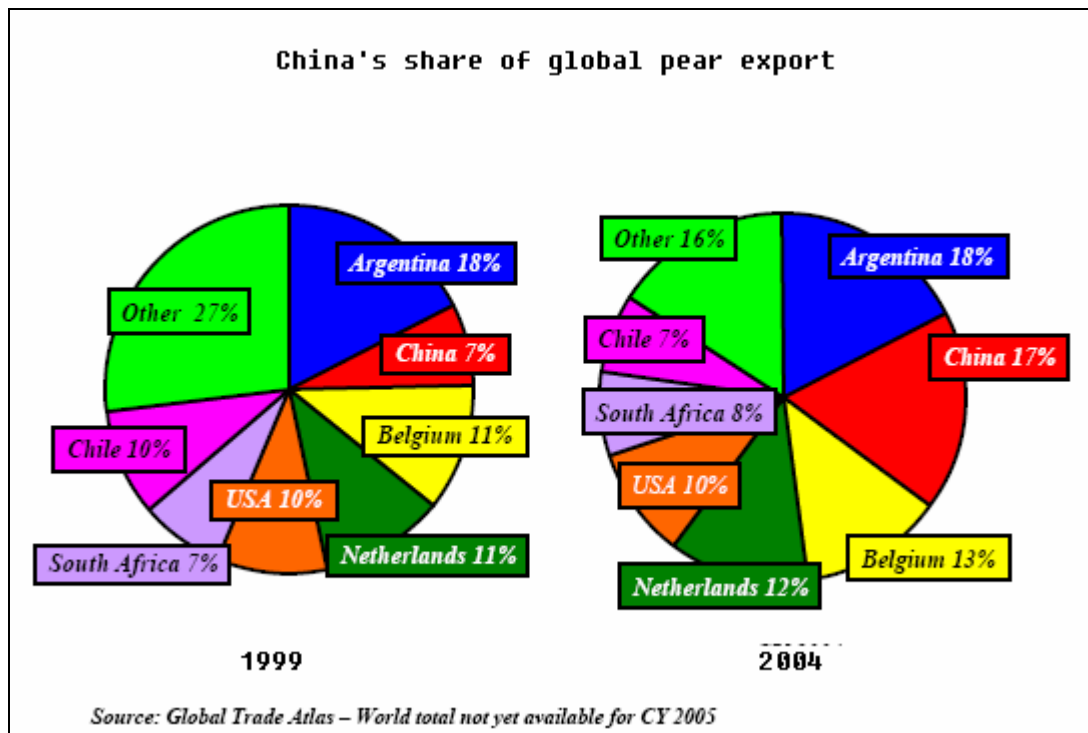
In order to control for differences in production cost, marketing cost and prices, one product market is selected. Pear is selected as a case product. Pear is a main fruit in China, whose production is ranked third following apple and citrus (Gemma, 2002). Pears for fresh consumption in China account for more than 90% of the national production, while those for processing account for less than 10% (Saito, 2005). China is the largest pear producer in the world. Expansion in pear production is due to a combination of high profitability, increasing consumer demand, and improvement in technology (Gemma, 2002). We can see fast growth in pear production in China from Chart 1 and markets share expansion in global pear export in Chart 2.

Chart 1, Pear production in China from 1998 to 2007



Data source: China Agriculture Statistical Yearbook (1999-2008)

Chart 2, Shares of global pear export in 1999 and 2004



Zhejiang province was selected as the case province mainly due to two reasons. The first is that Zhejiang is one of the main provinces of pear production. Zhejiang province is not famous for the big yield of pear (see the yields and areas of pear production of Zhejiang in table 1), but for the relative advantage on variety, technique and market. Zhejiang has a pear variety of high quality and high technique level. Besides, Zhejiang is one of the provinces with most developed markets as well as economy.

Table 1, Pear production in Zhejiang province from 2003 to 2007

Item/year	2003	2004	2005	2006	2007
Area (1,000 hettare)	22.1	24.1	25.7	26.6	26.5
Yield (ton)	202,200	244,454	285,751	310,375	329,753

*Data source: China Agriculture Statistical Yearbook (2004-2008)*

The second reason is that Zhejiang province is leading in China regarding the development of both farmer cooperatives and other agricultural organizations such as

investor owned firms. It is the province with the largest quantity and the most developed level of farmer organizations. The coexistence of the two governance structures provides the possibility for a comparison between these organizations, in order to determine which governance structure obtains the larger share of the value added in the pear value chain, i.e. which organization form has a higher efficiency relating to cost added and value added of pears. Additionally, are there any specific factors that affect farmers' choices to participate or not while there are alternative organizations?

### **3 Theoretical framework**

This section formulates the concepts used in this article (value chain, two governance structures, and two types of farmer cooperatives) and specifies the hypotheses.

The value chain is a model that describes a series of value-adding activities (Rayport and Sviokla, 1996). The value of the product, as well as the cost, is being accumulated in the process of production, transporting, packaging, processing, marketing and consumption. We define the cost added as the expense that one (either an individual or an organization) spends in the process from material (product) purchasing to product sale. In the same sense, value added is recognized as the added value in the process from material (product) purchasing to product sale. For instance, the cost added of a purely marketing (without production or processing) IOF is the expense related to all the material input cost and labor input cost of purchasing, packing, storing, transportation, marketing, negotiation and taxes, etc. In contrast, the

value added of such a purely marketing IOF is the value differential between purchasing price and sale price.

Each stage of the chain, starting from farmers to different channels such as wholesalers, retail stores, cooperatives, investor-owned firms and supermarkets, etc, places different costs added and captures a different value added. Various articles point out that the development of organizational governance structures may help farmers to capture a larger share of the value added (Liu, 2004; Huang, 2005).

A governance structure specifies on the one hand who formally holds the decisions rights and on the other hand the way in which revenues and costs are distributed in terms of income rights (Hansmann, 1996). In other words, an organization is characterized by authority and residual claims. Nowadays in China, there are two forms of governance structures closely related to product marketing in rural areas, namely a farmer cooperative and an agricultural firm (investor-owned firm). The shareholders are the owners of an investor-owned firm, while all the members are the owners of a cooperative. The distinction between a shareholder and a member is that a shareholder provides only capital to the enterprise, whereas a member provides capital as well as inputs to the enterprise.

Chaddad and Cook (2002) propose a typology of organizational models, in which the traditional cooperative structure and the IOF are characterized as polar forms, and the new generation cooperative is deemed as a structure in between. Characteristics of the residual claim rights distinguish organizational forms from one another (Fama and Jensen, 1983a, b). Shareholders of a firm hold the residual claim

rights, while all the members of a cooperative are in charge of the residual claim rights. Farmer cooperatives can be distinguished into two main types: traditional cooperatives and new generation cooperatives. Cook and Iliopoulos (1999) characterize a traditional agricultural cooperative by open membership, growth capital primarily generated from patronage, illiquid ownership rights, residual claims between active and inactive members, and a one member one vote principle. Katz and Boland (2002) characterize a new generation cooperative by closed membership and a delivery requirement (which must be delivered under threat of sanctioning if members do not fulfill their obligation).

This classification matches well with the realities in China. Nowadays in China there are both traditional ones and new generation ones. In this research, a traditional cooperative is associated with one organizing farmers to produce and market in a relatively loose way, while a new generation cooperative organizes farmers in a much tighter way, such as contract purchasing.

Chaddad and Cook (2002) propose that ownership structure has an effect on organizational efficiency. The characteristics of a traditional cooperative, described as open membership, vaguely defined ownership rights, defensive purposes and residual fight of control based on one member, one vote, lead to underinvestment and inefficiency (Cook and Iliopoulos, 2000). The open membership leads to the free-rider problem and the horizon problem, i.e. members can capture benefits from their investment only over the horizons of their expected membership, which causes short-term investment and/or underinvestment (Valentinov, 2007). If property rights

are not clearly defined or not secure, then owners will not invest great amounts in assets that they may lose with no compensation (Milgrom and Roberts, 1992). Cooperatives are firstly found to act collectively for defensive purposes - to depressed prices and/or market failure (Cook and Iliopoulos, 2000), which implies a passive attitude towards investment.

*Hypothesis 1(a):* Members of a traditional cooperative tend to under-invest in production.

*Hypothesis 1(b):* A traditional cooperative tends to under-invest in product marketing.

Alternatively, a new generation cooperative is organized due to a more offensive attitude towards adding value to their assets (Cook and Chaddad, 2004). Cook and Iliopoulos (2000) consider new generation cooperatives as being more interested in extracting rents from value added activities up- and down-stream in the food chain. They also predict that the clearly defined membership cooperatives with transferable and appreciable residual claims enhance members' incentives to invest and return on investment, which probably brings about higher product quality and higher product prices.

*Hypothesis 2(a):* Members of a new generation cooperative have a higher investment level in quality improvement and quality control than those of a traditional cooperative.

*Hypothesis 2(b):* A new generation cooperative tends to invest more in product marketing.

According to Chaddad and Cook (2002), the IOF is the most efficient form of organization, taking into consideration the difficulty in assets valuation. They deemed IOF as a demutualized form of cooperatives. As a result of demutualization, residual claim and control rights are reassigned among the firm's stakeholders. This reassignment brings high efficiency due to focused assets shares and focused achieving goals. Herbst and Prufer (2007) argue that cooperatives will be preferable when the cost of collectively decision making is sufficiently low, while firms are optimal when there is tough competition as well as higher costs of collective decision making. Following these former statements, a higher efficiency of IOF is predicted due to the heightened competition in markets.

*Hypothesis 3:* Investor-owned firms have higher value added efficiency than a cooperative when competition is more intense or cost of collective decision making is high.

There are a number of reasons why cooperatives may have lower costs than IOFs. First, IOFs may face the double marginalization problem (Spengler, 1950), whereas cooperatives do not due to the vertical relationship between member firms and the cooperative enterprise. Second, cooperatives may face lower coordination costs than IOFs due to the marketing orders in terms of delivery requirements. Finally, member loyalty is most likely stronger than the relationship between a supplier and an IOF because members are users as well as owners of the cooperative enterprise. This entails lower turnover costs in cooperatives than IOFs. Considering the practical situation of cooperatives in China, i.e. the characteristic of regionality and relative

high homogeneity of memberships (Yuan, 2005; Fu, 2003), collectively decision making is still at a relatively low level.

*Hypothesis 4:* Cooperatives have lower costs regarding purchasing and marketing than Investor-owned firms provided that members of cooperatives hold a high level of homogeneity.

## **4. Methods**

This section describes the case selection and data collection methods (4.1). Subsequently, three selected case organizations are elaborated and data closely related to our research topic are listed (4.2).

### **4.1 Case Candidate and Case selection**

Case study research is considered as a useful research strategy when there is not a lot of related theory available or when it is used with exploratory aims (Dul and Hark, 2008; Voss, 2002). According to the assumption that the cases should be representative of the population, there are three kinds of sampling, namely random sampling, stratified sampling and theoretical sampling (Voss, 2002). Stratified sampling is more preferable if there is a limited number of cases and if there are specific types of populations. In our research the stratified sampling method was adopted to select the cooperatives and firms. Firstly, four pear farmer cooperatives and two pear firms were selected from the Annual Pear Quality Appraisal in 2007, conducted by the government of the Zhejiang province. Semi-structure interviews were conducted, using a questionnaire that covered all the basic information, such as data regarding costs, prices and sale channels of the case organizations.

Semi-structure interview is chosen out of structured, semi-structured and unstructured interview because of its advantages in enabling interviewees to probe deeply, to solicit expansive responses, and thereby uncover previously hidden detail (Burgess, 1982). Secondly, based on the different developing histories, scales, and modes, etc, an IOF, a traditional cooperative and a new generation cooperative were chosen as the survey cases. All the three organizations can well reflect and stand for real situations and types of existing farmer related organizations. Thirdly, several unstructured interviews were done with farmers having close relationships with the selected case organizations. They were selected randomly to ensure the reliability and validity of first-hand data related to the case organizations.

#### **4.2 Case description and data presentation**

Let the sale prices of farmers or the production cost of organization (some firms also have pears orchards themselves) be the original value of the products. Cost added occurs when there are activities like transportation, packing, processing and marketing. And value added is bigger than zero if the sale price is higher than the purchase price or production cost. Define the indexes as:

CA: cost added;

CAR: ratio of cost added (cost added/original value);

VA: value added;

VAR: ratio of value added (value added/original value).

For producers,  $VCR = \text{cost added} / \text{production cost}$ , and  $VAR = (\text{sale price} - \text{production cost}) / \text{production cost}$ ; while for wholesalers and retailers,  $VCR = \text{cost}$

added / purchasing cost, and VAR = (sale price – purchasing price)/purchasing price.

Details of the three cases are presented case by case.

**(1) ZS pear specialized cooperative (traditional cooperative)**

Interviewee: Manager Chen

ZS pear cooperative was established in 2002 by 10 pear farmers, with a registered capital of RMB 500,000 and set assets of RMB 1,200,000. The number of its members reached 104 in 2007. ZS cooperative supplies inputs for all the members at wholesale prices. The cooperative purchases pears of all the local farmers, but with a priority to members. The cooperative graded pears and those not meeting the grading standard would be rejected. ZS cooperative sold pears in four channels, namely group consumption, supermarkets, wholesale market and peddlers coming to the cooperative. The sale proportions of the above-mentioned channels were 60%, 8%, 10% and 22% separately. The cooperative’s total purchasing volume of pears from farmers was 1000 tons at an average price of RMB1.5 per kg. The data is summarized in Table 3.

Table 3: The costs and price of pear purchasing and sale of ZS cooperative (RMB)

Items	Costs	Cost (per kg)	Price (per kg)	Balance (per kg)
Purchase expense	1000000	Original Value: 1.0		
Rent for office building and packing workshop	5000	Cost added: 0.202		
Electricity cost of cold house	4000			
Labor cost	20000			
Packing cost	166000			
Administration expense of markets	7000			
Total value	1202000	1.202	1.5	0.298

We can see from Table 3 that the original value of pears of ZS cooperative was RMB1.0 per kg; and the cost added of pears per kg is RMB0.202, while the value added is RMB0.5 per kg which comes from the deduction of (1.5-1.0).

Thus, CAR2:  $0.202/1.0=20.2\%$ ;

VAR2:  $0.5/1.0=50\%$ .

## **(2) NNS pear specialized cooperative (new generation cooperative)**

Interviewee: Manager Zhou

NNS cooperative was established by 10 farmers or shareholders in 2004 with a registered capital of RMB 520,000. Now it has 13 core members and 108 common members. Farmers who want to join the cooperative have to pay for the shares. NNS cooperative carried out production standards according to which all the pears of members were produced. The cooperative also purchased inputs for members at relatively lower prices. Besides, technique instructions and trainings were provided to members by technique able men or specialist from government departments or universities invited by the cooperative. NNS cooperative signs purchasing and sale contracts with members before harvest time. 600,000kg pears were contracted. Set production standards, prices, brands and packages were contained in the contracts. All the costs and price of pears are listed in Table 4.

Table 4: The costs and price of pear purchasing and sale of NNS cooperative (RMB)

Items	Costs	Cost (per kg)	Price (per kg)	Balance (per kg)
Purchase cost	570000	Original Value: 6.33		
Depreciation cost of set assets	13000	Cost added: 0.876		

Rent for office building	2000			
Electricity cost	2000			
Packing cost (including labor cost)	40800			
Operational cost	21000			
Total value	648800	7.21	7.6	0.39

We can see from Table 4 that the original value of pears of NNS cooperative was RMB6.33 per kg; and the cost added of pears per kg is RMB0.876, while the value added is RMB1.27 per kg which comes from the deduction of (7.6-6.33).

Thus, CAR3:  $0.876/6.33=13.8\%$ ;

VAR3:  $1.27/6.33=20\%$ .

### (3) DFD firm (IOF)

Interviewee: General Manager Xu

DFD firm was established in April, 2003 by five shareholders, with a registered capital of RMB 3,000,000 and permanent assets of RMB 8,700,000. Now DFD has an pear orchard of 4 hectare. Besides, the firm purchases pears from farmers of Local County in June, July and August. The pear yield of DFD in 2007 was 225 tons while the purchase volume is 650 tons, which means that the total sale volume in 2007 was 875 tons. The sale channels were described as: group consumption (80%), and supermarkets (20%). All the costs and benefits of pear production, purchasing and sale are listed in Table 2.

Table 2: The data of pear production, purchasing and sale of DFD Firm (RMB)

Items	Costs	Cost (per kg)	Price (per kg)	Balance (per kg)
Rent of orchard	3000	Original Value: 2.14		
Input cost	76000			
Labor cost	80000			
Purchase expense	1715000			

Packing cost	531220	Cost added: 1.56		
Transportation cost	406650			
Operational cost	375000			
Depreciation cost	50000			
Total value	3236870	3.70	6.96	3.26

We can conclude from Table 2 that:

The original value of pears per kilogram is RMB2.14, and the cost added of pears is RMB1.56 per kg, while the value added is RMB4.82 per kg which comes from the deduction of (6.96-2.14).

Then, CAR1:  $1.56/2.14=72.7\%$ ;

VAR1:  $4.82/2.14=225.1\%$ .

## 5. Results and discussions

We summarize the data of the three case organizations in a comparison table and formulate results regarding hypotheses-testing (5.1). Subsequently the results are discussed (5.2).

### 5.1 Results

Data regarding all the three organizations are tabulated in Table 5.

Table 5: Data comparisons between DFD Firm, ZS cooperative and NNS cooperative

Items	Original Value per kg (RMB)	Cost added per kg (RMB)	Value added per kg (RMB)	Sale price (RMB)	CAR (%)	VAR (%)
ZS coop	1.0	0.202	0.5	1.5	20.2	50
NNS coop	6.33	0.88	1.27	7.6	13.8	20.0
DFD firm	2.14	1.56	4.82	6.96	72.7	225.1

Table 5 shows a number of results.

*Result 1(a):* Members of the traditional cooperative (ZS) have an obviously

lower investment in pear production.

*Result 1(b):* The traditional cooperative has a lower investment level in pear marketing.

*Result 2(a):* Members of the new generation cooperative (NNS) have a much higher investment level in pear production.

*Result 2(b):* The new generation cooperative invests correspondently much more in marketing.

Table 5 shows that NNS cooperative (new generation cooperative) has obvious higher original value and cost add than ZS cooperative (traditional cooperative). This can be explained by the big difference in pear quality and the different characteristics between a traditional cooperative and a new generation cooperative. Pears of the two cooperatives are of different qualities and packages, which imply the different investment levels of production and marketing between the two types of cooperatives. Pears of NNS cooperative are produced strictly according to specific standards in the supervision of the cooperative, while pears of ZS cooperative are produced in common standards without special supervision from the cooperative. NNS signs contracts with members with fixed items of product standards, prices and volume. What attract members to sign the contracts are high prices and low or no sale risk.

*Result 3:* Invest-owned firms have higher value efficiency than cooperatives.

*Result 4:* Cooperatives have lower costs regarding purchasing and marketing, i.e. Invest-owned firms have a higher cost added.

Definitely DFD firm has much higher CAR and VAR compared with either ZS

cooperative or NNS cooperative. On the one hand, the high cost added in DFD Firm was mainly due to the high labor cost and higher institutional running cost. Cooperatives' characteristic of member owned and member used brings an advantage with respect to the cost of decision making and the cost of labor using. For instance, DFD firm has to pay for the labor costs of purchasing and transportation, while the cooperatives don't. On the other hand, DFD firm also gains much higher value added of pears. The value added for each kilogram of pears has a lot to do with the sale channels. As far as we know from the interviews, pears supplied to group consumption are generally of higher prices than those sold to either wholesaler or retailers. Another factor that contributes to the higher value added of the DFD firm should be the scale effect coming from diversification. DFD firm grows and markets other fruits like oranges, plums and peaches, apart from pears. These different kinds of fruits share the same sale channels and also promote sale channels of each other. But cooperatives are more prone to focus on one fruit.

## **5.2 Discussion**

Cooperatives and investor-owned firms coexist in many agricultural markets. This phenomenon seems to contradict with standard economics theory that organization of low efficiency would be replaced by that of high efficiency. This raises a question of why a cooperative with lower value added efficiencies in the chain is so popular and develops with an unstoppable tendency. We will try to find some explanations.

Firstly, it lies in the different objectives of organizations of different governance

structures. An investor owned firm aims for interest maximization of shareholders while a farmer cooperative pursues to maximize the benefits of all the members. Despite of the DFD firm's higher investment ratio, farmers can not gain a piece from the cake of the firm. In contrasts, gains of cooperative will probably be distributed to members at the end of production year.

Secondly, one of the key attributes of an organization is the decision making system. The different decision making structure may create an advantage. More active participation by members in decision making is expected in cooperatives due to the substantial financial stake in the cooperative by the members (Hendrikse and Veerman, 2001). This attribute of a cooperative is one factor that attracts farmers to join in.

Thirdly, cost externalization may be one of the factors that relates to the development of farmer cooperatives. Nowadays, farmer cooperatives in China are still at a take-off stage, which determines the developing mode of low investments and low profits. The government allows cooperatives to externalize part of their expenses by subsidies and preferential tax treatment.

Last but not least, a cooperative is an organization owned and used by farmers. As far as we know, a sense of belonging is a necessity in our daily life, which is even reinforced because of farmers' limited knowledge and communities. All the farmer cooperatives in China exist on the basis of trust which is established through multi-games. The trusts between each member, either core members or common members, make the dependence of farmers on cooperatives easier and stronger.

## **6. Conclusions and further research**

The case analysis tests the proposition that traditional cooperatives are prone to under-invest, while new generation cooperatives are more interested in investment and investment return. The result provides support for the perceived theories (Cook and Iliopoulos, 2000; Valentinov, 2007).

One of the main predictions that we can obtain from the data of our case study is that an IOF usually has a significant higher efficiency of value added than a cooperative. It is therefore puzzling from the perspective that farmer cooperatives are becoming more popular while there are less agricultural firms in the domain of fresh product marketing. An explanation may be that farmer cooperatives have a lot of advantages over IOF, taking into consideration of farmers' benefits.

The main lesson from the case study is that there is still a long way to go before farmer cooperatives in China survive by themselves, and establish their own blood hematopoietic function and system, without subsidies and support from governments or donations. One possible way is that they on the one hand behave as a benefit-maximizing firm in the big markets and on the other hand try to maintain the advantages of a cooperative as a farmer-controlled organization.

Besides, the markets are undergoing changes of consumer interests and food consuming structures. Contract-production and systems of vertical co-ordination are replacing spot markets (Martinez and Reed, 1996). New generation cooperatives, who organize farmers in a relatively tight way, are prone to gain higher prices by ensuring product volume and quality of members.

One important characteristic of a cooperative keeping decision making costs low

is homogeneity of the membership. Costs of collective decision making can be kept to a minimum if members share the relatively simple goal involving a certain commodity. Due to imperfect development and low quality of management skills in farmer cooperatives in China, they may have to limit the membership within a local region or within a single product to keep the homogeneity of members.

There are several directions for future research. First, this case study is limited by the size of sample, which consists of 3 organizations. More cases are needed for further testing and analysis. Then regression analysis can be adopted if the size of the sample is big enough. Second, there is scope for research investigating that traditional cooperatives will be replaced by new generation cooperatives, or will they coexist? New generation cooperatives seem to have some advantages in quality control and volume assurance over traditional cooperatives. Will traditional cooperatives with their close ties to farmers survive or transform to new generation cooperatives?

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