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Conference Paper

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

IAMO Forum 2010, Halle (Saale), June 16 – 18, 2010: Institutions in Transition - Challenges for New Modes of Governance

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Suggested citation: Liang, Qiao; Hendrikse, George W. J.; Huang, Zuhui (2010) : Value added and governance structure: Evidence from the pear industry in China's Zhejiang province, IAMO Forum 2010, Halle (Saale), June 16 – 18, 2010: Institutions in Transition - Challenges for New Modes of Governance, <http://hdl.handle.net/10419/52708>

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“Institutions in Transition –

Challenges for New Modes of Governance”

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Value added and governance structure:

Evidence from the pear industry in China’s Zhejiang province

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Abstract

Traditional farmer cooperatives, new generation farmer cooperatives, and investor-owned firms (IOFs), are compared regarding their value added and value added rate in terms of product marketing. The results of the analysis regarding the pear supply chain in Zhejiang province in China indicate that IOFs obtain a higher value added or value added rate than farmer cooperatives. New generation cooperatives mitigate the under-investment problem of traditional cooperatives in a certain extent. However, farmer cooperatives have some advantages over investor-owned firms in benefiting farmers.

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

1. INTRODUCTION

Due to intensified market competition and the rising of supermarkets in the supply chain, it is becoming more difficult for small farmers in China to negotiate with others (HU and REARDON, 2004). Farmers often gain a limited share of value added of the entire supply chain. There are imbalances between sellers and buyers regarding the distribution of benefits and risk sharing in the product value chain. Farmers receive hardly a reasonable share compared to the risk they shoulder, due to their weak bargaining position. As a response to the perceived imbalance, organizations with different governance structures were established to help small farmers in some measure.

Cooperatives and investor-owned firms (IOFs) are alternative governance structures of business organization that operate in the food supply chain. Governance structure is defined as the allocation of decision rights and income rights over relevant assets (HANSMANN, 1996). Here decision rights in the form of authority and responsibility address the question ‘Who has authority or control (regarding the use of assets)?’, while income rights address the question ‘How are benefits and costs allocated?’. Just as the name implies, investor owned firms are firms hold by investors, while cooperatives are characterized by member use and member control. An investor-owned firm is characterized by the objective of pursuing benefits maximization of 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 members have both a transaction and ownership relationship with the organization.

Jonathan (1999) observes that farmer cooperatives, farmer associations and contracts with private agri-business companies all provide farmers with access to markets. But the difference in income right and residual right allocation between alternative governance structures contributes to the differences in organizational performance in terms of capital structure, profitability, operation efficiency, and growth rates, etc. 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. He argues that cooperatives are not efficient in accepting good project and show a lack of innovation. But the competition with cooperatives improves the market performance of IOFs and helps to prevent the inefficiency outcome or equilibrium of a market that consisting of IOFs only. 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. In a practical study (CHEN, BABB, and SCHRADER, 1985), results that cooperatives have lower profitability, higher leverage, and higher growth rates than

IOFs are obtained. In contrast, Parliament, Lerman, and Fulton (1990), through a study within the dairy industry, found that cooperatives have higher profitability and lower leverage than IOFs. Besides, they state that performance of cooperatives differ significantly across size and industry categories.

As, from the point of view of farmers, a governance structure is applied to help farmers get access to markets and gain more, one of the most important prerequisites should be that it can gain a larger share of value in the chain. Huang (2005) and Liu (2004) point out that the development of organizational governance structures may help farmers to capture a larger share of the value added. A strong connection between the value added rate and the presence or development of governance structure form 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 added, value added rate of products and the shares of value added that farmers gain between alternative governance structures. The main objectives of the study are to

1) identify the differences in the product value added as well as value added rate between alternative governance structures.

2) determine the key factors besides economical benefit that contribute to farmers' choice of product outlet governance structure.

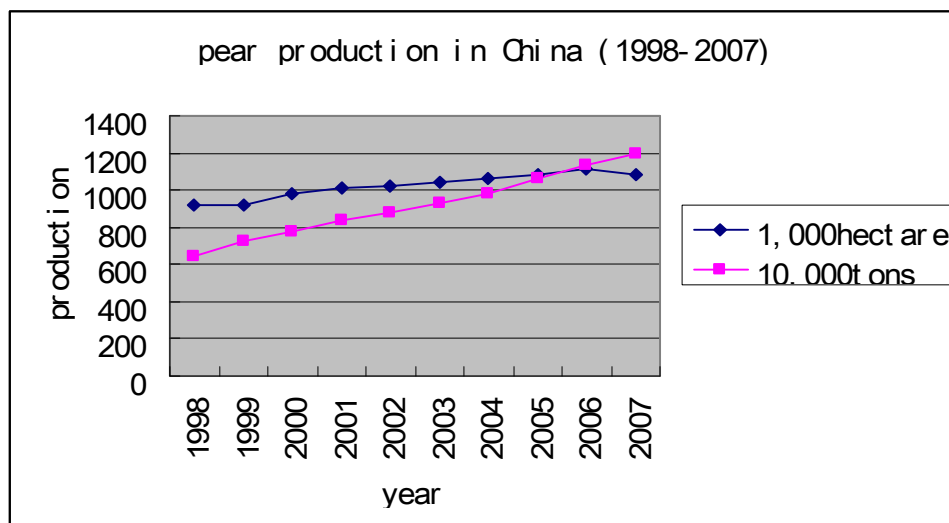
3) address what can be done to help farmers to gain a larger share of value added in the chain.

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 propositions. Section 4 is dedicated to methodology. Results of testing are shown in section 5. Finally, discussions and recommendations for further research are formulated in section 6.

2 PEAR PRODUCTION IN CHINA

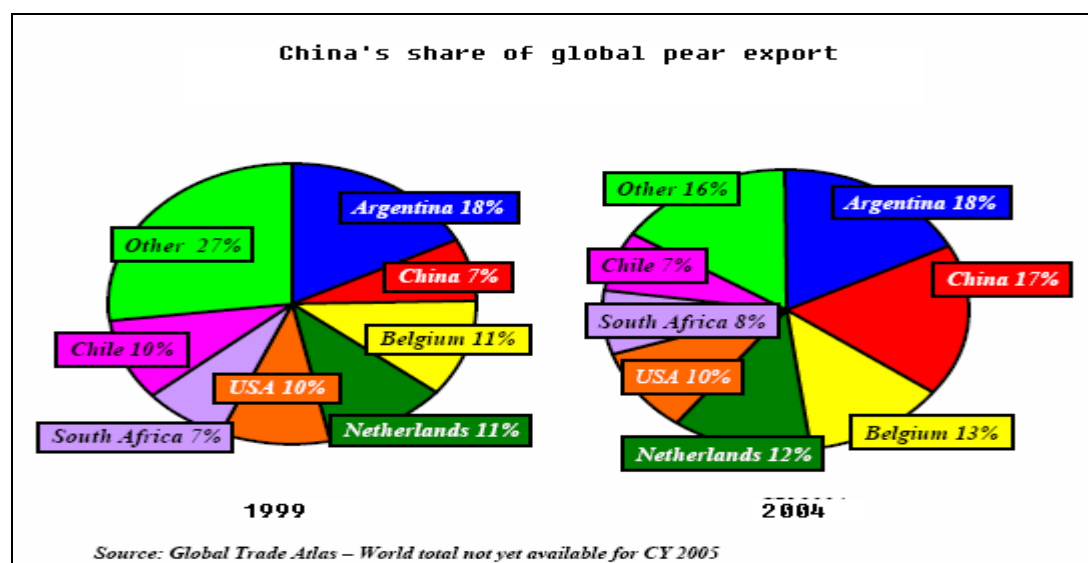
In order to control for industry or product category, a single product, pear, is selected. Pear is a main fruit in China, whose production is ranked third following apple and citrus (GEMMA, 2002). Pears for fresh consumption in China account for more than 90% of the national production, while those for 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 Figure 1 and market share expansion in global pear export in Figure 2.

Figure 1: Pear production in China from 1998 to 2007



Source: China Agriculture Statistical Yearbook (1999-2008)

Figure 2: Shares of global pear export in 1999 and 2004



Zhejiang province was selected as the province where the practical study was carried out mainly due to two reasons. The first is that Zhejiang is one of the main pear production as well as consumption provinces. 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 high quality variety, high level technique and high competitive market.

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

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

Source: China Agriculture Statistical Yearbook (2004-2008)

The other reason is that Zhejiang province is a leader in China in terms of the development of both farmer cooperatives and alternative agricultural organizations such as investor-owned firms. It is one of the provinces with the largest quantity of cooperatives, and the province leading the development of alternative organization forms in both agricultural and non-agricultural industries. The co-existence of alternative governance structures provides the possibility for a comparison.

3 THEORETICAL FRAMEWORK

Some concepts used in this article are defined in this section and a proposition is formulated based on a review.

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. The shareholders are the owners of an investor-owned firm, whereas 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.

The issue of economy effectiveness or efficiency regarding various governance structures or different ownership structures is theoretically studied by Hart and Moore (1996), Albaek and Scholtz (1998), Hendrikse (1998), Chaddad and Cook (2002), and Cook and Chaddad (2004), etc.

In Hart and Moore (1996) paper, two claims concerning the relative efficiency comparison of member cooperatives and outside ownership are tested and confirmed. They conclude that outside ownership becomes relatively more efficient than a members' cooperative as the variation across the membership becomes more skewed and as the transaction faces more competition. Cooperative is defined as an organization that the assets are controlled by the members who hold control rights and residual rights, and outside ownership as an organization that the assets are controlled by an outside owner who maximizes profit. Market competition and member heterogeneity are the two dimensions emphasized to be the key factors in determining the choice of efficient governance structure. More competitive market environment and more heterogeneous interests lead to more preference of outside ownership.

Chaddad and Cook (2002) propose a typology of organizational models, in

which the traditional cooperative and the IOF are characterized as polar forms, and the new generation cooperative is deemed as a structure in between. They define the ownership rights as being comprised of residual claims and residual control rights. Herein residual claims are defined as the rights to the net income generated by the firm. Residual control rights are defined as the rights to make any decisions regarding an asset's use that are not explicitly attenuated by law or contract (Grossman and Hart, 1986). 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 (2000) 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).

Realities in China are in accordance with the theoretical classification. Nowadays in China there are both traditional cooperatives and new generation cooperatives, and probably some forms in between or in transition.

According to Chaddad and Cook (2002) argument, 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 right 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.

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.

Obtained from literature reviewed above, here we conclude with the first proposition.

Proposition 1: *Members of traditional cooperatives tend to under-invest in production and marketing activities, compared with those of new generation cooperatives.*

Chaddad and Cook (2002) consider IOF to be 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. Porter and Scully (1987) employ the frontier production function to assess scale, price, and technical efficiency differences between farmer cooperatives and non-cooperative firms and find that the non-cooperative firms dominate in efficiencies over cooperatives. Whereas the model of Herbst and Prufer (2008) argue that the efficiency of different organizations depends on the competitive environment and the decision making cost. Their model shows that a cooperative usually is the most efficient form when there is sufficiently low cost of collective decision making. Yet, firms are preferable to cooperatives as soon as decision making cost rises to an extent. In conclusion, they consider IOF to be an optimal organizational response to tougher competition and more costly internal decision-making process. Following these former statements, a higher efficiency of IOF is predicted due to the heightened competition in markets.

Conclude from these above stated research, an increment of economic efficiency is implied, ranging from traditional cooperative, new generation cooperative, to investor-owned firm, which forms the second proposition.

Proposition 2: *There is an ascending in economic efficiency of organizations of different governance structures, ranging from traditional cooperative, new generation cooperative, to investor-owned firm.*

4. METHODS

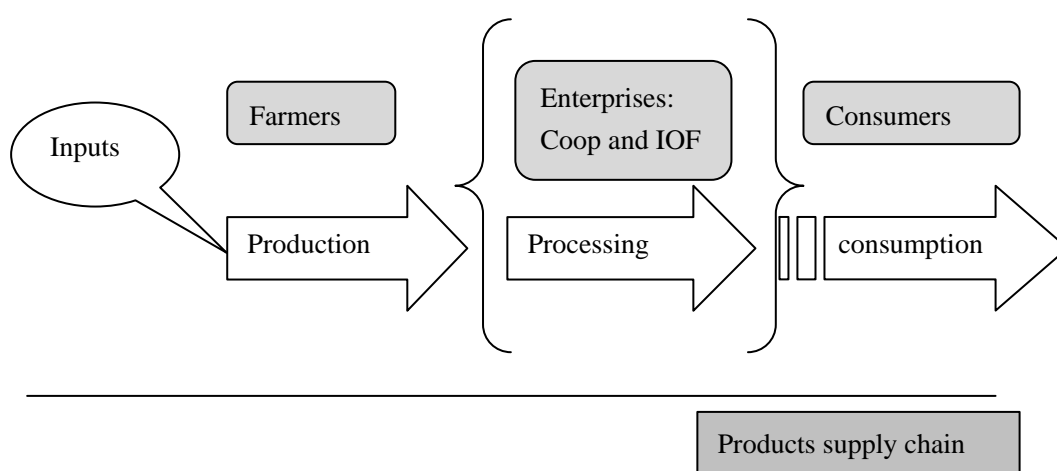
This section introduces a model as well as measurement of various variables (4.1). Then methods of data collection are addressed(4.2). Subsequently, hypotheses are formulated based on propositions and measurement (4.3). Finally, cases chosen are described (4.4).

4.1 A model and measurement of variables

Value chain is a model that describes a series of value-adding process. 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 added expenses occurring during the process from input purchasing to output sale. In the same sense, value added is recognized as the added value in the process from input (product) purchasing to product sale. For instance, the cost added of a product marketed by an IOF is the expense occurring during procurement, transportation, packing, storing, and marketing, etc. And the value added is the value differential between product purchasing price paid to farmers and sale price paid by downstream clients. What we investigate is the value added (economical profit) and cost added (investment) within the marketing enterprises, which are described in the bracket (Figure 3).

Figure 3: Products supply chain



The purchase prices of products or production costs are viewed as the original value of products. Costs added of products occur as long as there are activities of transaction, transportation, packing, processing and marketing. Value added is greater than zero if the sale price is higher than the purchase price or production cost.

Assume that there are three types of governance structures of farmers' product outlet in markets, namely traditional cooperatives, new generation cooperatives, and IOFs. 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. Therefore two types of cooperatives, in line with theory (KATZ and BOLAND, 2002; COOK and ILIOPOULOS, 2000), are recognized by characteristics listed in Table 2. Cooperatives have two or more than two characteristics of traditional cooperatives are regarded as traditional cooperatives, while those have two or more than two characteristics of new generation cooperatives are supposed to be new generation cooperatives.

Table 2: Characteristics of traditional and new generation cooperatives

	Traditional coops	New generation coops
Membership	Open membership	Close or limited membership
Product delivery	No delivery obligation	Delivery obligation
Contract	No written contract	Written contract

Define profits of the three organizations as $\pi_i(c_i, a_i, p_i)$ respectively, where $i=1, 2, 3$ and $i=1(2, 3)$ refers to the traditional cooperatives (the new generation cooperatives, the IOFs). c_i ($i=1, 2, 3$) denotes the procurement price, a_i ($i=1, 2, 3$) denotes the cost added before sale, and p_i ($i=1, 2, 3$) denotes the sale price of pear of the three enterprises. Suppose that there is no deep processing in either of the organization, except for first-stage process like grading and packing, which is the actual situation of pear industry investigated. For the IOF, p_3 is the sale price and c_3 is the procurement price paid to farmers. Since a cooperative is an enterprise owned by farmers, the costs and profits of a cooperative are regarded as the joint costs and profits of all the members. Thus for the two cooperatives, p_i ($i=1, 2$) is the sale price and c_i ($i=1, 2$) is the production cost of members. The profit function of each product will be: $\pi_i = p_i - c_i - a_i$, where $i=1, 2, 3$.

Let v_i^g and ρ_i^g be the general value added and general value added rate, while v_i^n and ρ_i^n be the net value added and net value added rate. Then we get

$$v_i^g = p_i - c_i, \quad v_i^n = p_i - c_i - a_i = \pi_i, \quad \rho_i^g = \frac{p_i - c_i}{c_i} \quad \text{and} \quad \rho_i^n = \frac{\pi_i}{c_i} = \frac{p_i - c_i - a_i}{c_i}.$$

4.2 Sampling and data collection

As introduced in section 2, we focus population of the study on organizations of various governance structures related to pear production and/or marketing in Zhejiang province, China. There are two rounds of case selection, in order to ensure the representativeness of selected cases. Firstly, four pear farmer cooperatives and two investor-owned firms were recommended by Provincial Agricultural Department of Zhejiang based on consideration of types and representativeness, choosing from the

present organizations at Annual Pear Quality Appraisal in 2007 which was hosted by the government of Zhejiang province. Semi-structure interviews were conducted with Managers or initiators of observations, 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). Basic information in terms of firm foundation and developing course; costs and prices related to pear production, procurement, and sale; and developing prospect as well as challenges are collected.

Subsequently, based on the different developing histories, scales, and modes, etc, an IOF (DFD company), a traditional cooperative (ZS cooperative) and a new generation cooperative (NNS cooperative) were chosen out of the four cooperatives and two IOFs as our target cases. All the three organizations can well reflect and stand for real situations and types of existing farmer related organizations. Finally, several random unstructured interviews were done with farmers who deliver products through or to the three selected case organizations, to ensure or test the information authenticity of first-hand data related to the case organizations.

4.3 Hypotheses

Based on the first proposition that members of traditional cooperatives tend to under-invest in production and marketing activities, compared with those of new generation cooperatives, hypotheses are formulated.

Hypothesis 1: *The traditional pear cooperative tends to under-invest in production, compared with the new generation cooperative, i.e. $c_1 < c_2$.*

Hypothesis 2: *The traditional pear cooperative tends to under-invest in processing, compared with the new generation cooperative, i.e. $a_1 < a_2$.*

As to the second proposition, i.e. there is an increment in both value added and value added rate of organizations of different governance structures, ranging from traditional cooperative, new generation cooperative, to investor-owned firm, hypotheses are explicit.

Hypothesis 3: *The investor-owned firm has the highest value added or value added rate, followed by the new generation cooperative, and the traditional cooperative has the lowest value added rate, i.e. $v_3^g > v_2^g > v_1^g$ or $v_3^n > v_2^n > v_1^n$.*

4.4 Data coding and description

Details of the three organizations are presented case by case in this part.

(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: Costs and values of coop 1

Items	Production Cost	Cost added	Sale price	Net profit	General value added rate	Net value added rate
	c_1	a_1	p_1	π_i	$v_1^g = \frac{p_1 - c_1}{c_1}$	$v_1^n = \frac{\pi_1}{c_1}$
Coop 1	1.328	0.202	1.5	-0.030 ¹	0.130	-0.023

(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. 60,000kg pears were contracted. Set production standards, prices, brands and packages were contained in the contracts. Table 4 presents the production cost, cost added and value added of NNS cooperative.

¹ Although the net profit is minus, farmers still gain some profits because labor costs of farmers themselves are included in the production costs.

Table 4. Costs and values of coop 2

Items	Production Cost	Cost added	Sale price	Net profit	General value added rate	Net value added rate
	c_2	a_2	p_2	π_2	$v_2^g = \frac{p_2 - c_2}{c_2}$	$v_2^n = \frac{\pi_2}{c_2}$
Coop 2	3.838	1.313	7.6	2.449	0.980	0.638

(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 5.

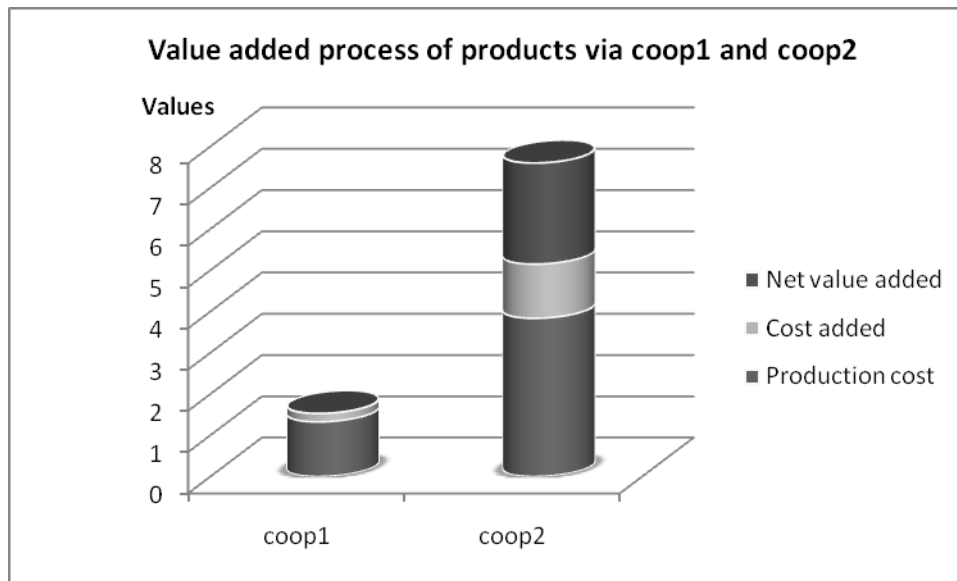
Table 5: Costs and values of the IOF

Items	Production Cost	Cost added	Sale price	Net profit	General value added rate	Net value added rate
Index	c_3	a_3	p_3	π_3	$v_3^g = \frac{p_3 - c_3}{c_3}$	$v_3^n = \frac{\pi_3}{c_3}$
IOF	2.142	1.558	6.960	3.260	2.249	1.522

5. RESULTS

Comparisons between the production investments, marketing investments, and net values added of the two cooperatives are displayed in Figure 4.

Figure 4. Production costs, costs added, and values added of the two coops

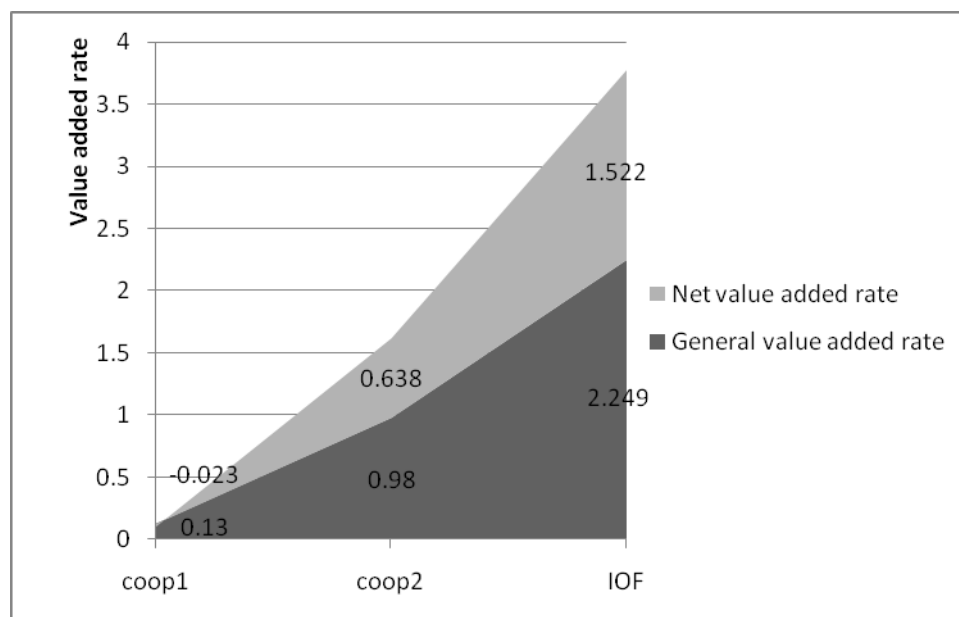


We see from Figure 4 that coop2 (new generation cooperative) has definitely higher level investments in both production and cost added than coop1 (traditional cooperative). The big differences in investments lead to pear quality differentia and sequentially contribute to the significantly different levels of value added. Pears of coop2 are produced according to specific standards under the supervision of the cooperative, while pears of coop1 are produced in common standards without especially strict supervision from the cooperative. Besides, coop2 signs contracts with members with detailed items in terms of product quality standards, prices and delivery volume.

Now we can conclude that the first and second hypotheses are confirmed, i.e. the traditional cooperative tends to under-investment in both production and marketing, while the new generation cooperative attaches more value to the quality of pear product to gain a higher price.

Figure 5 denotes to the value added, both general and net, of the three types of organizations.

Figure 5. Value added rates of the three organizations



The ascending in both general value added rate and net value added rate ranging from coop1, coop2, to the IOF, strongly confirmed the third hypothesis that the investor-owned firm and the traditional cooperative rank at the top spectrum and bottom spectrum respectively, and the new generation in the middle, with respect to value added rate. The value added of pears depends to a certain extent on the downstream buyers. 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 retailing stores. Another factor that contributes to the higher value added of the IOF should be the scale effect coming from diversification. The IOF 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 single product.

6. DISCUSSION AND FURTHER RESEARCHES

Discussions concerning the implications of the tested results are addressed (6.1), and some further research questions are raised (6.2).

6.1 Discussion

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 and IOFs are likely to have higher value added efficiency than cooperative. The result provides support for the perceived theories (COOK and ILIOPOULOS, 2000; VALENTINOV, 2007) that cooperatives of open membership, vaguely defined ownership rights, and defensive purpose are likely to have under-investment problem and low economy efficiency, and explicitly defined ownership contributes to higher economy efficiency.

One of the main predictions we can obtain from the data of our case study is that an IOF usually has a significantly higher rate of value added than a cooperative. It is however puzzling from the perspective that farmer cooperatives are gaining speed in agro-food market. This phenomenon seems to contradict with standard economics theory that organization of low efficiency would be replaced by that of high efficiency. An explanation may be that farmer cooperatives have a lot of advantages over IOF, taking into consideration of farmers' benefits.

Firstly, the objectives of a cooperative and an IOF are different. An investor-owned firm aims at 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 efficiency, farmers can not gain a piece of the cake of the firm's profit. In contrast, profit of cooperative will be distributed among members equally or according to members' transaction volume.

Secondly, one of the key attributes of an organization lies in the decision making system. More active participation of 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 voice in decision making gives farmers preference in some measure over transaction with other organization forms.

Thirdly, cost externalization serves as one of the factors that contribute to the survival and development of farmer cooperatives. Nowadays, farmer cooperatives in China are still at a take-off stage, which somehow determines the developing status of low investments level and low profitability. The government therefore supports the development of cooperatives through policies that externalize some costs of farmer cooperatives in the form of 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 preference in community participation. Farmer cooperatives are established on the basis of trust and culture. The trust between each member makes the dependence of farmers on cooperatives easier and stronger.

The main lesson from the case study is that there is still a long way to go before farmer cooperatives in China survive and progress completely by themselves, and establish their own blood hematopoietic function and system, without subsidies and support from governments or donations. The trade-off is that cooperatives 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.

6.2 Further research

There are several directions for future research. First, this case study is limited by the size of the sample, which consists of 3 organizations. More observations are needed for further testing and analysis. Then statistical analysis can be applied to reach more general results. Second, the study is focused on the value added of product within organizational level. It is provoking to research on the whole map of value adding of each stage of the product supply chain. Thirdly, since new generations are usually supposed to be more efficient than traditional cooperative, there is scope for research investigating the question that will traditional cooperatives survive or transform to new generation cooperatives?

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