

The Rise of New Farmer Cooperatives in China: Evidence from Hubei Province¹

JOS BIJMAN² AND DINGHUAN HU³

Abstract

Since the late 1990s, the number of farmer cooperatives in China has rapidly grown. The adoption of the national law on farmer professional cooperatives in 2007 has led to significant governmental support for the establishment and management of farmer professional cooperatives. This paper explores the organizational features of the newly established cooperatives as well as the services they provide to their members. Particular attention is given to the role of local entrepreneurs in grouping farmers and in acquiring support from local and regional state agencies. The paper is based on data about a group of 200 agriculture and aquaculture cooperatives in Hubei Province, central China.

Keywords: marketing cooperatives, Farmer Professional Cooperatives, cooperative performance, cooperative legislation, China

- 1 We are grateful to the following persons/organizations that have facilitated our research: Mr. Zhang of SORC (Wuhan, Hubei, China) for providing access to the cooperatives; Mr. Kamphuis for managing the overall China-SPAR research and training project; and the Dutch Ministry of Economic Affairs for providing funding.
- 2 Corresponding author (jos.bijman@wur.nl). Wageningen University, The Netherlands.
- 3 Chinese Academy of Agricultural Sciences, China (dinghuanhu@vip.sohu.com).

Introduction

Markets for agricultural products are rapidly changing in China. At least two major developments in agrifood markets are pushing for structural change in the agricultural sector, particularly affecting small producers (World Bank, 2006a:13). First, increased consumer sophistication means that consumers are no longer content with a limited choice of products or seasonal availability and have a growing awareness of food safety issues. Second, the rise of supermarkets as major food outlets is resulting in supply chain restructuring, which may make it more difficult for small farmers to compete. These developments put small farmers at a disadvantage compared to large farmers, state-farming companies, and foreign suppliers.

Economic collective-action organizations can help small farmers to pool resources in order to access the specific assets needed for production, achieve economies of scale or scope, and gain bargaining power to negotiate with buyers (Holloway et al., 2000). In addition, producer organizations can provide technical assistance to their members, make available market information, and help their members in storing and transporting perishable products. In other words, producer organizations can reduce the transaction costs that are often problematic for small farmers when they want to participate in high quality value chains. A number of authors have found that producer organizations, producer groups, or cooperatives facilitate small farmer participation in high-value supply chains, particularly in fresh produce markets (Roy and Thorat, 2008; Narrod et al., 2009; Blandon et al., 2009). However, this optimism is not shared by everyone, as agricultural producer organizations may have organizational features that hamper quality improvement (Francesconi and Ruben, 2007) or only lead to quality enhancement under particular institutional conditions (Hellin et al., 2009).

In China, for a long time economic producer organizations were almost absent. Since the centrally planned marketing system for agricultural products was abolished in the 1980s, most farmers have been selling their products to small traders and small wholesalers. According to Huang et al. (2008), this is still the dominant situation for marketing of fruits and vegetables in most of rural China. While farmer marketing cooperatives started to appear in some parts of China in the late 1990s, due to local government initiatives to promote collective marketing, their number began to increase nation-wide only after the introduction of the 2007 law on promotion of farmer cooperatives. This law has the explicit objective of strengthening the rural economy by supporting the establishment of marketing cooperatives. Such cooperatives can link small farmers to traders, processors, and retailers downstream in the value chain, including modern value chains catering to high-quality markets. In addition, these cooperatives can provide

farmers with bargaining power in increasingly concentrated food markets, thus furthering the equitable distribution of the benefits in the value chain.

State support plays an important role in establishing new marketing cooperatives. However, these new cooperatives are not necessarily state-driven or organized top-down. While organizing farmers in state-initiated and state-managed cooperatives has a long history of failure, particularly in Sub-Saharan Africa (Hussi et al., 1993), China is following a different model. In China the initiative to establish a cooperative comes from one or more entrepreneurial persons with access to the financial capital, the human capital, and the social capital needed to establish a successful marketing organizations. These entrepreneurs can be farmers, or they can be traders, extension officers, or managers of a processing company.

As one of the goals of state support for cooperatives is to establish linkages between farmer cooperatives and supermarkets, quality issues are crucial. Supermarkets generally have higher quality requirements than other market outlets. While supermarkets have been rapidly rising in China (Hu et al., 2004), small farmers often have difficulty in complying with the quality standards that supermarkets require from their suppliers. Cooperatives, however, can be the intermediary organization that enables small farmers to enhance the quality of their products.

The objective of this paper is to describe and analyze the organizational characteristics and the functional activities of a group of newly established Farmer Professional Cooperatives (FPCs). One of our key questions is related to the impact of organizational characteristics on quality improvement. We use a unique set of data from almost 200 cooperatives from Hubei Province, Central China. As the provincial Ministry of Agriculture, through its Supervision Office for Rural Professional Cooperative Organizations (SORC), is actively supporting the establishment of the new FPCs, we were particularly interested in studying the impact of this state support. We found a positive correlation between state support and the application of food quality standards by the cooperatives.

The main contributions of this article are the following. First, it provides a detailed description of a large group of newly established farmer marketing cooperatives in one of the important agricultural provinces of central China (Hubei Province). We explore the organizational characteristics of the new cooperatives, as well as the services these cooperatives provide to their members. Such description, to our knowledge, is not available in the English language literature. Second, we explore the role of the different entrepreneurs in establishing the cooperatives. These entrepreneurs have diverse backgrounds, but all have been able to establish good relationships with public officials. Third, we provide information on the type of state support the cooperatives are receiving, with particular attention for quality improvement issues.

The article is structured as follows. The next section discusses the rise of new farmer cooperatives in China, with special attention to the supporting role of the new national law on promoting Farmer Professional Cooperatives (FPCs). After that we present our data and provide descriptive and correlation analysis on the organizational features of the new cooperatives, as well as on the services the cooperatives provide. Special attention is given to quality issues. We conclude with a discussion on our findings.

Agricultural cooperatives in China

In the 1980s, collective farming was gradually transformed into family-based farming. With the abolition of the state-run Unified Procurement and Sales System in 1985, markets were fully liberalized for fruits and vegetables, pork, seafood, eggs, and other agricultural products (with the exclusion of cotton and grain). Different marketing channels developed for these products, with farmers themselves, government agencies, traditional cooperatives, state farms, and private traders all becoming marketing enterprises. Wet markets (i.e., open-air fresh-produce markets), which were under restriction during the planned economy, came back to life soon after the reform. In addition, wholesale markets and professional traders rapidly expanded their business, as interregional trade was fully liberalized.

Despite the reforms in China's agrifood markets and the establishment of efficient supply chains servicing wholesale and retail markets, the market position of the majority of small farmers did not improve much. Most of the 200 million small farmers in China continue to produce low-quality products using traditional production methods. The average size of the Chinese farm was 0.6 hectare in 2008 (Deng et al., 2010). Linkages between farmers and end consumers continue to be very weak, with farmers obtaining limited information on consumer demands. The vertical coordination needed for complying with increasingly stringent food quality and safety standards is still lacking (World Bank, 2006b). Most small farmers have limited options to benefit from the increasing demand for high-value or specialty products by domestic middle-class and foreign consumers. In order to strengthen market access and quality improvement by small farmers, the government began to promote farmer associations and farmer cooperatives at the end of the 1990s.

The first serious effort to promote farmer cooperatives came in 1998 (Deng et al., 2010). The State Council issued a Directive for government support for cooperatives that were voluntary organizations established by farmers themselves. In 2002 the Ministry of Agriculture developed a pilot project with 100 FPCs throughout China. These cooperatives received marketing information, technical assistance, and management training. In November 2004, Zhejiang Province passed

the first provincial law regulating the operation of “farmer professional cooperative organizations”. The law, which took effect in January 2005, endowed FPCs with legal status, put them under the leadership of the Agricultural Bureau at the county level and above, and required that they register with the Industry and Commerce Bureau (World Bank, 2006a).

On October 31, 2006, the 10th National People’s Congress of the People’s Republic of China adopted a law supporting FPCs. The law was later ratified by President Hu Jintao as Order 57, which became effective on July 1, 2007. Article 1 stipulates the reasons for developing this special law: “Its purpose is to facilitate and direct the development of farmer cooperatives, standardize organization and behaviors of them, protect legal interests of cooperatives and members, and foster growth of agricultural and rural economy.”

Article 8 of the new law states that the state shall boost the development of FPCs by adopting measures regarding the support with state financial revenue, preferential tax treatment, financial support, technical support, as well as guidance in industrial policies. Government agencies at provincial and county level shall set up agricultural administration departments to give guidance, support, and service to the creation and development of FPCs. In other words, local authorities are expected to take an active role in the establishment of new FPCs.

One of the key provisions of the new law deals with tax reduction. Cooperatives do not have to pay VAT when selling inputs to their members. In addition, customers buying from cooperatives pay 16% less tax (on the condition that these buyers are registered companies).

Although the national law on FPCs was designed after the experiences and structures of cooperatives in Europe and North America, some major deviations were introduced. One of the interesting features is allowing non-farmers to become member of the cooperative. Although at least 80% of all members should be farmers, the non-farmer membership may include citizens, enterprises, institutions, and social bodies that carry out production and operating activities in direct connection with the business of the FPC. Government agencies are not allowed to become members of an FPC. The rationale for allowing non-farmers to become members of a cooperative lies in the common interest farmers and their business partners have in building integrated supply chains and modernizing agriculture.

The law states that each member has at least one vote. At the same time, the law also allows individual members who account for a large share of the capital contribution or of the volume of transactions with the FPC to enjoy additional voting rights. The maximum voting rights one member can have is 20% of all votes. Thus, the classical cooperative principle of one member–one vote does not apply.

Detailed figures on the number of cooperatives in China are not available.

Deng et al. (2010) conclude that in 2008 more than 20% of all villages and county towns in China had at least one FPC, which implies a total number of more than 210,000 FPCs, providing services to 24 million farmers. Deng et al. (2010) also report a rapid increase in the number of villages with cooperatives, from 5% in 2004 to more than 10% in 2007 and almost 21% in 2008. They attribute this rapid increase in recent years to the adoption and implementation of new national legislation on FPCs.

Data on the number of FPCs in China must be interpreted with care because not all cooperatives are formally registered (whereas a part of the formally registered cooperatives are not active). From the total number of 212,000 cooperatives in 2008, around 12% were not formally registered (Deng et al., 2010).

Survey data and descriptive analysis

Data on 198 marketing FPCs in Hubei Province were collected in July 2009. Our sample is not a random sample of cooperatives in Hubei. The cooperatives surveyed were attending training sessions organized by the Hubei Supervision Office for Rural Professional Cooperative Organization (SORC). We interviewed representatives (mainly chairpersons) of FPCs. Structured questionnaires were used in these personal interviews.

To get acquainted with the organization and functions of newly established marketing cooperatives in rural Hubei Province, the authors visited ten different cooperatives in April 2009. During these visits, information was collected by observation and personal interviews with chairmen and other leaders of cooperatives. According to Hubei SORC, Hubei Province had 4357 FPCs registered by June 30, 2009.⁴

Main products

The total number of 198 marketing cooperatives represented a broad spectrum of agricultural and aquacultural products (Table 1). One-fifth of all cooperatives were in vegetable production and another fifth were in fish production (including turtles and salamanders). Table 1 also shows the average number of members in a cooperative. While the average for all cooperatives is 237, there are considerable differences by product category. The cooperatives marketing arable crops are the largest, with an average membership of 561 farmers. Also the fish cooperatives and the vegetable cooperatives are quite large in membership. If we compare

4 Presentation by Zhang Qinglin, director of the Hubei SORC, October 2009.

these membership figures with the average for all China as calculated by Deng et al. (2010), we see that the cooperatives in our sample are twice the national average (237 versus 111).

Table 1. Main products of the cooperatives in the survey

Main product	Number of coops surveyed	%	Average membership
Vegetables	39	20	318
Arable crops	29	15	561
Fruits	15	8	131
Mushrooms	7	4	92
Others plants	2	1	79
<i>Total plant products</i>	<i>92</i>	<i>46</i>	
Fish	37	19	240
Pigs	25	13	96
Poultry	23	12	111
Cattle	8	4	47
Rabbits	8	4	79
Bees	5	3	152
<i>Total animal products</i>	<i>106</i>	<i>54</i>	
Total	198	100	237

Initiators of the new cooperatives

Most of the cooperatives in our survey were established recently, with the largest numbers established in 2007(76 FPCs) and 2008 (85 FPCs). This development is in line with the nation-wide trend of rapid growth in the number of cooperatives as described by Deng et al. (2010). We also asked about the growth in number of members, and found that all the cooperatives experienced substantial growth in membership soon after their establishment. While the average number of members at the establishment of the cooperative was 52, it had increased to 237 by the time of the survey (July 2009).

In China the initiative for establishing a marketing cooperative can come from many different persons or even companies. Table 2 provides details on who took the lead in establishing the new marketing cooperatives in Hubei Province. Besides producers themselves, who took the initiative in 19% of all cooperatives in our sample, initiators for new marketing cooperatives in Hubei Province were rural official (22%), brokers and traders (22%), processors of farm products (15%), and

technical advisors (10%). Given that technical advisors are (or were) also state employees, one third of all new cooperatives in our sample were initiated by a governmental officials.

Table 2. Who initiated the establishment of the new cooperative

Initiator	Percentage of all cooperatives (n=198)
Rural official	22
Broker, trader	22
Producer	19
Processor	15
Technical advisor	10
Other	9

Looking at the relationship between type of product and who took the initiative, we found that fish marketing cooperatives were more often established by traders, while arable crop cooperatives were more often established by owners or managers of a processing plant. Both relationships were statistically significant. The dominance of the traders in initiating fish cooperatives could be explained by the crucial role of traders in the value chain to keep the time between catch and consumption as short as possible, as fish is a highly perishable product. The involvement of the processors in arable crop cooperatives can be explained by the need for these companies to collect their raw material from a large number of small producers. Also the tax reduction can be attractive for these processors.

In addition, we found a marginally significant relationship between the category of vegetables, fruits, and mushrooms and rural official as initiator. This could be explained by the administrative pressure on officials to improve fresh produce supply chains, such as supplying to supermarkets or even foreign markets.

Not all new cooperatives are established from scratch. We found that 32% of all new FPCs had a predecessor that had been handling the same product. The new cooperatives are substantially larger than their predecessors. While the original farmer association had on average 110 members, the successor cooperative has on average 448 members.

Functions and assets

The key function of any agricultural cooperative is to provide services to its members. These services support the on-farm activities of the members (in the case of technical assistance and provision of inputs) or facilitate the sales of the members' products (in the case of sorting, grading, marketing, and processing). Also a marketing cooperative indirectly supports on-farm activities as it allows the producer to concentrate on farming activities and not spend time and effort on marketing of farm products. While almost all the cooperatives in our sample were engaged in marketing of the members' products, marketing was not necessarily their main activity. A substantial number of FPCs listed technical assistance as their primary function. This is in line with the results reported by Deng et al. (2010), who found that 91% of all FPCs provide technical assistance to their members. As Table 3 shows, marketing and technical assistance are the main services the Hubei cooperatives provide to their members. In addition, a substantial number also supply inputs. A much smaller number of cooperatives are engaged in (or attribute great importance to) sorting, quality grading, storage, and packaging of members' products.

Table 3. Main functions and services of the cooperatives

Function	Mean score *	Percent of cooperatives that scored the function (n=198)
Marketing	1.8	98
Technical assistance	1.9	98
Providing inputs	2.7	88
Storage	3.5	38
Packaging	3.8	50
Sorting and quality grading	3.9	63

* On a scale of 1 (most important activity) to 6 (least important activity)

The marketing function can be executed by the cooperative in two ways. First, the cooperative may act as a commission agent: the cooperative sells on behalf of the farmer and receives a commission (in other words, charges a fee) for this service. This type of marketing can be found across all products, although it happens more often in fresh produce. Second, the cooperative may purchase the products from the farmer, carry out some kind of sorting or processing activity, and then sell the upgraded product. Under this arrangement, the farmer

does not have to deal with the developments and requirements of the end-user market, as the cooperative is basically its final customer. In our sample, in three-quarters of all cooperatives producers sell to their cooperative, while in one-quarter the cooperative acts as a commission agent brokering between farmer and customer.

Cooperatives may own different assets. As noted above, the cooperatives established under the new cooperative law are legal persons that are allowed to own assets and enter into contracts with other parties. Table 4 shows the relative importance of different types of assets in a cooperative. An administration building is the key asset these cooperatives own. Second in importance is equipment, which includes machinery for tillage, spraying, and harvesting as well as equipment for sorting and packing farm products (the low numbers for storage, sorting, and packing assets could be explained by the fact that respondents regard these assets as equipment). Quite a number of cooperatives had joint facilities for the production of starting material, such as seedlings for plant production and young animals for animal production.

Table 4. Assets owned by the cooperative

Assets	Percent of cooperatives (n=198)
Administration building	95
Equipment	54
Facilities for the production of seedlings and young animals	43
Storage facilities	37
Sorting and packing station	35
Research and laboratory	24

Organizational issues

The cooperatives in our survey apply the governance rules as set by national and provincial legislation on cooperatives. They all have a general assembly of members, which convenes several times a year. There is a board of directors (often called the council) and there may be a board of supervisors. The average size of the board of directors is 5.5 members; the average size of the board of supervisors is 3 members. According to the law on cooperatives, the chairman of the board of directors (or council president) may also act as the manager of the cooperative. Decision-making in the board of directors uses a one-person–one-vote system.

Agricultural cooperatives in China are allowed to admit non-farmers as

members. In our sample about one third of all cooperatives (64 out of 198) have members who are not producers. These non-producer members are often salesmen or traders (22 cases), technical advisors (20 cases), administrators (11 cases), or processors (7 cooperatives)

An interesting feature of FPCs is the relationship between shareholders and members. Not all members have to be shareholders. This means that the equity capital of the cooperative is provided by a subset of the membership. In our sample, 87% of the cooperatives issue shares. Almost all cooperatives (97%) restrict shareholding to members. The distribution of these shares over the different groups of members is fairly skewed. On average, 28% of all shares were held by the chairman of the cooperative, while 61% of all shares were held by the founding members. This group of founding members is only a small part of the total membership. Thus, share-ownership is concentrated in the hands of the founding members, with the chairman the largest shareholder. These findings for Hubei Province are in line with the findings of Hu et al. (2007) on Zhejiang Province.

The distribution of shares among the different groups of members is relevant for the distribution of profit. Among the 114 cooperatives for which we received information on profit distribution, the average distribution was as follows: 52% of the profit was distributed according to deliveries (i.e., volume of transactions with the cooperative); 36% of the profit was distributed according to shares; 11% of the profit went into the reserve fund.

Performance and quality issues

Common economic performance indicators (e.g., profit) turned out to be unreliable for assessing the performance of the surveyed cooperatives. As we assumed that producers have become members of the cooperative primarily in order to obtain a better price for their products, performance could be measured by the price difference between what the cooperative pays and what alternative buyers would pay. This is a valid measure in our setting, since the majority of the cooperatives surveyed (70%) allow their members to sell outside the cooperative. we asked about the difference between the price. The difference in price members received from their cooperative and the price received when selling outside the cooperative was on average 7% in favor of the cooperative: members received from the cooperative 7% more than they received by selling outside the cooperative.

Another performance indicator is the type of quality standard the cooperative applies, the assumption being that better-performing cooperatives apply higher quality standards. We asked the cooperatives what quality and food safety standards they applied (Table 5). Three-quarters of the cooperatives apply the

Pollution Free standard, which is the lowest standard for food products. Very few cooperatives (5% only) sell under the Organic standard, which we consider the highest food quality standard.

Table 5. Quality and food safety standards applied by the cooperative

Quality standards	Ranking of standard	Percent of cooperatives (n=198)
Pollution Free	Low	75
Green	Medium	22
Organic	High	5

Cooperatives help their members to improve product quality by providing different services. Table 6 lists the quality-improving services provided by the plant production cooperatives. As can be expected, technical assistance and training is the most important service that cooperatives provide to their members. Second in importance is the provision of market information, particularly information on the quality requirements of the main customers. This issue of information exchange is highly relevant in the context of linking small farmers to supermarkets as the latter usually apply company-specific quality requirements.

Table 6. How does the coop help its members to improve plant product quality?

Activity	Percent of coops (n=92)
Provide technical assistance and training	97
Provide information on quality requirements of buyers	90
Supply of seeds and seedlings	80
Product sorting and grading	68
Supply of improved inputs (fertilizers, pesticides, etc.)	61
Product storage	43

Does support from the cooperative to its member for improving product quality lead to a better performance, by the cooperative or by the members? We tested the following hypotheses:

1. The more quality-improving services the cooperative offers to its members, the higher the price the members will receive for their products.

2. The more quality-improving services the cooperative offers to its members, the higher the quality standard that the cooperative applies.

Hypothesis 1 was confirmed: the correlation coefficient between the level of service provision and the observed price difference for members was positive and statistically significant ($r = 0.292, p = 0.009$).

Hypothesis 2 was partly confirmed: more quality-improving services had a positive effect on the application of the Green standard ($r = 0.226, p = 0.033$).

Another research question related to the impact of government support on quality improvement. In other words, does government support to the cooperative lead to higher product quality? Cooperatives receive several types of support from government agencies. Table 7 shows that technical support is the leading type of support these cooperatives receive from government agencies and almost half the cooperatives receive managerial support.

Table 7. Types of support cooperatives receive from the government

Type of support	All cooperatives ($n=198$)	Only plant cooperatives ($n=92$)
Technical support	59%	63%
Managerial support	48%	48%
Financial support	42%	40%
Quality management support	38%	30%

More government support leads to the application of a higher quality standard. For plant cooperatives, more government support for the cooperative (Table 7) was found to be positively related to the ranking of the quality standard the cooperative applied ($r = 0.258, p = 0.014$). Separately, technical support, managerial support, and financial support each had a positive impact on the ranking of the quality standard: more support resulted in application of a higher ranked quality standard (Table 5).

Conclusion

Farmer cooperatives may provide the missing organizational link between smallholder farmers and modern retail markets. In 2007, the Chinese government enacted national legislation on promoting farmer professional cooperatives (FPCs) as a major tool to strengthen the agricultural and rural economy. The law stipulates that state agencies at provincial and county level should actively support the establishment and development of marketing cooperatives. In our study area, the Hubei Province in central China, the Department of Agriculture is actively

promoting the development of FPCs. Our paper presents results of a survey among 198 agriculture and aquaculture marketing cooperatives in Hubei Province. Detailed information on the organization, assets, activities, and performance of newly established cooperatives in China has not been published before.

Although one of the basic organizational features of a cooperative is that it is governed by the members, some groups of members may be more influential than others. In the newly established cooperatives in Hubei Province, the chairman often is an entrepreneurial person with a background in trade, food processing, or extension services. These entrepreneurs have shown that they possess both the social and the human capital needed for establishing a cooperative. The social capital relates to their ability to negotiate with district officials about administrative hurdles and about the kind and level of public support the cooperative will receive. The human capital represents both their knowledge about production and marketing and their ability to convince large groups of farmers to join the organization they are managing.

Cooperatives in China issue shares, which can be held by both members and non-members. The chairman of the cooperative is often the dominant shareholder (on average 28% of the shares). Thus, the entrepreneur needs substantial financial capital to become a major investor in the new cooperative.

The newly established cooperatives have shown rapid increases in their membership. The membership rose from an average of 47 at the establishment (in 2007, 2008, or 2009) to an average of 237 in July 2009. Such rapid increase in membership raises the question about how the process of becoming a member is organized, and what role rural officials play in this process. Unfortunately, we have no information to answer this question.

As to the quality performance of cooperative and members, our results provide preliminary evidence that state support to cooperatives is positively related to higher quality standards, and that cooperative support to its members leads to better member performance, both in price and quality.

References

- Blandon, J., S. Henson et al. (2009). "Small-scale farmer participation in new agri-food supply chains: Case of the supermarket supply chain for fruit and vegetables in Honduras". *Journal of International Development*, 21(7): 971–984.
- Deng, H., J. Huang, Z. Xu, and S. Rozelle (2010). "Policy support and emerging farmer professional cooperatives in rural China". *China Economic Review*, 21(4): 495–507.

- Francesconi, G. N., and R. Ruben (2007). "Impacts of collective action on smallholders' commercialisation: Evidence from dairy in Ethiopia." First Mediterranean Conference of Agro-Food Social Scientists, 103rd EAAE Seminar *Adding Value to the Agro-Food Supply Chain in the Future Euromediterranean Space*, Barcelona, Spain, 23–25 April.
- Hellin, J., M. Lundy et al. (2009). "Farmer organization, collective action and market access in Meso-America". *Food Policy*, 34(1): 16–22.
- Holloway, G., C. Nicholson et al. (2000). "Agroindustrialization through institutional innovation – transaction costs, cooperatives and milk-market development in the east-African highlands". *Agricultural Economics*, 23(3): 279–288.
- Hu, D., T. Reardon, S. Rozelle, P. Timmer, and H. Wang (2004). "The emergence of supermarkets with Chinese characteristics: challenges and opportunities for China's agricultural development". *Development Policy Review*, 22(5): 557–586.
- Hu, Y., Z. Huang, G. Hendrikse, and X. Xuchu (2007). "Organization and strategy of farmer specialized cooperatives in China" in G. Cliguet, G. Hendrikse, M. Tuunanen, and J. Windsperger (eds.) *Economics of Management and Networks. Franchising, Strategic Alliances, and Cooperatives*. Heidelberg: Physica-Verlag/Springer, pp. 437–462.
- Huang, J., Y. Wu et al. (2008). "Small holder incomes, food safety and producing, and marketing China's fruit". *Review of Agricultural Economics*, 30(3): 469–479.
- Hussi, P., J. Murphy, O. Lindberg, and L. Brenneman (1993). *Development of Cooperatives and Other Rural Organizations: The Role of the World Bank*, Washington, DC: World Bank.
- Narro, C., D. Roy, J. Okello, B. Avendaño, K. Rich, and A. Thorat (2009). "Public-private partnerships and collective action in high value fruit and vegetable supply chains". *Food Policy*, 34: 8-15.
- Roy, D., and A. Thorat (2008). "Success in high value horticultural export markets for the small farmers: the case of Mahagrapes in India". *World Development*, 36(10): 1874-189
- World Bank (2006a). *China – Farmers Professional Associations; Review and Policy Recommendations* (http://www.worldbank.org.cn/english/content/fpa_en.pdf)
- World Bank (2006b). *China's Compliance with Food Safety Requirements for Fruits and Vegetables: Promoting Food Safety, Competitiveness, and Poverty Reduction*. Report No. 39766. Washington, DC: The World Bank.