

Do Chinese Farmers Need Farm Cooperatives: An Empirical Analysis of Producers' Attitudes to Membership of Farm Cooperatives

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中国沿海部地域における農業共同組合に対する農家の意向に関する実証分析

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Contents

1. Introduction	80
2. Agricultural Development Along the coast : Situation and Problems	81
2.1 Study site	81
2.2 Changes in Agricultural structure : Commercialization and the growth of part-time farming	82
2.3 Services to farm management : business or cooperation	83
3. Producers' intention to join farm cooperatives	85
4. What factors influence producer attitudes to farm cooperatives ?	86
5. Conclusion and implications	89

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1. Introduction

Promoting farm cooperatives is one of the most important tasks in rural development in China. Since the 1980s, the "People's Commune" system has been dismantled and replaced by individual family farms based on the "Household Responsibility" system. With the development of an increasingly market-oriented economy, more and more farmers are taking up commercial agriculture. Especially in coastal areas, commercial management has become the most active factor in agricultural development. Meanwhile, along with the growth in agricultural production, the relationship between supply and demand of agricultural products has, since the 1990s, changed from a shortage to a relative surplus. With agricultural commercialization and this change in balance between supply and demand, the most important task for Chinese farmers has become how to sell their products. However, because smallholders are still loosely organized and not generally involved in farm cooperatives, smallholders cannot respond logically to market fluctuations. It is imperative to develop rural organizations that are able to provide smallholders with marketing services.

In China, a cooperative is defined as a rural organization that is organized by farm households to manage common assets and to provide support services to the members. The organizations related to cooperatives have many different names, but the organizations themselves can be divided into two types (Ota-hara, 2001). One is the village cooperative, established in village units, which is in charge of managing farmland and providing support services to smallholders. This has a so-called "top-down" organization. All the households in the village are automatically members of the village cooperative. It has been found that support services provided by village cooperatives to farmers are confined to production processes, such as cultivation, irrigation facilities, and management (Wang and Zhao, 1996). Few supporting services concerning input supply or product shipment that smallholders might hope for are provided to producers by village cooperatives (Lu, 1996). In most areas, farmers do not perceive village cooperatives as farmers' cooperatives, since village cooperatives are just nominally cooperatives. The other kind is the farm cooperative, which is organized spontaneously by farmers across villages, and has what is called "bottom-up" organization. The members of a farm cooperative are not necessarily confined to the same village. Farm cooperatives became more prevalent at the beginning of the 1990s. Researchers found that farm cooperatives have certain effects on farm management, such as reducing risk from price fluctuations, improving bargaining power, and lowering distribution costs (Guo, 1999; Guo, 2001). Due to their small scale and limited capability to provide support services to farmers, however, the prospects for farm cooperatives are not bright. Since the 1990s, vertical coordination in agricultural production, processing and distribution, which is called agricultural industrialization, has been promoted. There are two main types of vertical supply chain in China (Shi, 2000). One involves contract arrangements between individual farmers and processing or distribution firms. The other is the farm cooperatives mentioned above. Some researchers regard agricultural industrialization as another way to organize Chinese farmers (Ota-hara, 2001). There is no statistical data on to what extent farmers are involved in vertical coordination. According to a survey in Shandong province in 2001, only about 10 percent of smallholders are involved in vertical coordination. There is another special organization in China, called the Gongxiao Supply and Marketing Cooperative. It began life at the beginning of the 1950s as a farm cooperative. With the

collectivization that took place at the end of the 1950s, it became a government department in charge of input supply and shipment of agricultural products. Since the mid-1980s, it has been undergoing reforms and has changed into an agricultural business firm. As Otahara (2001) noted, it is not actually a cooperative, although it is named as a cooperative for historical reasons, which some people find confusing. In this paper, our discussion concentrates mainly on farm cooperatives that are organized spontaneously and are regarded by farmers as cooperatives.

Smallholders will cooperate if it helps them overcome barriers to obtaining information, technology and capital. Cooperation may reduce transaction costs and enhance their bargaining power. On the other hand, it entails management costs. Only if the benefits of cooperation are higher than the costs will farmers choose cooperation. Unfortunately, only a few research studies on what producers really need from farm cooperatives have been conducted in China. Most of the existing research regarding farm cooperatives emphasizes conceptual discussions or policy strategies for developing farm cooperatives (Niu, 1998; Niu, 1999; Guo, L., 2001; Huang, 2002). One study, based on a survey of 412 households in Jiangsu province, found that farmers' low awareness of farm cooperatives and the high coordination costs of farm cooperatives are key factors in limiting the development of farm cooperatives, making it difficult to promote farm cooperatives based on farmers' spontaneous initiatives (Sun, 2003). The policy implication was that government support is necessary to promote farm cooperatives in China. There was a lack of insight into farmers' perceptions of farm cooperatives and what factors affect farmers' attitudes. Do Chinese farmers want to work in farm cooperatives? What kinds of farmers are likely to be involved in farm cooperatives? What kind of farm cooperatives do they hope to be part of? What factors affect farmers' attitudes to participating in farm cooperatives? This paper focuses on Chinese farmers' attitudes to farm cooperatives in the coastal area, based upon a survey conducted in Zhejiang province in 2002.

2. Agricultural Development along the coast: Situation and Problems

2.1 Study site

Zhejiang Province, located along the Chinese coast, is a well-developed region. Zhejiang is characterized by well-developed town and village enterprises and wholesale markets selling a wide range of commodities. With agricultural commercialization, product composition has changed from a rice-based economy into a diversified structure which includes vegetables, fruit, livestock, sericulture and flowers. With the development of the rural industrial sector, many agricultural labors have gained employment in the non-agricultural sector. Part-time farms are not the commonest form of rural household.

A survey of 200 households was conducted in the following four villages: Guanzhuan Village in Ningpo City, Minsheng village in Haining City, Zhaikou Village in Pujiang City, and Ganxi Village in Jiande city. Guanzhuan Village and Minsheng Village are located along the coast and specialize in agricultural products for commercial use. Zhaikou Village and Ganxi Village mainly produce rice for the domestic market. There are top-down village cooperatives in all of these four villages. Unfortunately there is no statistical data on the number of farm cooperatives in these four villages. According to the survey, 55 of the respondents are or have been members of farm cooperatives, which make up 27.5 percent of surveyed

households.

2.2 Changes in agricultural structure: Commercialization and the growth of part-time farming

Changes in product structure

Table 1 shows that product composition has greatly changed in the past decade. Within 85% of farmers whose main crop was rice ten years ago, nowadays 39.5% of farmers still grow rice, 20% of farmers are currently engaged in sericulture, 16.5% of farmers are engaged in flower horticulture, and 7% of farmers now grow fruit and vegetables. In the past decade alone, sericulture farmers have increased from 3% to 22.5%, flower farmers have increased to 16.5%, and fruit and vegetable farmers from 9% to 13%. There has been a change in product composition in the past decade from rice to commercial commodities.

Differentiation of rural households

Households can be divided into three types according to the allocation of family labor. The first type is off-farm households, whose off-farm labor accounts for more than half of family labor. The second type is part-time farmers who allocate less than 50% of family labor to off-farm labor, but more than 66% to part-time labor. The third type is farm households who allocate less than 66% of family labor to part-time labor and mainly engage in farm activities. Table 2 shows that farm households account for 28.6%, while part-time farmers account for 34.7% and off-farm households 36.7%, accounting for 71.4% in total.

In terms of product composition, we can divide households into four types (Table 3). The first type is households whose income mainly depends on agriculture, and who grow rice for their own consumption as a staple crop. This type is regarded as a self-sufficient farm household. There are 23 self-sufficient farm households, accounting for 12% of total households. The second type is households who earn income from commercial farm products, including flowers, sericulture, fruit and vegetables. This type is regarded as a commercial farm household. There are 34 commercial farm households, accounting for 17%. The third type is households that allocate family labor mainly to off-farm activities, while growing rice for their own consumption. This type is regarded as a part-time self-sufficient household. There are 61 part-time self-sufficient households, accounting for 31%. The fourth type is households that allocate family labor mainly to off-farm activities, meanwhile focusing on commercial agriculture, such as sericulture, flowers, fruit and vegetables, livestock and other products. This type is regarded as a part-time commercial household. There are 81 part-time commercial households, accounting for 41% of the whole. If we divide

Table 1 Changes in product composition

Main products ten years ago	Main products at present (%)							
	total	rice	vegetable	fruit	flower	livestock	sericulture	others
Rice	85.0	39.5	3.5	3.5	16.5	1.0	20.0	1.0
Vegetables	4.5		2.0			1.0		1.5
Fruit	4.5	1.5	0.5	2.0				0.5
Livestock	0.5	0.5						0.0
Sericulture	3.0						2.5	0.5
Others	2.5	0.5		1.5				0.5
Total	100.0	42.0	6.0	7.0	16.5	2.0	22.5	4.0

Data source: Farm survey of 200 households conducted in Zhejiang, 2002

Table 2 Household type and main products

Main products	Household type (%)			
	Total	Farm household	Off-farm household	Part-time household
Rice	41.7	11.1	17.6	13.1
Vegetables	6.0	3.5	0.5	2.0
Fruit	7.0	6.5		0.5
Flowers	16.6	1.0	14.6	1.0
Livestock	2.0	1.0		1.0
Sericulture	22.6	2.5	1.5	18.6
Others	4.0	3.0	0.5	0.5
Total	100.0	28.6	34.7	36.7

Data source: same as Table 1

Table 3 Household types

	Main products	Household type		Unit: %
		Farm household	Part-time farmer and off-farm household	total
Self-sufficient farmer	Rice	12	31	42
Commercial farmer	Fruit, vegetables, flowers, sericulture	17	41	58
Total		29	71	100

Data source: same as Table 1

households according to commercial and self-sufficient production, there are 115 commerce-oriented farmers, accounting for 58% of total households. There are 84 self-sufficient farmers, accounting for 42%.

Changes in marketing channels

The Gongxiao Supply and Marketing Cooperative is still an important marketing channel. However, changes have occurred in the past decade. Farmers shipping products through the Gongxiao Supply and Marketing Cooperative accounted for 52% ten years ago, but only 39% at present. The main reason is the increasing number of farmers who have turned to rural traders for shipping their products. Thirteen percent of farmers who shipped products through The Gongxiao ten years ago have since switched to traders. As a result, the proportion of farmers who ship products via traders currently stands at 16%. The takeover by private traders of marketing channels from the Gongxiao Supply and Marketing Cooperative can be regarded as evidence of liberalization in rural marketing systems. The local wet market, though, is still an important marketing channel, with 23% of farmers selling their products this way.

Different farm products are shipped through different marketing channels. Rice is grown for personal consumption or sold out through the Gongxiao Supply and Marketing Cooperative. Fruit and vegetables are mainly shipped through the local wet market, and flowers are mainly shipped through rural traders.

2.3 Services to farm management: business or cooperation

A major change has taken place in the ways that farmers solve the problems that confront them. Although in most case farmers ask for help in solving problems from relatives or friends, there is an increase in the number of farmers who pay for external services. External services represent a growing

Table 4 Farmers' ways of solving problems

	Currently (%)	Ten years ago (%)
Information		
Relatives and friends	40.1	59.9
Local market	29.9	37.1
TV and broadcasts	16.2	1.5
Farm cooperative	2.0	1.5
Others	11.7	0.0
Total	100.0	100.0
Technology		
Relatives and friends	14.5	28.6
Extension station or village Technician	21.2	10.3
Farmer themselves	43.0	39.7
Farm cooperative or others	2.1	0.5
No such problems	19.2	19.3
Total	100.0	100.0
Capital		
Relatives and friends	40.4	46.0
Rural credit system	4.5	1.5
Others	2.0	0.5
No problem	53.0	52.0
Total	100.0	100.0
Labor		
Relatives and friends	24.5	33.7
Temporary hiring	20.9	9.6
Others	3.1	1.0
No such problems	52.0	65.7
Total	100.0	100.0
Land		
Relatives and friends	14.1	12.8
Others	28.1	65.3
No such problem	57.8	21.9
Total	100.0	100.0

Data source: same as Table 1

business opportunity.

Table 4 shows that 29% of farmers asked for help from relatives or friends ten years ago, but this proportion has since decreased to 15%, particularly for problems related to technology. The number of farmers who ask for help from extension stations, village technicians, or farm cooperatives has increased from 11% to 22%. Concerning problems with access to market information, 60% of farmers asked for information from their relatives or friends 10 years ago, but nowadays only 40% of farmers do. A surprising fact is that fewer than 5% of farmers have obtained loans from institutional rural credit services. When farmers encounter capital problems, 40% ask informal credit institutions, such as relatives or friends, for access to capital. More than half of farmers raise money for input capital by themselves. During seasonal peaks in labor demand, about 30% of farmers see relatives or friends as a way to solve labor shortages. It should be noted that the proportion of farmers who take on labor temporarily to solve seasonal labor shortages has increased from 10% to 21%.

Table 5 shows that few farmers have solved their problems through farm cooperatives. Farm

Table 5 Producers' perceptions of attributes of farm cooperative Unit (%)

	Need	Not need	Total
Necessity of cooperative	61.3	38.7	100.0
Limitation to entrance and exit			
No limits on joining and leaving	38.9	30.8	69.7
Free exit but limit on joining	2.5	1.0	3.5
Free joining but limit on leaving	5.1	1.5	6.6
Limits on both joining and leaving	15.2	5.1	20.2
Allocation of voting rights			
By membership	36.9	20.7	57.6
By stock held	13.6	14.6	28.3
By deal volume or business scale	11.1	3.0	14.1
Member composition			
Relatives	1.5	7.1	8.6
Household of same town or village	22.7	18.2	40.9
Anyone	37.4	13.1	50.5

Data source: same to Table 1

cooperatives clearly play a very limited role in providing information and technical services.

3. Producers' intention to join farm cooperatives

According to a survey conducted by CARD at Zhejiang University in 2001, various farm cooperatives in the province had reached 2,667 in 2000. Participating households totaled 201,794 and accounted for 2.1% of total rural households. The number of participants per farm cooperative averages 75.7 households. Most farm cooperatives are small-scale. Of farm cooperatives, 65.2% mainly provide technological exchanges and market information services, only 11.5% provide services related to product processing, and 11.2% provide marketing services. Providing low cost services in technological exchange and market information is one of the characteristics of farm cooperatives. Few farm cooperatives provide marketing services.

However, in contrast with a membership rate of only 2.1% of total farm households, 61% of respondents feel they depend on farm cooperatives (Table 5). Most producers show a strong wish to join farm cooperatives. In response to being questioned on what kind of services farm cooperatives should provide, more than 60% of farmers identified market information, marketing, technological guidance, credit and fertilizer supply services. Farmers expressed an especially strong wish for market information, marketing, and technological guidance services. When the respondents who gave no answer were removed, farmers who stated that cooperatives should provide market information, marketing, and technological guidance services accounted for over 90%. However, not many farmers rely on mutual aid and cooperation in the production processes. Regarding help with transplanting and harvesting, a majority of farmers think it is not needed. One probable reason is that production processes are rarely hit by severe labor shortages. Just over half (52%) of respondents answered that they do not face labor shortages. Another probable reason is that even if they do face a labor shortage, they usually solve it through mutual aid with relatives or by hiring temporary labor. About a quarter (24%) of farmers seeks mutual aid from relatives and 21% hire extra labor to solve labor shortages. Those farmers who said they hired labor tend to be members of farm

cooperatives. The survey data shows that what producers hope to obtain from farm cooperatives is overwhelmingly market information, marketing, technological guidance, credit and fertilizer supply services. This explains the rational arrangement of existing farm cooperatives that mainly provide technological exchange and market information services. Furthermore, existing farm cooperatives cannot meet farmers' needs for marketing services and extension of credit.

As producers' perceptions of the attributes of farm cooperatives, Table 5 shows that 70% of farmers believe there should be no limitations on joining or leaving cooperatives, but 27% of farmers think that such limitations are necessary. Note that, of farmers who believe there should be limitations on joining and leaving, more than 70% believe farm cooperatives are needed. 58% of farmers think cooperatives should allocate voting rights based on membership under the traditional cooperative principle, and 14% of farmers wish to allocate voting rights based on members' deal volume or business scale. Most of these farmers tend to be members of cooperatives. Concerning member composition, only a few farmers think that a cooperative should be composed of relatives. Half of farmers do not mind whether the members are relatives or from the same town or village. There are still 40% of farmers, though, who think that the members should be from the same town or village.

The gap between the current situation and the potential for rural organizations is evidence that barriers exist which prevent farmers from choosing to join farm cooperatives. One probable case is there are obstructions that impede the development of farm cooperatives. In cases like this, farmers have no opportunity to join farm cooperatives even if they wish to. Another probable cause is that farmers are not satisfied with existing farm cooperatives. For example, the gap between farmers' expectations and the current situation of marketing and credit services is preventing more farmers from becoming involved in farm cooperatives. Whatever they are, farmers' views on the likely benefits and losses of participating farm cooperatives are important factors in their decision whether or not to join a farm cooperative. A better insight on factors that affect farmers' views of the expected benefits and losses from joining farm cooperatives will improve the understanding of the current situation and the policy strategy of rural organizations.

4. What factors influence producer attitudes to farm cooperatives?

Selection of variables

Four groups of variables influence producers' attitudes to cooperatives. These include the demographic attributes of producers, agricultural management attributes of producers, socioeconomic conditions surrounding producers, and producers' perceptions of the attributes of farm cooperatives. The variables regarding producer demographic attributes include sex, age and level of education of farmers. The variables related to agricultural management attributes can be divided into three subgroups: variables of household type, including farm households, part-time farmers and off-farm households; variables concerning the technological and economic attributes of producers, including experience and specific input; variables concerning kinds of main product, including rice, fruit and vegetables, flowers, sericulture, livestock and others. The variables related to socioeconomic conditions surrounding farmers consist of

variables concerning marketing channels and the variability of price fluctuations. The variables concerning marketing channels include self-contained households, wet markets, traders and the Gongxiao Supply and Marketing Cooperative. The variables of producers' perceptions of the attributes of farm cooperatives include limitations to joining and leaving cooperatives, voting rights in farm cooperatives and who belongs to farm cooperatives (Table 6). Due to the close correlation between variables related to types of main product and variables concerning marketing channels, the model is run separately after removing variables related to types of main product (Model C) and after removing variables related to marketing channels (Model B).

Variable	Definition	Mean
Focus group: Male respondents		
SEX	1 if female, 0 otherwise	0.10
focus group: Respondents under 30 years old		
AGE3040	1 if 30-49 years old; 0 otherwise	0.56
AGE5060	1 if >50 years old; 0 otherwise	0.40
Focus group: Respondents whose part-time labor is less than 66% of family labor		
PART1	1 if part-time labor > 66% of family labor and off-farm labor < 50%; 0 otherwise	0.34
PART2	1 if off-farm labor > 50% of family labor; 0 otherwise	0.37
Focus group: Respondents who have no elementary education		
EDUELEM	1 if elementary school or junior school; 0 otherwise	0.71
EDUHIGH	1 if high school or college; 0 otherwise	0.08
LANDPER	land per capita	2.88
Focus group: Respondents whose main crop is rice or livestock		
VEGEFRUT	1 if main crop is vegetables; 0 otherwise	0.12
FLOWER	1 if main crop is flowers; 0 otherwise	0.16
SILK	1 if main crop is sericulture; 0 otherwise	0.23
Focus group: Respondents who have produced a main crop for 4 years or less		
YEAR510	1 if respondent who has produced a main crop for 5-19 years; 0 otherwise	0.16
YEAR20	1 if respondent has produced a main crop for 20 years or more; 0 otherwise	0.63
SPEIPUT	1 if respondent pays for specific inputs; 0 otherwise	0.28
Focus group: Respondents who believe price fluctuation of main crop is less than 10%		
PRICE20	1 if price fluctuation of main crop more than 20%, 0 otherwise	0.61
Focus group: Respondent who has a self-sufficient household		
WETMRT	1 if selling product at wet market; 0 otherwise	0.23
TRADER	1 if shipping product by trader; 0 otherwise	0.17
THE	1 if shipping product via the Gongxiao Supply and Marketing Cooperative; 0 otherwise	0.40
Focus group: Respondent who believes cooperatives should have not limitations on joining and leaving		
EXIT2	1 if limitation to joining but no limitation on leaving, 0 otherwise	0.04
EXIT3	1 if limitation on leaving but no limitation on joining, 0 otherwise	0.07
EXIT4	1 if limitations to both of joining and leaving	0.20
Focus group: Respondents who believe cooperative should allocate voting rights based upon holding stock		
VOTE1	1 if should allocate voting rights by membership, 0 otherwise	0.57
VOTE345	1 if should allocate the voting right by deal volume or business scale, 0 otherwise	0.13
Focus group: respondents who believe members of the cooperative should consist of relatives		
MEMB23	1 if members should consist of farmers of same town or village, 0 otherwise	0.41
MEMB4	1 if it doesn't matter whether members are relatives or households of same town or village, 0 otherwise	0.51

Results and discussion

Farmers' level of education has a significant effect on their attitude to farm cooperatives. However, sex and age appear to have no significant effect on producers' attitudes (Table 7).

In contrast with farm households, being a part-time farmer or off-farm households tends to result in having a negative attitude to farm cooperatives. Part-time farmers, where more than 66% of family labor is

Table 7 Result of logit model

Variable	Model A		Model B		Model C	
	Coefficient	t-Value	Coefficient	t-Value	Coefficient	t-Value
Constant	-0.954	-0.501	-0.740	-0.416	-0.748	-0.422
SEX	0.019	0.028	-0.331	-0.524	0.014	0.021
AGE3040	-0.362	-0.357	-0.410	-0.431	-0.338	-0.330
AGE5060	-0.228	-0.220	-0.151	-0.154	-0.216	-0.206
PART1	-1.259	** -2.112	-0.898	* -1.625	-1.268	** -2.179
PART2	-0.872	* -1.491	-0.790	* -1.406	-0.838	* -1.451
EDUELEM	0.633	1.172	0.606	1.138	0.622	1.183
EDUHIGH	1.920	** 1.962	1.575	* 1.701	1.891	** 1.972
LANDPER	0.082	0.643	0.050	0.498	0.085	0.634
VEGEFRUT	0.324	0.370	-0.277	-0.348		
FLOWER	0.378	0.244	-0.508	-0.446		
SILK	0.418	0.334	1.242	1.011		
YEARS10	-1.414	* -1.338	-1.414	* -1.418	-1.581	* -1.617
YEAR20	-2.600	** -2.110	-2.531	** -2.243	-2.797	** -2.475
SPEIPUT	1.545	* 1.456	1.257	1.177	1.802	** 2.260
PRICE20	-0.532	-0.806	-0.099	-0.163	-0.450	-0.696
WETMRT	-0.254	-0.365			-0.229	-0.364
TRADER	-0.074	-0.054			0.013	0.012
THE GONGXIAO	1.379	** 2.244			1.375	** 2.328
EXIT2	-0.023	-0.023	0.162	0.162	-0.042	-0.043
EXIT3	1.412	* 1.634	1.480	** 1.805	1.378	* 1.610
EXIT4	1.483	*** 2.845	1.416	*** 2.810	1.496	*** 2.870
VOTE1	0.521	1.048	0.583	1.216	0.542	1.113
VOTE345	1.231	** 1.781	1.228	** 1.797	1.272	** 1.854
MEMB23	2.161	*** 2.586	2.093	*** 2.516	2.124	*** 2.563
MEMB4	2.487	*** 2.760	2.566	*** 2.862	2.456	*** 2.761
Number of observations	196		196		196	
Degrees of freedom	25		22		22	
Log likelihood	-90.77		-94.04		-90.90	
Restricted log likelihood	-130.88		-130.88		-130.88	
Chi-squared	80.21		73.68		79.96	

Note: *** for 1% significance level; ** for 5% significance level; * for 10% significance level.

part-time labor but off-farm labor is less than 50% of family labor, are especially likely to harbor negative feelings about farm cooperatives.

Experience of production has a significant negative effect but specific input shows a significant positive effect on producers' attitudes. Type of main crop has no significant effect on producers' attitudes to farm cooperatives. However, when variables related to marketing channels are removed, the results show that households whose main crop is flowers or fruit and vegetables tend not to favor farm cooperatives, unlike rice farmers and sericulture farmers.

Marketing channels have significant effects on producer attitudes to farm cooperatives. Farmers who ship products out through The Gongxiao Supply and Marketing Cooperative tend to favor farm cooperatives, in contrast with self-sufficient farmers and households that sell products through the wet market or via traders. It appears that farmers' positive attitudes to farm cooperatives derive in part from an aversion to the Gongxiao Supply and Marketing Cooperative.

Price fluctuations have no significant effect on farmers' attitudes to farm cooperatives. Farmers clearly do not believe that membership of a farm cooperative will protect them from exposure to price fluctuations.

Producers' perceptions of what attributes farm cooperatives should have show significant effects on producers' attitudes to farm cooperatives. Farmers who feel that farm cooperatives should introduce limitations on joining or leaving have a greater wish to join farm cooperatives, in contrast to farmers who believe that farm cooperatives do not need any limitations on joining or leaving. It transpires that farmers are willing to join farm cooperatives provided there are rules governing joining and leaving.

Respondents who believe that farm cooperatives should allocate voting rights based upon deal volume or business scale show a significantly positive attitude to farm cooperatives, unlike individuals who believe that cooperatives should allocate voting rights based upon holding stock. Respondents who believe that farm cooperatives should allocate voting rights based upon membership weakly favor farm cooperatives. In contrast to households who feel that members of farm cooperatives should consist of relatives only, the following two types of households show a positive attitude to joining farm cooperatives: those that feel that members of farm cooperatives can consist of households in the same town or village, and households that would not insist on membership being restricted to relatives and households in the same town or village.

5. Conclusion and implications

Agricultural commercialization may stimulate a need for farm cooperatives to provide services in marketing, information and technological guidance to individual farmers. More than half of the producers polled demonstrated a positive attitude to joining farm cooperatives. However, up to now only about 2% of farmers have been involved in farm cooperatives. Most farmers still seek help chiefly from relatives or friends, or use commercial services, when they come across problems with access to information, technology, seasonal labor shortages and capital input. The increasing prevalence of part-time farming is a major disincentive to individual farmers to become involved in farm cooperatives. The unwillingness to adopt new intensive farming technology on the part of experienced farmers, such as flower producers, is

also regarded as an obstruction to the development of farm cooperatives. Farmers who pay for specific inputs for intensive farming are more motivated to become involved in farm cooperatives. These individuals may themselves become initiators of farm cooperatives. Policy support to such initiatory farmers may be effective in promoting farm cooperatives. As part of the farmers' initiative to form farm cooperatives, derived partially from their aversion to the Gongxiao Supply and Marketing Cooperative, it can be considered that initiating farm cooperatives could act as a replacement for the Gongxiao Supply and Marketing Cooperative. Finally, the attributes of farm cooperatives, including allocation of voting rights, membership and limitations on joining and leaving are significant factors influencing individual producers' attitudes to farm cooperatives. Intelligent and equitable design of farm cooperatives will be an important factor in involving more farmers in farm cooperatives.

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中国沿海部地域における農業共同組合に対する農家の意向に関する実証分析

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要 旨

人民公社解体後の中国では、農業商業化の進展に伴い、個別農家に対する外部支援が要請されている。特に農業商業化の進展度合いが高い沿海部地域では、個別農家は市場情報、販売斡旋、技術指導などのサービスを求めている。浙江省における200戸農家に対する聞き取り調査によると、60%以上の農家が農業協同組合参加に前向きな姿勢を示している。しかし、現実には各種の農業協同組合に加入している農家は総農家のわずか2%にすぎない。市場情報、生産技術、季節的労働力不足などの問題に直面した際に、ほとんどの農家は親戚や友人などに助けを求めるようになってきている。ただし、一部の農家が季節的労働力不足の問題を解決するために、臨時労働者を雇用するようになってきていることを注意すべきであろう。農村組織化に対する農家の意向について、Logitモデルを用いた実証分析の結果によると、農村工業の進展に伴った兼業の深化が農業協同組合に加入する農家の選択を阻害する要因となっている。また、花卉など集約的農業経営に取り組んでいる農家が、長年積み重ねてきた技術や生産ノウハウが周辺に拡散する恐れをもつことが、農業協同組合普及のもう一つの阻害要因となっている。ところが、集約的農業経営のために関係特殊投資を投下している農家は農業協同組合加入に積極的な態度を示している。これらの農家は農村組織化のイニシアターになると期待される。農業協同組合に対する農家の前向きな意向は、部分的には供销社という国営農産物流通企業に対する反感によるもので、供销社の機能を代替するものとして農業協同組合をスタートさせることが農村組織化を促進するものと思われる。さらに、投票制度、会員構成および加入・脱退制限など農業協同組合の構造が、農家の農業協同組合加入に対する意向に影響を与えるので、しかるべく農業協同組合の構造を設計することが、より多くの農家を農業協同組合に加入させるために肝要であろう。

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