

Category, Characteristics and Influence Mechanism of Farmers' Cooperatives in China

—Based on the Analysis of 8 Typical Case

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Abstract

Since the beginning of this century, farmers' cooperatives have been developing rapidly in China. Based on the principles of classic cooperatives, this paper investigates the farmers' cooperatives in practice in China. It is found that the cooperatives in practice do not conform to the principles of classic cooperation, and have strong characteristics based on realistic conditions. In practice, from the perspective of industrial chain, China's farmer cooperatives can be divided into four categories: engaged in production, engaged in "production + sales", engaged in "production + processing + sales" and providing services, and there are significant differences in the operation mode and governance structure of all kinds of cooperatives. For the reasons behind it, the author investigates the concentration degree of different types of cooperatives in the operation of various agricultural products, and found that different category of products have different demands on the functions of cooperatives, which makes the operation mode and governance structure of cooperatives formed for different functional needs present diversified characteristics. In addition, the author also points out that although there are essential differences between the farmers' cooperatives in practice and those in the classical, they can still play their unique functions, that is to say, they can influence the identity and income of farmers by changing the utilization of production elements in the traditional agricultural management mode.

Keywords: category of farmers' cooperation, optimization of production elements, influence mechanism

1. Introduction

According to the experience of agricultural modernization in western countries, farmer cooperatives play an important role in resource integration, production factor utilization and agricultural economic growth. Since the beginning of this century, the central government and municipal authorities have made great efforts to support the development of farmers' professional cooperatives. According to the report on the Development Index of the National Farmers' Cooperative Demonstration Agency, which was published in Beijing, By 2019, the number of farmers' cooperatives in China has reached 2.1 million, and the number of its members accounts for about half of the total farmers. The cooperative in practice is the initial exploration of the cooperative operation of agriculture in China, and it is the cone of the management mode that adapts to the current environment. The problems and characteristics exposed by it constitute an important basis for exploring the cooperative operation path in China.

Since the promulgation of the Law of the People's Republic of China on Farmers' Professional Cooperatives in 2007, it has been more than 10 years. During this period, many studies focused on the study of "Does the established cooperatives belong to classic cooperatives?" Does China have the conditions to set up classic cooperatives? As for the distinction between the "true" and "false" cooperatives, the "same owner and patron" test from Deng and Wang (2014) is more representative. The standard requires its members to have both patron and owner identities. Due to the heterogeneity of farmers in China's agriculture, some farmers only play the role of investors, while some only play the role of patron. In the 21 cases investigated in this paper, none of them can meet this standard (Huang & Shao, 2009; Zhang, 2005; Pan, 2011). In addition to the above criteria, Liu and Xu (2017) proposed that the "real" cooperative should satisfy the existence of commodity contract and factor contract between the cooperative and its members, and the two types of contracts need to interact. According to this standard, this paper re-definition the typical cases (6 in total) involved in Deng and Wang (2014), and finds that case 6 meets the above evaluation conditions, so as to point out that there are "real" cooperatives in the

practice of China's farmer cooperatives, but even so, the author still admits the lack of "real" cooperatives in China.

For the lack of "real" cooperatives, most scholars start from the reality of country to explore whether it has the conditions for cooperative operation. Among them, there are four representative views: first, the premise of farmers' homogeneity does not exist. With the development of reform and opening up, farmers are divided into a series of heterogeneous groups, such as poverty-stricken household, part-time business households and large professional households. Due to the differences in income expectation, contribution and preference of heterogeneous groups, the cooperative organizations established on the basis of farmers' own interests will inevitably conflict with the essential provisions of classic cooperatives (Lin & Ma, 2006; Lin & Huang, 2007; Deng et al., 2016). Second, the market environment has changed. As the seller market is replaced by the consumer market brought by product surplus, the self-service significance of classic cooperatives is weakened. It is necessary for cooperatives to improve the added value of products through vertical integration and realize supply chain management to adapt the diversified needs of consumers (Huang & Shao, 2009). At this time, if the cooperative continues to maintain the concept of self-service, then its profit space is limited; and if the cooperative adapts to the changes of the environment, it needs to introduce external resources, thus making its essential provisions challenged. Third, the policy environment is inadequate. In recent 10 years, in order to encourage farmers' cooperative operation, the government has increased financial support for cooperatives. However, due to the lack of supervision of local governments and the motivation of performance pursuit, financial support has become a booster for the formation of "pseudo cooperatives". According to Deng et al. (2016), compared with material support, the development of cooperatives in China needs more institutional construction. However, in addition to the Law of Farmers' Professional Cooperatives, there are no other legal documents regulating the cooperative operation in China, which makes the cooperatives in reality face the problem of "No Evidence Could be Treced", and does not play a role in correcting the practice of cooperatives that deviate from the essential provisions. Fourth, the system environment is not reliable enough. Although in the early 1950s, China's agricultural management mode had been excessively transformed to cooperative management, but it was distorted due to centralization. Since then, the reform of household contract system was implemented, and the development of organized management lagged behind that of western countries by 30 years, which made farmers' cooperative management consciousness insufficient or one-sided (Peng, 2018).

From the above point of view, it can be seen that the classic cooperative is difficult to become a reality in China, especially the first two facts, which will accompany China's agricultural economy for a long time and can not be compensated by the improvement of system and policy. In this regard, scholars began to re-examine the principle of the nature of cooperatives. Zhang and Yuan (1991) pointed out that the classic cooperative is the product of specific conditions and historical background, and does not have permanent universality. Xu (2005) believes that the realization of the "same owner and patron" is the characteristic of an ideal cooperative. For farmer cooperatives in the initial exploration period, ignoring the actual environment and blindly pursuing the essential provisions may lead to the disappearance of cooperatives because of the "compression" of profit space. Wu (2004) pointed out that as an agricultural production and operation organization, the essence of cooperatives should be based on their own organizational structure, operating mechanism and the interest game among members, rather than a fixed idea. Du and Pan (2000) pointed out that most of the farmer specialized cooperation organizations in China are between the traditional cooperative mode and the joint-stock enterprise mode. If the traditional cooperative mode is applied to standardize it, it will certainly force those organizations that are not willing to accept the traditional cooperative mode to standardize it with the joint-stock enterprise mode. It can be found that the above-mentioned literature gives a relatively objective evaluation of the practice of cooperatives in China, but it does not further explore the more noteworthy issues, that is, the types of cooperatives formed in China's practice and their characteristics? What impact does it bring to the traditional agricultural management?

In fact, the cooperative operation mode that has been formed in reality is the most true reflection of the agricultural business entities in the current environment, and its value cannot be completely denied because it does not satisfy the classic cooperative principles or deviates from it (Xu, 2005). In order to adapt to the changes of the external environment, western countries have made a series of adjustments to the principle of "one person, one vote" for democratic management and "return surplus according to patronage" to serve members, so as to strengthen their competitive advantages over other agricultural operation organizations. For example, in order to realize the function of cooperatives to enhance the added value of products and promote the development of the new generation of cooperatives, the United States has readjust to the principles of classical cooperatives by linking the transaction volume with the share capital, limiting the maximum amount of shares of a single member, and limiting the residual and control rights of unnatural investors (Du & Pan, 2000; Zhang, 2004). So

far, the purposes of this paper are as follows: first, to analyze the category of cooperatives and their basic characteristics in China's practice. Second, to explore the influence mechanism of cooperatives on traditional agricultural management in China's practice. This paper are arranged as follows: the first part is the introduction; the second part is based on the actual environment of China to investigate the deviation of classical cooperatives; the third part is the case analysis of the types and characteristics of cooperatives in practice; the fourth part is to reveal the impact of cooperatives in practice on the traditional agricultural management mechanism; the fifth part is the conclusion and countermeasures.

2. Deviation from the Classic Cooperatives: An Investigation Based on the Reality of China

2.1 The Profit Space of Scale Benefit of Cooperative Is Reduced, and New Profit Space Is Needed

As one of the operation modes of agriculture, the nature of cooperatives is closely related to its unique functions and organization mode (Deng & Wang, 2017). In the 18th-19th century, there was a relative shortage of agricultural products and a low degree of market openness. At that time, farmers' demand for cooperatives was mainly to obtain scale benefits (Zhou & Hu, 2016). However, with the improvement of agricultural productivity and the increase of international agricultural products import and export trade in the middle and late 19th century, the agricultural product market faced higher competitive pressure, which made the cooperative realize the competitive advantage of scale efficiency gradually weakened. In addition, some businesses of rural collective organizations (such as supply and marketing cooperatives, credit cooperatives) overlap with the functions of cooperatives, which further weakens the possibility of achieving profits through scale benefits. Therefore, in order to achieve long-term development, cooperatives must have competitive advantages other than scale efficiency (Huang, 2014).

2.2 Single Organization Mode Can not Satisfy the Needs of Heterogeneous Farmers

According to Deng et al. (2016), the resource endowment of cooperatives mainly comes from two places: one is the resource endowment attached to farmers. The other is agricultural economic entities except from farmer.

With the process of industrialization in China, farmers are generally divided into three categories: large professional households, part-time households and small-scale households. Among them, the large professional households mainly take agriculture as their economic activities. They masters more advanced agricultural production technology, has a certain scale of production, and is rich in information and social resources in sales and procurement, which is the leading force in realizing agricultural modernization in China. Non agricultural employment is the main economic activity of part-time households, and they have certain skill resources (Qin & Kong, 2015). However, due to the limitation of other resources, the income of traditional agricultural management is lower than that of non-agricultural employment. The emergence of part-time business households not only promotes the development of industrialization, but also provides space for the development of urbanization in China. However, due to the technical threshold of non-agricultural employment, the human capital of agricultural sector is "drained" and the production capacity is reduced in the process of labor force "selection"(Guo,2011;Peng,2015). Professional small farmers are relative to professional large households, the subject also takes agriculture as the main economic activity, but because of its low level of modernization and small scale of operation, it is in a weak position in market transactions.

The above three types of subjects are the members to be organized in China's farmers' cooperatives. Firstly, from the perspective of the organizational behavior of large and small farmers who take agriculture as the main economic activity, according to the demonstration of Lin and Deng (2007), due to the differences in the resource endowment of the two types of subjects, the motivation and ability of cooperative operation of large professional households are higher than that of small professional households. Most of the initial cost and investment in special assets are borne by large professional households, which makes the cooperative produce the organizational structure of core members and ordinary members. Secondly, from the perspective of the organizational behavior of part-time business households, there are three predictable roles: members, who invest in resources and have business relations with cooperatives; investors, who invest in resources but have no business relationship with cooperatives; customers, who transfer agricultural business activities by leasing, transferring or entrusting agents, without resource investment. The realization of these three roles is mainly related to a series of factors, such as resource endowment, risk preference, characteristics of family members, operation expectation of cooperatives, urban and rural welfare level, government policies and laws. It can be seen that heterogeneous farmers make rational decisions on cooperative management based on their own resource endowment, and the demand of its participation mode is not single.

2.3 The Sustainable Development of Cooperatives Depends on the Factor Supply of Multiple Economic Entities

In addition, the classic cooperative is an economic organization formed by farmers in a weak position voluntarily to achieve a certain economic goal. Its members are mainly composed of farmers with homogeneous characteristics (Zhou & Hu, 2016). Under the new historical background, the cooperative is defined as a organization in which different production elements of agricultural activities are voluntarily united to achieve the same goal (Lin & Huang, 2007). In fact, the development of cooperatives in many countries is not only organized by farmers. China's agricultural economic entities can be roughly divided into the following three categories: first, companies (or enterprises). This kind of subject is mainly concentrated in the downstream of agricultural production, responsible for processing agricultural products and improving the added value of products, and because of its direct contact with consumers, grasp the diversified demand information of consumers, it has a certain monopoly position in the market. However, due to the risk of substandard quality or uncertain transaction in the supply of raw materials, there is an incentive to internalize the risk by cooperatives. Since companies generally do not engage in agricultural production, the predictable organizational roles are as follows: investors, invest in material capital, provide standardized production services for members, and purchase products of up to standard quality at a price higher than the production price.; customers, take cooperatives as the medium of communication between farmers and themselves, provide standardized production services for members, and sign purchase contracts with the mode of "order contract". Second, broker. This kind of business entity is mainly engaged in intermediary business, and has a certain amount of human capital or supply and marketing resources, and usually provides professional services to members by charging service fee. Third, rural grassroots organizations. This kind of organization is the core leading force to implement the party's policy and promote rural reform and development. It has the support fund related to rural construction and usually provides financial support for the establishment of farmers' cooperatives.

To sum up, under the new historical background, the objective conditions presented by farmers and agricultural economic entities are in conflict with the organization mode of the "same owner and patron" of classic cooperatives. As for trade-offs, Lin and Huang (2007) pointed out that in the early stage of the development of cooperatives, the institutional arrangements based on resource endowment and role differences of cooperative members should be respected. And then, the legal provisions should be taken as the guidance for the development of cooperatives, and gradually guide them to adjust to classical cooperatives. In other words, under the background of unable to establish a complete "democratic management, self-service" organization, China's cooperatives first need to ensure the farmers' regular income, and then to maximize their residual claim and control rights as the business philosophy, to limit the maximum investment of a single member, to limit the number of non natural person investors, to limit the residual control right of single member, and to make ensure the income of the common members.

3. Category and Characteristics of Farmers' Cooperatives in Reality: A Case Study

The case of this paper comes from the CCFC (Center of China Farmer Cooperative). From February 2010 to August 2017, the database has collected more than 1 500 cases in all provinces of China, mainly completed by local government staff and provincial newspaper reporters. Based on the general introduction of the description of cooperatives in the survey records, this paper selects the representative cooperatives, summarizes and analyzes the similarities and differences of cooperatives, and summarizes the characteristics and categories of cooperatives in China. From the perspective of industrial chain, the author divides farmers' cooperatives into four categories: engaged in production, engaged in "production + sales", engaged in "production + processing + sales" and providing services.

3.1 Cooperatives of Engaged in Production

The cooperative engaged in production mentioned in this paper refers to the operation organization which takes agricultural production as economic activity, that is to say, the cooperative is the main producer of agricultural products. This kind of cooperative has the characteristics of scale operation, and its interest mainly comes from "reduced cost and increased benefits".

Case 1: Beisunwu modern agricultural machinery professional cooperative in Sunwu County, Heilongjiang Province.

Beisunwu modern agricultural machinery professional cooperative is developed on the basis of the agricultural planting professional cooperative in Beisunwu village. It was registered in June 2014 under the leadership of Feng. It is a entity integrating agricultural machinery production, planting and grain drying. At the beginning of its establishment, 150 households with 8 100 mu of land entered the cooperatives, and more than 95% of the cultivated land in beisunwu village was transferred. The company has employed 30 staff and 8 management

personnel. It has more than 100 sets of large and small agricultural machinery and 142 rice seedling raising sheds. Before the establishment of the cooperative, the cultivated land was scattered, and each household had only 2-3 hectares of cultivated land, mainly planting soybeans. The land yield rate was low, and one hectare of land could earn about 3 000 yuan, and there was no energy to engage in other economic activities. In 2012, after the establishment of the cooperative, the contract signed with farmers through contracting the minimum guaranteed price of 4 000 yuan per hectare, and more than 45% of which was returned to farmers, and the rest belonged to the cooperative. In 2014, the total income of the cooperative was 10 million yuan, the profit was more than 3 million yuan, the dividends of the members reached 1 million yuan, and the average annual salary of all staff exceeded 40 000 yuan. In addition, after the land was contracted to the cooperatives, all the farmers in beisunwu village were liberated from the land, and their income was increased by 2-4 times through working and sideline production.

Case 2: Yuanran planting and breeding professional cooperative in Xiaochang County, Hubei Province.

Yuanran planting and breeding professional cooperative in Xiaochang County, Hubei Province, is established by capable person Tian, Jin and Huang. It integrates planting and breeding, and absorbs local labor force by transferring farmland and woodland and employing in the planting and breeding base. As of 2016, the cooperatives had transferred 4 200 mu of farmland and forest, 270 households participated in the land transfer, with an average annual income of 1 800 yuan from land rent. The poverty-stricken households participated in the work of 200 people, and the per capita annual labor income was nearly 10 000 yuan. At the same time, in combination with the development willingness of the poor households, cooperatives invest in the construction of cattle houses, chicken houses and other infrastructure, and then invest in the development of breeding industry according to the proportion of cooperatives accounting for 51% and poor households accounting for 49%, so as to play a leading role in the surrounding farmers.

In the above cooperatives, the role of farmers is not consistent with the members of classic cooperatives. However, this kind of cooperatives is based on the reality of agricultural production in China. In the classic cooperatives, farmers are the producers of agricultural products, that is to say, on the basis of common interests, they are united in external trade and decentralized in internal production. For China's agricultural economy with high cost, low income and limited planting scale, compared with the combination based on decentralized management, it is more practical to concentrate land resources through cooperatives. The common point of this kind of cooperative and classic cooperative is that the farmers in both of them are established or participated in the organization on a voluntary basis, and they are also the main beneficiary. The difference is that in the former, the cooperative is the main producer of agricultural products, while in the latter, the farmers are the main producers of agricultural products. At present, in the practice in China, such kind of cooperatives are mainly concentrated in the production of grain crops (such as rice, corn, etc.), the reason is that the potential profit space of scale operation is large.

3.2 Cooperatives of Engaged in "Production + Sales"

Cooperatives of engaged in "production + sales" refers to the organization integrating production and marketing. The most significant difference between this kind of cooperatives and production cooperatives is that farmers are the main producers of agricultural products, and their interest mainly comes from the reduction of transaction costs, the avoidance of market risks and the solution of product sales.

Case 3: Dadi seedling planting service professional cooperative in Huojia County, Henan Province.

Dadi seedling planting service professional cooperative in Huojia County, Henan Province was established on August 23, 2012. It is a farmer professional cooperative that cultivates, plants and sells all kinds of green seedlings. It has three seedling cultivation demonstration bases, among which, the seedling base of Yangwa village in Shizhuang town is 600 mu, that of Xinghan village is 350 mu, and that of Fanzhuang is more than 150 mu. It employs 2 senior horticulturists and 22 daily production workers, absorb 55 members, which are distributed in more than 10 villages around Yangwa, Fanzhuang and Xinghan. The area of seedlings planted by members is more than 2 000 mu. At the same time, more than 130 households around the community are engaged in planting green seedlings, which has achieved obvious economic and social benefits. The cooperative implements the "five unification" service for its members, unified the supply of standardized high-quality seedlings, unified production technical regulations, unified technical guidance, unified product standards, and unified organization of sales. The high-quality seedlings bred by the cooperative are supplied to the members at the preferential price lower than the market. The technicians of the cooperative deep into the fields, and provide technical guidance to the members, so as to ensure that the members carry out production and management in strict accordance with the requirements of the technical regulations, and produce high-quality green seedlings to

improve the planting efficiency of members.

This kind of cooperative is the most common organization type in the practice of farmers' cooperatives in China. Its unique feature is that it has a production base, which provides breeding, technical guidance and demonstration area to its members. The main operation mode of such cooperatives is "company + cooperative + base + farmer" or "cooperative + base + farmer". Among them, the base mainly has the following three modes: transfer cultivated land by leasing, which is managed by professional farmers or technical personnel, and radiates the individual members participating in the cooperative with it as the center. The cultivated land is transferred by means of lease, and then contracted to farmers for management. The cooperative provides technical guidance, and the base is the center to radiate and drive the individual members of the cooperative. Farmers operate in a decentralized way with cultivated land, and cooperatives provide unified production standards. Since this kind of cooperatives has the characteristics of scale production and joint production, named mixed operation. The reason for formation of this kind of cooperatives is that most farmers hold a "wait-and-see" attitude towards the interest of cooperatives, so it is necessary to attract or radiate more farmers to participate in the organization through the demonstration and driving effect of production bases. In the current practice of cooperative management in China, this kind of cooperative is mainly concentrated in the planting and breeding industry of distinctive products. Because its dominant player is usually company or capable man, its ownership structure is inclined to capitalization, which can not satisfy the essence of classic cooperative.

Case 4: Huanong pig breeding professional cooperative in Hanshou county, Hunan province

Huanong pig breeding professional cooperative is organized by more than 100 farmers, is a business entity integrating "production and marketing". As of September 2015, the number of its members has reached 189 households, with more than 7 000 sows capable of breeding. Before the establishment of the cooperative, there were no less than 100 households breeding more than dozens of pigs. However, due to the unstable market price, individual farmers were faced with greater business risks. After the establishment of the cooperative, the operation rules of "six unifications" have been clarified, and a joint force has been formed, anti risk ability has been improved, and its business efficiency has also been increasing. For example, only consider purchase the means of production, the breeding cost of each pig can be reduced by 100 yuan. If the annual output of 50 000 pigs is calculated, the cost can be saved by 5 million yuan. Secondly, unified training on anti-risk knowledge was held. In 2019, 13 training sessions were held to cultivate more than 1 000 professionals. When the epidemic is prevalent, they can actively fight the epidemic and control the risk; when the market risk comes, they can study and judge the market as soon as possible, adjust the product structure and avoid the risk. Thirdly, unified sales. In order to form a greater joint force and serve the member, the cooperative cooperates with the listed companies to use its financing platform to broaden the financing channels.

In the practice of china, this kind of cooperative is the closest to the classic cooperative in essence. Farmers have the dual attributes of patron and beneficiary. However, from the perspective of governance structure and democratic management, this kind of cooperative is more characterized by shareholding ownership structure and centralized management, which does not satisfy the democratic management of classic cooperatives and the principle of distributing income according to transaction volume. Due to the great heterogeneity among farmers in China, the operation of cooperatives mainly depends on the capital input of large professional households. Therefore, in order to "retain" the capital of large households, the ownership structure of cooperatives inclines to capitalization, and its surplus is combined with share bonus. Because livestock breeding industry is easily affected by market price fluctuations, fruit and vegetable planting industry generally encounter sales problems, such cooperatives are relatively concentrated in livestock breeding industry and fruit and vegetable planting industry.

The above-mentioned cooperatives engaged in "production + sales" usually cooperate with downstream enterprises in the form of order contract and guaranteed purchase. With cooperatives as the medium, enterprises provide standardized services for farmers, and farmers provide high-quality products to enterprises. Although this model is more stable than the "company + farmer" model, because the connection mode can not solve the problem of interests incompatibility between farmers and enterprises, there is still the problem of unequal status between farmers and downstream enterprises in the market. Especially when the enterprises have higher requirements on product quality, farmers are faced with the risk of low price sale of agricultural products, which will affect the healthy development of cooperatives.

3.3 Cooperatives of Engaged in "Production + Processing + Sales"

The cooperative engaged in "production + processing + sales" refers to the business organization integrating production, processing and marketing, which is the result of the extension of the industrial chain of the

cooperative, and its interest is mainly the increase of the added value of products.

Case 5: Dongming farmers' professional cooperative in Shenqiu County, Henan Province

Dongming farmers' professional cooperative in Shenqiu County, Henan Province, was established in March 2014. It integrates resources by means of land leasing, land transfer, pool land as shares and members' mutual financial assistance. Since its establishment, the cooperative has concentrated more than 1 400 mu of land in eight natural villages of three administrative villages nearby, constructed a number of high-tech agricultural demonstration area, planting and breeding bases, invested in the construction of flour processing plants, flour mills, and distributed seeds, pesticides, phosphate fertilizer, chemical fertilizer, and other agricultural and sideline products produced by the cooperative's food factory, covering the whole area county 20 town. The cooperative implements the way of re-employment after transfer, which turns over the cultivated land from the farmers to the farmers again, thus absorbing the local surplus labor force.

Case 6: Xiangfa farmers' professional cooperative in Xionglou village, Henan Province

Xiangfa farmers' professional cooperative in Xionglou village, Henan Province, is a farmer's cooperative established by Li and six villagers, an employee of the supply and marketing cooperative in Suiyang District, Shangqiu City. Its main economic activities are sweet potato planting, sweet potato vermicelli and vermicelli processing. After the establishment of the cooperative, it signed a planting contract with its members, organized the purchase of sweet potato at the protection price, and gave priority to recruiting members of Xionglou village to work in the production workshop of the cooperative, so that the members could obtain multiple incomes composed of farming income and industrial workers' wages.

It can be seen that the governance structure and operation mode of this kind of cooperatives are basically similar to those of "production + sales" cooperatives, and their differences mainly come from the expansion of the industrial chain. The cooperative needs to satisfy the following conditions to extend the processing production line: first, the cooperative has enough surplus profit and enough surplus extraction. Second, there is a high price difference between non manufactured goods and manufactured goods. Third, the input cost of special assets of processing production line is low or the financial subsidy is high. Fourth, diversified business entities can satisfy the needs of cooperative production lines for different production factors. Based on practical experience, such cooperatives are mainly concentrated in cereals (rice, corn, etc.), general cash crops (potatoes, etc.) and the original ecological non manufactured products (honey, milk, etc.), while highly commercialized cash crops (vegetables, fruits) or cultivation industry are relatively rare.

As mentioned above, due to the instability of the connection mechanism between farmers and enterprises engaged in production and marketing cooperatives, there is a "top to down" or "bottom to up" impetus to expand the industrial chain. First, from the perspective of enterprises, in order to encourage farmers to regulate production by standardization, the company try to let cooperatives participate in the surplus distribution of production and processing through the way of giving shares in proportion, so as to realize the "top to down" industrial chain integration. Second, from the perspective of farmers, due to the inconsistency of interest between farmers and enterprises, when the quality requirements are high, farmers are faced with the risk of selling at a discount due to substandard quality. Therefore, in order to obtain the extra profits brought by the added value of products, there is a "bottom to up" motivation for industrial chain integration.

3.4 Cooperatives of Engaged in Service

Service cooperatives are also regarded as agricultural associations, that is, farmers participate in cooperative by paying dues and enjoy the characteristics of the services they provide. The main source of income is scale operation or social services.

Case 7: Beifeng agricultural machinery service professional cooperative in Zhaoxian County, Hebei Province

Beifeng agricultural machinery service professional cooperative in Zhaoxian County, Hebei Province, is the main body of agricultural production. Its members just pay a certain amount of trusteeship fee for per unit(mu) of cultivated land and then the cooperative would take care of the whole process of planting, management, collection, processing and storage. Specifically, it has set up an agricultural machinery operation team with reasonable pricing, uses large tractors and planters to cultivate, uses plant protection UAV to spray pesticide, and combine harvester to save agricultural production costs. At the same time, the cooperative also cooperates with scientific research institutions to promote the application of high-yield and high-quality new varieties and series of green production increasing technologies, so as to improve the productivity of traditional agricultural management. Its output value is more than 200 yuan higher than that of farmers' own operation.

Case 8: Nanjian Xiaowan agricultural development cooperative in Dali, Yunnan Province

In November 2014, Nanjian Xiaowan agricultural development cooperative in Dali, Yunnan Province was established by 600 households of chajiang village and 7 village committees of xiaowandong town. In the year of its establishment, relying on the project of Xiaowan power plant, the cooperative realized a dividend of 500 yuan per share for its members at the end of the year. In 2015, with the joint support of the town party committee and the Xiaowan power plant, the cooperative relied on such projects as labor export, economic forest and fruit planting, green planting and maintenance, highway access and cleaning, core area inspection, reservoir fishing, sporadic civil engineering and ecological breeding, 26 large and small contracts have been completed, with output value of 11.04 million yuan, labor income of 4.14 million yuan and profit of nearly 1.5 million yuan. Among them, 600 villagers in chajiang village, xiaowandong Town, obtained "double" income of year-end dividend and labor income through capital investment and labor export.

Association cooperative is the initial cone of farmers' cooperative management, which is a special cooperative of farmers without collective assets. The Agricultural Machinery Cooperatives in case 7 are common in grain crop planting areas. The same with the cooperative engaged in production is that both of them are operated by the cooperative as the producer of agricultural products, and their income sources are economies of scale. The difference is that in the former, the right to deal with agricultural products belongs to the cooperative, while in the latter, the right to deal with agricultural products belongs to the farmers. The socialized service cooperatives in case 8 are relatively few in China. At present, the cooperation mainly focuses on rural labor employment, infrastructure construction and public management. Its purpose is to provide employment opportunities for members, improve rural infrastructure construction and support rural economic development.

From the above cases, we can find that although the governance structure and operation mode are essentially different from the classic cooperatives, this does not mean that the cooperatives in practice can not play the functions of the classic cooperatives(see table 1). In China, for the cooperatives engaged in production, the potential profit space to realize scale economy is large; for the cooperatives engaged in "production + sales", the potential profit space for avoiding market risk, improving monopoly position and solving product sales is large; for the cooperatives engaged in "production + processing + sales", the potential profit space of improving product added value is large, for service cooperatives, the potential profit space of socialized service is large. Therefore, when cooperatives can still play their specific functions in practice, the role of farmers and the way to obtain income are different from the traditional agricultural model.

Table 1. The concentration and functional requirements of different types of cooperatives in the production of various agricultural products

Type of cooperatives	Concentration	Scale economy	Avoiding market risk	Improving monopoly position	Solving product sales	Improving product added value	socialized service
Engaged in production	Grain farming ,Large-scale breeding	5	1	3	3	1	4
Engaged in "production + sales"	Cash crops, Special product,Breeding industry	3	5	4	5	1	1
Engaged in "production +processing+ sales"	Grain crops,General economic crops,Original ecological non-manufactured products	3	5	4	5	5	1
Engaged in service	Grain crops,Others	4	/	/	/	/	5

Note: This paper draw lessons from the progressive relationship of five levels in Min Jisheng (2018) to compare and analyze the functions of various cooperatives.

3.5 Characteristics of Farmer Cooperatives in Practice

The development of China's farmers' cooperatives is rooted in its own characteristics, with the characteristics of diversification of organization mode, diversification of organization subject and capitalization of ownership structure.

3.5.1 Diversification of Organization Mode

As rational people, farmers respond to the cooperative organization based on the types of products, resource endowment and operational risks. The average per capita cultivated land area of China's farmers is 1.35 mu, less than 40% of the world's average level. However, the formation of cooperative organizations needs to be based on a certain scale of farmers' operation. Therefore, the characteristics of scale are embedded in the process of organized management in China. When the scale of operation is too small and the rate of return of agricultural production is low, the potential profit space of cooperative organization can not make up for the marginal income difference between agricultural sector and non-agricultural sector. At this time, farmers are willing to transfer land management rights to cooperatives instead of participating in agricultural operation; on the contrary, when the scale of operation is sufficient and the rate of return of agricultural production is high, the potential profit space of cooperative organization can fill in or even exceed that of agricultural department and non-agricultural department. At this time, farmers are willing to participate in agricultural management. In addition, due to the difference of risk preference, farmers make decisions between leasing, transferring and become a shareholder by transferring land rights. Therefore, in the case of small scale operation, due to the different organizational needs of farmers, the cooperative organization model presents the characteristics of diversification.

3.5.2 Diversification of Organization Subject

In the practice of our country, the main body of cooperatives includes enterprises, companies, managers, skilled workers, village committees and so on, showing the characteristics of diversification of the main body of the organization. The main reason for this phenomenon is that, first of all, the resource endowment of farmers is limited, so it is difficult to establish cooperatives only relying on farmers, and it can not develop in the long run. Secondly, due to the long-term deep-rooted thinking of small-scale farmers, farmers, without the guidance of external forces, hold a wait-and-see attitude towards cooperatives due to the lack of trust. Therefore, it needs the participation of other subjects other than farmers to provide resource support. At present, in the practice of our country, the initiators of cooperatives are usually large professional households, capable people, companies, leading enterprises or village committees, etc. because of the large amount of material, social and human capital, it not only provides the resource for the long-term development of cooperatives, but also plays an exemplary, appealing and driving role for farmers to participate in cooperatives.

3.5.3 Capitalization of Ownership Structure

At present, in the practice of our country, the capitalization characteristics of the ownership structure of cooperatives are more prominent. The main reason for this phenomenon is that, firstly, because the development of cooperatives depends on the support of all the resources except farmers, the skills, land and capital of each provider are converted into shares to realize the incentive and compensation. Secondly, due to the heterogeneity of farmers, the contribution of large and small households to cooperatives is different. In addition to material capital, large investors also invest entrepreneurial talents and social capital into the cooperation. Therefore, in order to compensate for their own invisible assets investment, the large investors who focus on the management usually prefer to choose the capitalization ownership structure that is beneficial to them (Deng & Wang, 2014).

4. The Influence of Cooperatives in Practice on Traditional Agricultural Management Mechanism

Farmers' cooperative management is the institutional change of traditional agricultural management mode, which has an important impact on the rational distribution of input factors in agricultural production. Family, as a rational person, re-allocate the land and labor elements under the cooperative management mode, thus playing a new role in the economic society, and its income structure is different from the traditional agricultural management (see Fig. 1 for details).

4.1 The Influence Mechanism of Cooperative Management Mode on Farmers' Identity

The development of farmers' cooperatives is accompanied by modernization and scale, which is especially prominent in the production cooperatives. In case 1 and 2 above, the leaders of the cooperatives are the village's large professional households or other capable man. The difference is that in case 1, farmers participate in the cooperatives by contracting land, while in case 2, except for the core farmers, the rest of the farmers lease their land to the cooperatives, which means that not all the farmers in the latter are cooperative members. Meanwhile, in case 1 and case 2, because the cooperative is the operator of agricultural production, the labor force of its

members and non members are liberated in varying degrees, which makes some farmers realize employment in the cooperative with skills and labor force (in case 1, there are 30 long-term employees, and in case 2 200 workers are employed), and some farmers put labor into non-agricultural sectors through sideline production and non-agricultural workers.

In case 3, Due to the cooperative has its own production base, the cooperative signs a transfer contract with the farmer and then employs the farmer to work on the cultivated land. Its identity is similar to that of the above-mentioned production cooperatives. The only difference is that for the members driven by radiation, because their production and operation modes have not changed, they belong to the contracted farmers. However, for the farmers in case 4, because of the alliance on the basis of individual investors, the cooperative members are mainly contract farmers. Case 5 is the industrial chain extension of the business model of "cooperatives + base + farmers", in which the identity of farmers also shows multiple characteristics. For those farmers who have contracted land or capital as shares, they belong to the cooperative members because they participate in the surplus distribution of the cooperative; for those who transfer the land by lease and continue to work in the cooperative breeding base, they belong to the labor workers rather than members of the cooperative; for those farmers who only transfer cultivated land but have no business or work contact with cooperatives, it belongs to the liberated labor force under the background of cooperative operation. In case 6, farmers are combined in the way of joint operation, so they directly engaged in the production of agricultural products and are members of the cooperative.

Case 7 have similar characteristics with case 1, both of which realize the improvement of agricultural operation efficiency through the large-scale production of modern machinery. The possible difference is that the farmers in case 1 are not the final main body of agricultural product production, while the farmers in case 1 are the final main body of agricultural product production. Case 8 is a cooperative based on rural construction projects and supported by rural labor force. It is a typical case of secondary and tertiary industries in cooperatives in China. In addition, many cooperatives also set up employment training and land circulation cooperatives in rural areas to provide development path for the effective use of rural labor factors and land elements, and break through the low efficiency development constraints of traditional small-scale agricultural management mode.

4.2 The Influence Mechanism of Cooperative Management Mode on Farmers' Income

In terms of farmers' income, it is mainly composed of operating income, property income and labor remuneration income. In the practice of production and service cooperatives, cooperatives create scale operation income through the following three ways: first, using advanced production machinery and equipment. Under the small-scale agricultural management mode, there is an opposite relationship between the new industrial machinery and full employment of labor force, and due to the high input cost of the machinery and equipment, ordinary small-scale farmers can not afford to pay the high input, which makes the application of new-type machinery and equipment in rural economy not be widely promoted due to the limited ability and power of farmers to purchase machinery. Second, improve the efficiency of factor use and increase the output of agricultural products. In traditional agriculture, the agricultural economy presents idle or abandoned land due to non-agricultural labor employment, and due to the continuous outflow of "high-quality" labor force, the structure of rural labor force is unbalanced, which makes the output of agricultural management run by groups such as women and the elderly low. Third, reduce production costs and improve bargaining power. In traditional agriculture, due to the household as the unit, and small and scattered operation scale, the transaction cost of farmers is high and the market premium ability is low. Therefore, the monopoly power that can compete with the market has not been formed.

From the perspective of the breakthrough of traditional agricultural management by "production + sales" cooperatives: first, standardize production and improve the quality of agricultural products. In case 3 and 4, the cooperatives put forward the standardization requirements for the agricultural products produced by the members, which made the original scattered production farmers obtain external support to improve the product quality. Second, establish a brand. A common feature of this kind of cooperatives is that their products are often local products, which has a high profit space for brand promotion. Third, change the planting structure of products or introduce new products. In the traditional agricultural management mode, small farmers usually do not change the varieties of their products for a long time due to avoiding risks and unable to bear the cost of new varieties experimental planting. Under the cooperative operation mode, the cooperative explores new business products through base or free experiment, so as to meet the market demand. Fourth, realize circular economy. In traditional agriculture, due to the decentralized operation of farmers, the production of various products does not form a circular relationship. However, in the cooperative operation mode, through the joint operation of farmers, the internal connection mechanism of various products production is improved and the circular operation of

agriculture is realized. For cooperatives engaged in "production + processing + sales", in addition to the above path, it is more important to extend the industrial chain and obtain the excess profits created by downstream industries by improving the added value of products.

In addition to the operating income realized by the above-mentioned, the acquisition mechanism of farmers' property income and labor remuneration income is also different from that of traditional agriculture. In the traditional agricultural management, farmers obtain the income of operation and labor remuneration by distributing the family labor force to agricultural production or non-agricultural work. In the cooperative operation mode, farmers obtain property income through the circulation of land. Because of the difference between members and non members, the former obtains the property income from the surplus distribution of cooperative operation as a member of the cooperative operation, while the latter obtains the lease fee of transferring the land use right as the lessee (see Fig.1 for details).

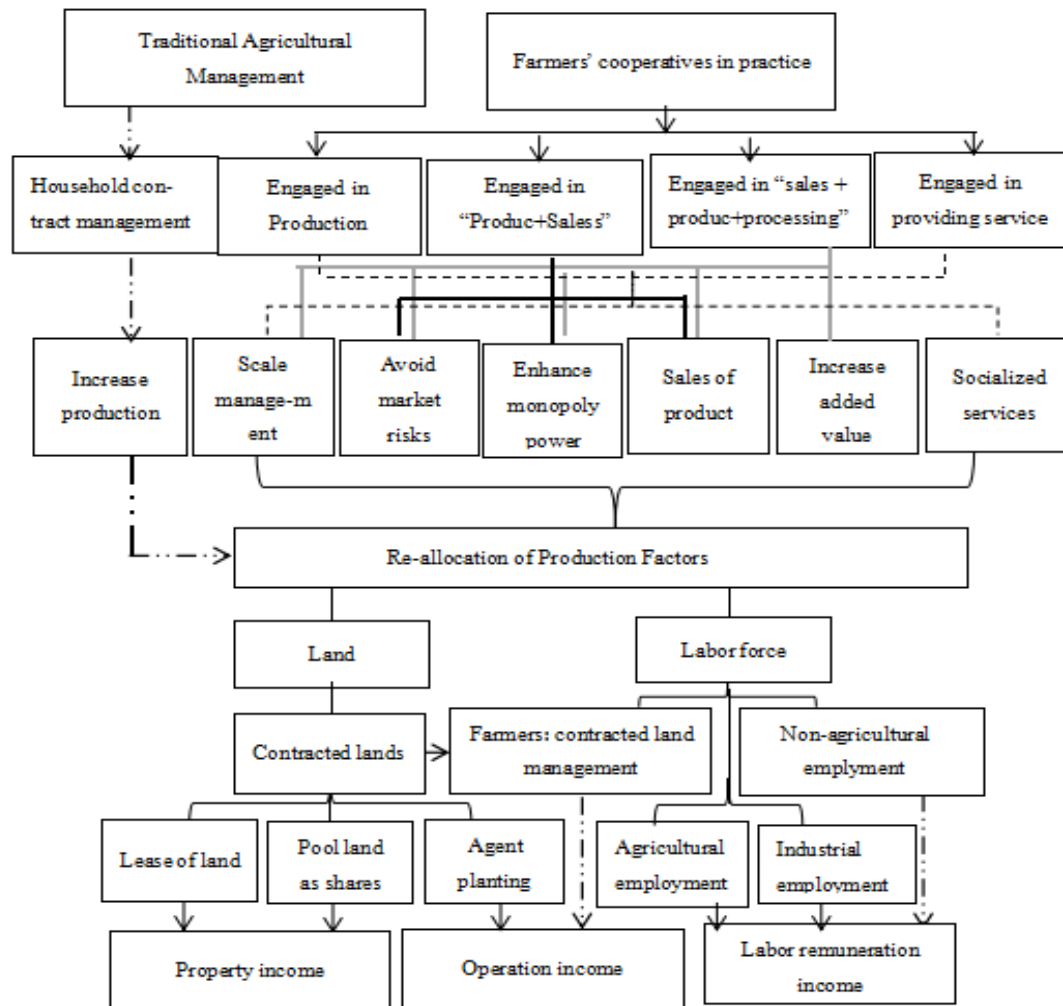


Figure 1. The influence of cooperatives on traditional agricultural management mechanism

5. Conclusion and Suggestions

Based on the principles of classic cooperatives, this paper investigates the farmers' cooperatives in practice of China. It is found that the cooperatives in practice do not conform to the principles of classic cooperation, and have strong localization characteristics based on realistic conditions. In practice, from the perspective of industrial chain, China's farmer cooperatives can be divided into four categories: engaged in production, engaged in "production + sales", engaged in "production + processing + sales" and providing services, and there are significant differences in the operation mode and governance structure of all kinds of cooperatives. For the reasons behind it, the author investigates the concentration degree of different types of cooperatives in the production of various agricultural products, and found that different products have different demands on the

functions of cooperatives, thus making the operation mode and governance structure of cooperatives formed for different functional needs present diversified characteristics. In addition, the author also points out that although there are essential differences between the farmers' cooperatives in practice and those in the classical sense, they can still play their unique functions, that is, they can influence the status and income of farmers by changing the utilization of elements in the traditional agricultural management mode.

In the traditional agricultural management mode, farmers' income mainly comes from operating income and non-agricultural work, and the decision of maximizing family income is made by farmers based on their own resource endowment. Due to the low operating efficiency of traditional agriculture, most of the young and middle-aged workers are transferred to non-agricultural sectors, which makes agricultural production run by low skilled workers such as the elderly and women, leading to the "vicious circle" of low production efficiency (Guo, 2011). In the practice of cooperative management mode, farmers make decisions on the allocation of land and labor resources based on their own endowment and risk preference, resulting in multiple identities of farmers, agricultural workers, industrial workers and non-agricultural workers. Due to the change of their identities, the income structure and profit path of farmers are different from those of traditional small-scale farmers (Luo et al, 2019).

The suggestions and Countermeasures for the future development of farmers' cooperatives in China are as follows: 1. Promote the development of farmers' cooperative management based on the national conditions, gradually standardize the operation mode and governance structure of cooperatives, and protect the interests of farmers with policy guidance. In the early stage of the development of cooperatives, the strategic thinking of "development first and governance later" is adopted, so that the cooperatives in practice can be regulated by policies and laws on the premise of "survival". 2. Considering the influence mechanism of cooperatives on traditional small-scale farmers through the optimal utilization of factors, we should improve the land circulation system, release the institutional restrictions related to land transfer, vigorously promote the reform of land property rights system, and strive to provide a resource integration environment for cooperative operation. 3. Supporting the promotion of farmers' living security system. In the traditional agricultural management mode, farmers' non-agricultural income mainly comes from migrant workers, and there is no supporting living security in the city. In the cooperative operation mode, the cooperative organizations absorb part of the liberated labor force through the form of "local employment". Therefore, the corresponding living security system should be formulated for the new status of labor force. 4. Further refine or supplement the Law of Farmers' Professional Cooperatives, and put forward different and specific supporting policies, registration systems and reward standards for all kinds of farmers' cooperatives in practice, so as to provide a policy environment for the localization development of cooperatives.

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