

The Multifunctionality of Community Supported Agriculture: A Study Case in Taiwan

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1. Introduction

Community supported agriculture (CSA), briefly to say, is the relationship between consumers and producers (farmers) reach an agreement to commonly cope with benefits and rights. The general process of CSA is that: 1) farmers and consumers make an agreement to ensure their rights and obligations separately; 2) consumers pay at first and then farmers have financing to manage farm affairs; 3) farmers send 6 to 8 sorts of vegetable to customers within a box; 4) depending on the contact, farmers send vegetable box twice a month and continually send it 6 to 12 months. During the process, customers and producers gradually establish fiduciary relationship and practice the multifunctionality of agriculture.

In CSA mode, both farmers and consumers adopt 'pay-first-and-sent-after' form, which means farmers have consumer-prepaid financing so that farmers, especially small farmers, would not have to worry about financial problem, instead, they have enough money to purchase seeds, seedlings, fertilizers, agricultural machinery renting, or any agricultural affairs. Farmers and consumers share risks (production shortage, climate, insect pest etc.), agree with mutual rights and obligations, and sign contracts to deliver seasonal 'vegetable boxes (bags, baskets)' once fortnightly or once per week to consumers' house.

Farmland as a carrier of production, has its multifunctionality on economic, social, environmental aspects, and so does CSA. Kline and Wichelns (1998: 212-213) claim that farmland has functions such as environmental conservation, ecological maintenance, landscaping, groundwater recharge, and cultivation, which aggregate as agricultural multifunctionality. People gradually pay attention to multifunctional agriculture for not only its role of farm produce provider, but also other functions beyond agriculture. However, the practice of agricultural multiple effects is depending upon types of farmland use. Nowadays, organic agriculture is considered to have multifunctional factors as agricultural sustainability, biological sustainability, inner-valued respect to flora and fauna, and local development. In the procedure of organic agriculture, it not only increases commercial value of food, but also creates non-commercial value, such as food security, environmental protection, cultural preservation, multiple landscapes, village stabilization etc., and even adjusts agriculture towards market demand (Lampkin, 1999:147-148).

In Taiwan, organic agriculture is initiatively promoted by the government in 1986. In 1999, the government authority has legitimated the first organic regulation "Production Standard of Organic Agricultural Products". Later, "The Regulation of Certification and Management of Organic Agricultural Products and Organic Processed Agricultural Products" has legitimated in 2007. The government authorized the private companies or organizations to testify the soil, water, seedlings, crop, and process goods and so on and then certificate farmers' products as organic.

By encouraging organic and certificated farm products, consumers can purchase safety food. In Yilan, Xingjian Village, a group of elder farmers organized a cooperative to promote organic farming. They depend on mutual trust and help among cooperative members, and practice chemicals free farming. Moreover, the cooperative began the CSA and attempt to make an environmental friendly, safe food production, and organic certificated agriculture. However, the outcome of CSA did not provide apparent evidence to say that it is successful to link producers and consumers. Thus, we attempt to review the process, analyze the reasons of failure, and provide our suggestions to further improvement.

This study firstly reviews theories of agricultural multifunctionality and organic agriculture. We went to Xingjian Village and made in-depth interview with farmers, discussing village economy, production, ecological environment, living culture, and development difficulties etc. We evaluate the effect of multifunctionality in organic farming development, and find the chance to advocate organic long-term development.

2. Literature Review of CSA and Multifunctionality

The community supported agriculture has promoted over 30-year all over the world. However, in Taiwan, it is still a new concept for most of the producers and consumers. Even the 'Kudon Club' initiated the first CSA to provide 'rice share' for their 'shareholder,' most of the people do not know what CSA is and how CSA works. Besides, multifunctionality nowadays is provided to interpret that agriculture has not only the function to produce but has multiple functions to protect the environment, maintain biodiversity, maintain rural landscape etc. Therefore, in this section, the literature of CSA and multifunctionality provides the insights for us to develop a more complete and sustainable way for agriculture.

(1) CSA

A. The Concept of CSA and its Development

Community supported agriculture (CSA) is the way for producers and consumers to mutually support each other. According to Henderson and Van En (2007:3), CSA refers to 'consumers who purchase local agri-product and farmers nearby are seeing as a main body. The amount of agri-product, consumers, and the commitment between people are equal to community supported agriculture and infinite possibility.' The characteristic of CSA is the face-to-face communication between consumers and producers, organic production, local production, and spreading risk (Stagl, 2002:145-146). The basic mode of CSA asks consumers order, sign a contract and pay at first and then producers can send weekly agri-products by vegetable box. Members of CSA support local agriculture and the reward is fresh and organic agri-products, so that farmers can avoid the risk of traditional market structure (Hayden and Buck, 2012:333).

The earliest CSA in the USA was in Indian Line Farm in western Massachusetts, and the Temple-Wilton Community Farm in southern New Hampshire in 1986 (The Call of the Land, Dateless). These two farms built up the rudiment of CSA. That is 'rice shareholder' productive mode (McFadden, 2003). Farms which practiced CSA gradually increase and they developed ordering institution, farmers' cooperative supply, and other kinds of ways (Lin, 2011:23).

The development of CSA in Taiwan began with in 1980s. At that time, as development of neoliberal economy, trade, international market change, and other factors. The development of agriculture confronts huge challenge. Until climate change and low-carbon economy promotion of western countries that make Taiwan society regards to issues related to farmers' right to live, balance of ecology, food security, etc. The direct contact between producer and consumer as well as providing healthy food and resolving marketing dilemma, are the reasons why CSA appears (Bei and Wu, 2010:12).

Ostrom (1997: 68) investigated several farms and found five reasons why CSA members join the grassroots action. They are: 1) for fresh and nutritious agri-products; 2) local purchasing; 3) supporting small farmer; 4) gaining organic or non-organic products; 5) protecting the environment. It is obvious that the establishment of CSA does not emphasize the provision of organic agri-products. However, because of the boost of CSA emphasizes healthy and safe food source, we suggest that CSA contains the meaning of non-toxic and cultivation friendly.

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All in All, CSA is based on mutual recognition and cooperation between consumer and producer. The concept of CSA asks consumers to “know your farmers, your food, and your land.” By sharing and cooperation, consumer and producer connect with each other and use friendly way to the land (Kao, 2013:15).

B. The Mode of CSA

Usually, CSA farms are related to four types of groups: farmer, community, core/management group, and CSA promoting institute. The core/management group includes farmer and community members to organize CSA. The responsibility of the group includes budgeting, withdrawing money, paying to farmers, distributing food, dealing with legal problems, organizing activities, recruiting CSA members. The CSA institute promotes hygiene, training, education, and other goals. The main responsibility of core group includes selecting farmers, farmland, crop types, payment institution, logistic procedure, working distribution, and supervises entire CSA operation (Pillely, 2001: 6).

The operation types of CSA are divided into four types: 1) farmer dominance – CSA is organized by farmers and are responsible of all management strategic-making. Consumers passively accept producers’ products weekly. 2) consumer driving – consumer organize CSA and find land, hire farmers, decide crops, and join labor and management of organization. 3) Farmer professional cooperation – this kind of CSA is operated by two or more farms for providing more agri-products for consumers. 4) Farmer-consumer cooperation – this type is similar to 3) but more consumer orient. Consumer and farmers can own land and other resources together and make efforts to produce and sell food together (Bauermeister, 1997; Pillely, 2001: 7).

Because of the different development conditions among different communities, CSA develops many operational modes. Henderson and van En (2007:7) consider that the difference between the levels which consumers and farmers join. If we take them as linear spectrum, in one side, consumers will be considered as ‘rice shareholders¹.’ In the other side, it is ‘subscription’ which consumers are considered as members of CSA so that they simply pay and get agri-products. Most of CSA cases are in the middle of the spectrum, which members are willing to join or help agricultural affairs and marketing in some days for amount redeeming (Lin, 2011: 21). CSA is directly sent from productive area to consumers’ house, which farmers can gain huge benefits (Ostrom,1997:196; Galayda, 2006:58).

(2). Multifunctionality

If sustainability is a long-term, global resource-oriented concept, multifunctionality involves in production process and various activity-oriented concept, which these two concepts are very close. OECD (2001: 6, 7) indicates that the key factor of multifunctionality is: agricultural joint production existing various commerce and non-commerce output. Some non-commerce output appears the nature of externality and public goods, nevertheless, the market of products does not exist or cannot display its function. Wiggering et al. (2006: 239) considers that because agriculture has multifunctionality, on the aspect of holistic agricultural value, it is a good way to analyze two fronts of commodity output (CO) and non-commodity output (NCO). Besides paddy production, effectiveness of ecological environment and living culture always accompany with production behavior. The income of CO can be directly observed for evaluate

¹ The ‘rice shareholder’ is one sort of CSA, which means the one who join CSA to support farmers and share risks with farmers together. This institution is similar to people who buy share or stock in the stock exchange. Therefore, some farmers and consumers use ‘rice shareholder’ referring to the earliest CSA in Taiwan.

produce price; NCO has characteristics of externality and public goods. Such output will have new income type in market and quasi-market. The total revenue of multifunctional agriculture is the sum of income from CO and NCO. Therefore, social utility is formed by different extent joint production so that can be used as a principle to evaluate its sustainability. In other words, the emergence of agricultural multifunctionality has to be considered by the view of farmland sustainable use.

The core idea of agricultural multifunctionality is the possibility of agricultural plural development. It breaks away the past CO function and begins to value aspects of agricultural life and ecoagricultural, i.e. so-called NCO (village society, culture and biodiversity, etc.). The joint productive outcome of CO and NCO can reform as public goods and private property to put in public service and market. The major characteristics of multifunctionality are:

A. CO Output: Aspect of Production and Economy

The economic aspect of agricultural is real output of production, which provides necessary products or raw materials for human living. Moreover, this aspect also asks food security and food safety which are to ensure the food self-sufficiency rate and limit chemical fertilizers and pesticides use to protect health of consumers.

B. NCO Output

(A) Aspect of Eco-Environment

Eco-Environmental aspect extends from the production aspect. Due to agriculture linking with soil, water, flora and fauna, and agricultural landscape during producing, if farmers adopt environmental friendly cultivation, resource of production system can be maintained.

(B) Aspect of Social and Culture

On the other hand, beyond agricultural production, farmers' interaction among social and cultural system represents their unique non-commodity value. Moreover, by maintaining agricultural production and management within rural landscapes agriculture production supports rural communities as well as advocates rural employment, rural recreation, rural landscape, or pastoral life experiences and cultural heritage. It also contains the identity to the land.

In sum, the range of agricultural multifunctionality should have the value of production and economy aspect, eco-environment aspect, and living culture aspect.

3. The study case

(1) Background

Xingjian Village is located in the center of Sanxing Township, Yilan, Taiwan. Area of this village is 6.5 square kilometers, with 300 households and population of 1,000 (Fig.1). In recent years, Xingjian Village under the leading of Mei Chang and Shen, actively promoted organic agriculture and soon built as the first organic village in Yilan assisting by the agricultural authorities.

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Figure1 Geographical Situation of Xingjian Village

Nowadays, members of Xingjian Cooperative are about 40 people with 45 hectares' rice field and vegetable field. 40 hectares is paddy rice field and 5 hectares grows vegetable and other grains. This place is the most integral area for organic farming. However, marketing is always the problem for cooperative to promote organic agriculture, so as in most of the Taiwan agricultural organizations. In 2014, the products that Xingjian sold, 14% is corporation purchasing, 8% is governmental purchasing, 49% is wholesalers' purchasing, and 29% is retail by individual customers. The above three earning is 71% but unit price is low. The average discount for large sales is about 30% to 20% off. The individual purchasing is the highest which the price is 4.5 US dollar per kilogram.

Farmers wish to have stable marketing and sale so that lease of CSA ensures farmers' basic price. However, if disaster happened which led to no harvest, the lease cannot ensure farmers' revenue. However, the CSA in Xingjian is different. Consumers pre-pay all the fees. Even if disaster happened and made farmers could not send their products, consumers have to undertake the risk of poor harvest.

In the end of 2015, the Council of Agriculture (Abb. COA), Administrative Yuan, constituted that Xingjian Village becomes Organic Productive Professional Area² (OPPA) either two villages. Nowadays, Xingjian cooperative is on the way to become OPPA. They have four targets: 1) farmers' lease mode and management; 2) young farmers nurturing; 3) environmental friendly cultivation; 4) business operation and management.

(2) The CSA Operation: Production

As previous literature showed, four CSA operational types are: farmer dominance, consumer driving, farmer professional cooperation, and farmer-consumer cooperation. In Xingjian Cooperative, we found that the above four types cannot fully apply for Xingjian. Xingjian Village has to develop an unique 'fifth' way for new CSA institution. The first CSA was initiated by Kuo-Shian Chen (Chen and Yen, 2016). He made questionnaire to investigate consumers and try to organize the whole CSA action in Xingjian.

(3) The CSA Operation: Consumption

Marketing channels of distribution is always farmers' maximal dilemma besides cultivation. Farmers are exploited by wholesalers that farmers' profit cannot rise in a long time. This study adopts questionnaire and targets consumers as a core to spread questionnaires to their friends. Meanwhile, core consumers tell the concept of CSA to their friends. In 35 effective questionnaires, 13 consumers are willing to try the CSA's vegetable box sending service, which has to sign a contract and pay off six months' fees. We found that consumer is the key person that is related to the success of CSA under such consumption modes in Taiwan. One of the consumption modes is consumers buying and taking (in the market); another kind is paying when agri-products come to consumers' house (TV shopping). In this time, consumers pre-paid full amount of money for the first time. They were willing to share the risk of poor harvest.

² "Organic Productive Professional Area" is announced by the Council of Agriculture. The central government picked several agricultural areas and named as "Organic Productive Professional Area" or "Productive Professional Area" according to different agricultural conditions.

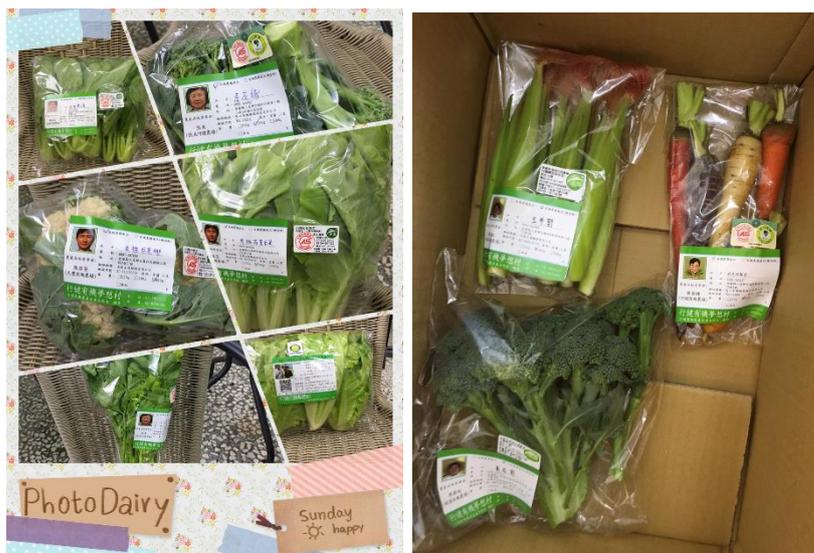


Figure 2. (left) Farmers usually send 6 to 8 kinds of vegetables each time.

Figure 3. (right) Farmers put vegetables in to box and then call “Black Cat Express” to deliver those paper boxes.

Although Xingjian organic CSA’s production and cooperative communicated with each other several times, farmers grew similar vegetables. During the 6 months and 12 times delivery service, the cooperative sent 34 kinds of products. To compare with traditional market, the diversity of products is obviously inefficient. In the 12 times deliveries, the cooperative sent green onion (10 times), romaine (9 times), sweet potato leaves (9 times), cabbage (9 times), arden lettuce (8 times), sweet potato (8 times), and lettuce (7 times). The repeated provision makes consumers doubting to lack of diversity of cooperative products and then give negative influence to consumers’ willingness to order again.

4. Analysis of Production

The cooperative summoned farmers and practice CSA during 11th December 2014 to 14th May 2015. We separately investigated producers and analyzed the results as follows.

(1) Producers’ Questionnaire Analysis

Due to cooperative members practice organic farming so that farmers are not so strange to CSA. They understand the idea of CSA and are willing to fully put into CSA. CSA farmers conform that organic farming is necessary method for protecting the environment and farmland. Farmers consider that the minimum area which can feed a four-people household is 0.2 hectare. The labor that organic farming uses is 2 to 3 times than conventional farming but profit only increasing 0.5 times. However, farmers all consider that organic farming is the future trend.

(2) Producers’ Post-CSA In-depth Interview Analysis

The Xingjian Organic Village was led by Mei Chang the former leader. In 2010, in order to assist farmers to sell their products, she asked a group of elder farmers to establish the ‘Xingjian Organic Cooperative’ to integrate each channel and promote marketing of organic products. Mei Chang said:

“At that time, I was the leader of Xingjian Village. Most of the villagers are engaging in agriculture, and also most of them spray pesticide. The elderly especially, in some cases, they sprayed pesticide, poisoned, and then sent to hospital. Meanwhile, it was luckily to know that Hualien District

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Agricultural Research and Extension Station was promoting organic cultivation. I went with someone to the station and felt that organic agriculture was good to farmers and the land. Therefore, when I came back to Xingjian, I fully spent my time to promote organic farming. I really hope Xingjian can become the first organic village in Taiwan³.”

(3) Organic Cultivation and Its Promotion Problem

A. Serious Insect Pest

All the cooperative’s members consider that organic production is the future tendency for the upcoming generation. Organic agriculture indeed decreases the use of chemical materials. However, organic farming is forbidden to spray pesticide so that causes serious pest problem. Informant B01 said:

“I grow paddy rice for over 65 years. About 3 or 4 years ago, Mei Chang suggested me to transform into organic farming. In the beginning, I am not used to practice pesticide-free cultivation. I cannot eliminate all the pest, and all weeds are bigger than vegetables. I am almost giving up”

Informant B01 now fully engages in organic farming and gives up conventional farming. Meanwhile, informant B04 also agrees with the positive aspect of organic cultivation.

“Although the man-hour of organic cultivation is twice higher than conventional cultivation, organic earning cannot be twice higher than conventional earning. However, for the land health and future generation, I am willing to engage in organic agriculture.”

B. Lack of Financing and Fees for Organic Certification

Cultivation without pesticide and chemical fertilizers is helpful to the health of human and land. However, the cost of organic agriculture which includes organic fertilizers, green fence, labor cost, certification fee, and other sorts of fees. Namely, the cost of organic production is higher than conventional products. It results that consumers may not willing to pay such great amount of fee.

Informant A05 said: “Consumers all know that organic products are healthy, but high price makes them stepping back.”

Informant A01 said: “I invest lots of money by myself in engaging in organic farming. The organic certification has part of subsidy by the government, but I also have to pay. This kind of certification is forced by the government. So, the government has to pay for me.”

C. Promoting Organic Agriculture by CSA Institution

Although Xingjian has promoted organic for years, farmers still have the dilemma of ‘easy growing but hard to sell.’ Farmers grow high quality crops, but have no efficient way to find the marketing channels. By the consumers’ participation within CSA, consumers pre-paid the fees and enjoy safe and healthy organic products. Meanwhile, farmers will not worry about problems of selling and they can concentrate on cultivation.

(4) The Change of Attending CSA and Deficiency of CSA Promotion

A. Farmers’ Cohesiveness Rise and Villagers Seeming to be close

Farmers consider that they became closer than before when they join CSA. They encourage each other, share cropping knowledge, and have regular meeting. Informant B01 said:

³ In fact, Rousan Village (in Hualien, eastern Taiwan) is the first organic village in Taiwan earlier than Xingjian Village in 2002.

“We become closer because we turn to organic farming. The cooperative has regular meeting so that we can communicate with each other.”

Besides, family members become closer as well. Informant B05 said:

“I change to organic farming because I hope family to become healthier.”

Informant B07 said:

“Because we have the same idea (organic life) so that family become closer.”

B. Deficiency of CSA's Return, High Cost, and Deficiency of Labor

In Xingjian, the cost of planting vegetable on 0.1 hectare land is about 2,200 USD. If farmers would like to deliver products to 25 household, the minimum is at least 0.2 hectare. Because of deficient labor force, people who join the CSA are few. Cooperative has no core members or leader to domain CSA so that makes communication and production in a difficult situation.

(5) Expectation of Promoting Organic Agriculture by CSA

Farmers consider that CSA is benefit to promote organic agriculture, so that they hope consumers to support CSA continuously. They also wish the government to help small farmers to promote CSA. Half a year later, farmers wish consumers continue the order. Informant A01 said:

“I wish to have CSA's order six months later, so that farmers would have confidence to continue CSA mode.”

Informant B07 said:

“Of course, I hope I can coordinate with cooperative to deliver vegetable box. The institution of CSA make farmers no worry about selling.”

5. Analysis of Consumption

This questionnaire of CSA sent to 50 people and 35 of them returned. We found 13 consumers joined CSA. The way of delivery is sent once fortnightly. Each delivery costs 47 USD and the six months' order costs 563 USD. The total gross income in the past 6 months is approximately \$ 5450 USD/ € 4970 Euro.

(1) Questionnaire Analysis

In the 35 questionnaires, there are 10 males and 25 females. Their cognition of CSA is low, which 25 people do not know what CSA is. However, after they know the idea of CSA and organic cultivation, 27 people were willing to join CSA.

(2) Consumers' In-Depth Analysis

A. Reasons to join CSA and Change after Joining

In 35 questionnaires, the 13 consumers are willing to joint CSA. The reasons are friends' recommendation and by word-of-mouth. Informant C01 said:

“My friend asked me to come here. Before this time to order organic products, I even do not know what the 'CSA' is.”

B. Satisfaction to Delivery Service but deficient Kinds of Products

About the delivery, most of the consumers are satisfied. Informant C06 said:

“Generally, the delivery process is good. The cooperative can match my need to temporarily deliver to different place.”

However, some consumers consider that the diverse of kinds of vegetables are too few.

C. Confirmation of Organic Agriculture and Land Sustainable Use by CSA Promotion

CSA consumers all realize that organic products are friendly to the environment, land, and health to human body. They understand they have to pay first, and then every two weeks to have a box of vegetables. Informant C04 said:

“Pre-paid institution is very helpful to farmers which releases farmers’ from pressure.”

D. Suggestions of Decreasing the Price and Adjusting Delivery Times to Match Consumers’ Needs

After 6 months, consumers recognize the advantage of CSA and want to continue their order. However, they wish the cooperative to improve the delivery times and to match consumers’ needs. Informant C02 said:

“After 6 months, I am willing to continue my order.”

Informant C03 said:

“I think the price of CSA in Xingjian is expensive than other farms, but I support farmers.”

E. Suggesting Improvement to Xingjian’s CSA

(A).Suggesting Delivery Service Changing to Once a Week

Many informant said that fortnightly delivery cannot guarantee the vegetables are fresh or not. Informant C02 suggested:

“Once two weeks’ delivery is not good for me. Once a week’s delivery is good to have fresh vegetables.”

(B).Suggesting to Decrease the Price

Price is important factor to influence consumers’ willingness to order. The consumers who order CSA are not in a low income. However, they felt that the price of vegetable box is too much. Only few of them think the price is reasonable. Informant C03 said:

“The price is reasonable and acceptable. Other organic vegetable box sellers seem no contract. In Xingjian, we signed contract and felt it is guaranteed.”

6. Discourse

In previous sections, we analyze aspects of production and consumption by the questionnaire. According to multifunctionality of agriculture, it is necessary to view CSA by the functions of CO and NCO.

(1) CO: Production and Economy Functions

A. (Supply) Decreasing the use of chemical materials

Farmers do confront serious insect pest in organic field and suffer great amount loss of crops. Nevertheless, on the one hand farmers do not want to use chemicals, but on the other hand they wish to have more harvest. Due to legal reason, organic farmland is protected under law so that farmers have to obey relevant regulations and ensure the farmland is organic certificated. Therefore, as farmers continually grow crops and vegetables, the decreasing of utilizing chemicals ensures the environmental friendly cultivation.

B. (Supply) Production costs are still high; payment for certificate fee is not affordable

Due to the requirement of chemicals free, organic agriculture becomes high cost and labor intensive. Also, small farmers encounter a problem which the certificate fee is high and not affordable for them. Both conditions may influence farmers' willingness to continue organic farming.

C. (Supply) No obvious rise of farmers' income within CSA mode

Farmers grow vegetables and provide vegetables to CSA. However, in this case, it is apparently that farmers not only sell vegetables to CSA but also other farmers' market to earn more money. That is to say, CSA may push farmers to grow more vegetables, but without incentives such as higher earning, farmers would rather to sell their products in farmers' market⁴. As a whole, farmers' earning has raised more, but the part of earning of CSA is less than others.

D. (Demand) Too expensive of each vegetable box

Consumers complain about the single price of each vegetable box (\$49 USD/ €44 Euro) which is too much for them. To compare with private company or farms, generally one box of vegetable is about \$32 USD/ €29 Euro. Indeed, the price of each vegetable box seems too much. The cooperative has to notice this problem to reduce the cost and make the price friendlier to customers.

E. (Demand) Lack of diversity of vegetables' types

The actual producers are not many and also, they have to grow large amount of vegetables including the parts which they will carry to farmers' markets. Besides, due to climate and pest problems, farmers usually suffer great loss of agri-products. Therefore, every time when they send vegetables to the cooperative for packaging, the provided kinds of vegetables are not diverse, and also the same vegetable may send repeatedly.

(2) NCO: Social and Cultural Function

A. Interaction among farmers is better than before.

Farmers said that before CSA mode, they were busy in their farms and rarely to communicate with other farmers. After the beginning of CSA, farmers have to carry basket of vegetables to the cooperative. Naturally, they have to discuss with each other and also exchange their planting experience. Farmers' interaction is apparently better than before.

B. Lack of leadership of mobilization

The director and supervisor of cooperative and its leader Chang did not show their leadership of mobilization to other members. The incentives between CSA and farmers' market are obvious economic-oriented. Farmers would choose to sell vegetables in farmers' markets

⁴ The Yilan County government, several schools, and Sanxing Farmers' Association provide farmers' market for farmers to sell their products, and they usually have good price in these markets. Informant did not give us definitive price of how much they earn but they said the selling prices in above places are better than the price they have in CSA mode.

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because of higher earnings, rather than sell vegetables to the cooperative (for packaging as CSA vegetable box). Therefore, the cooperative and the leader have to notice the key factors what influence farmers' willingness to provide vegetables.

C. No cohesion (the opportunity cost of CSA is larger than individually selling)

Although farmers described their interaction was better than before, in the above section, it is not necessary to say that farmers' interaction creates cooperative members' cohesion. Because of lack of economic incentive, farmers realize the opportunity cost of CSA is larger than individually selling so that the individual rational did not create collective rational and cohesion.

D. 'Fake organic' problem (farmers and farmers, and also farmers and customers would be lack of trust)

Some farmers do not fully invest all their farmland for organic production. In order to hedge, some farmers remained several pieces of land to ensure their earnings and avoid the loss in organic field. However, sometimes these farmers harvest vegetables which are not produced in the organic field and announce that they are organic. We do not really know if farmers intended to do so or not, but it is harmful to the cooperative's reputation and also influence customers' willingness to join CSA.

(3) NCO: Eco-Environment Function

A. Organic farming is good to the land health and biodiversity

In Taiwan, chemicals use in organic farming is strict forbidden⁵ by law. If a farmer can provide his certification sheet to the customers, it almost represents that her/his farmland is organic. In Xingjian, not all the pieces of land are organic but the number of certificated land, under governmental encouraging, is increasing.

B. 'Fake organic' problem (influencing the environment of agriculture)

This kind of problem may make organic farmland polluting when pieces of organic and non-organic farmland are adjacent. Therefore, strict investigation is necessary to ensure the rights of farmers who uphold the law and order.

7. Conclusion and Suggestion

Although nowadays the CSA practice in Xingjian Cooperative seems failure due to several reasons such as: too few of types of vegetables, times to deliver vegetable box, high price, etc. Farmers are still optimistic to keep working on organic farming. They are planning to have more field to grow vegetables to provide the next CSA. In our opinion, the multifunctionality of the CSA, in NCO aspect, is to hold people and makes them closer. To fulfill the multifunctionality of organic farming in the village, the future policy measures may be shown as follows:

⁵ Besides several chemicals that is allowed to use on fruit trees, basically chemicals are forbidden to use according to regulation of organic farming.

(1) According to the cost of organic farming and its certificate fee, the Government should provide organic subsidies.

Reasons to support organic agriculture development are: A) organic agriculture having “public goods” value: the public goods’ value cannot reflect on commercial price so that government provides subsidies; B) develop new industry: the market of organic food is too small to satisfy the public demand so that the support and development should be provided by the government; C) correcting market failure: the demand of organic food is high but low producers leading to an inefficient market so that the government have to intervene for avoiding market failure (Lampkin ,2002:321).

This study suggests that to support organic agriculture development, the government have to legislate policy for “pushing” supply of organic food. Also, organic agriculture is no doubt to improve people’s health so that the government should encourage farmers to transform to organic farming. This study suggests that besides organic verification fees, the government has to provide subsidies for those farmers who are willing to transform to organic agriculture.

(2) According to the non-cohesion problem to the CSA, the Cooperative must pay great attention to problem of mobilization.

The cooperative and its leader, as a conductor of CSA, have to seriously deal with the non-cohesion of mobilization problem. Farmers are not immobilizable, unless the cooperative eliminated appropriate profits. In our research, the benefit to sell vegetables in farmers’ markets is comparatively higher, so that farmers would rather to decrease the supply to CSA than increase the supply to farmers’ markets. If the cooperative would like to resume CSA, have to provide incentives to re-mobilize farmers to join again.

(3) In order to deal with the ‘fake organic’ problem, the government has to prevent the counterfeited organic products.

Fabrication of organic certification in Taiwan emerges in endlessly. It makes law-abiding legal farmers suffered great loss on their reputation and profits. In our research, farmers are not intended to fabricate their products as organic, once the investigator found, they have to face the legal responsibility. Therefore, we suggest that complete investigative institution has to be legitimated by the government for avoiding fabrication.

In the end of this study, we have learned that 2 of the household restart their order of vegetable boxes. It is undoubtedly good news for cooperative farmers. However, CSA is ‘community-based,’ which means that the 2 households-order is not convictive to say successfully. In this case, CSA is inconvincible to be profitable for farmers and cooperative. Thus, CO functions in this case seem not effective. Multifunctionality of agriculture in Xingjian is still a long way to go to make it success.

Reference

- Bauermeister, J. (1997). CSA - A first year's experience. Washington Tilth. Autumn 1997, 3, 12-15.
- Chen, K. S. & Yen, A. C. (2016). "A Study of Innovative Community Supported Organic Agriculture: A Study Case in Xingjian." Conference in National Taiwan University Department of Geography. Eighth Development Annual Conference. 2016.10.15~16.
- Hayden, J. & Buck D. (2012). Doing community supported agriculture: Tactile space, affect and effects of membership, *Geoforum*, 43(2), 332–341.
- Henderson, E., & Van En, R. (2007). *Sharing the Harvest: A Guide to Community Supported Agriculture*. Vermont: Chelsea Green Publishing.
- Kao, C. C. (2013). *The Innovative Operation Models of Community Micro-Agriculture*. Master thesis, Hakka Culture and Society Program, National Chiao Tung University.
- Kline, J. & Wichelns, D. (1998). Measuring heterogeneous preferences for preserving farmland and open space., *Ecological Economics*, 26, 211-224.
- Lampkin, N. H. (1999). Organic Farming and Agricultural Sustainability. In: S. D. Turner, and D. Alford, (Eds.), *Agriculture and the Environment: Challenges and conflicts for the new millennium* (pp.146-154). ADAS, Wolverhampton.
- Lampkin, N. (2002). Development of policies for organic agriculture. In: J. Powell and et al. (Eds.). Proceedings of the UK Organic Research 2002 Conference (pp.321-324). Organic Centre Wales, Institute of Rural Studies, University of Wales Aberystwyth.
- Lin, J. C. (2011). *Promoting Organic Agriculture by Community Supported Agriculture in Taiwan: A Case Study of Great Wang's Grocery Store*. Master thesis. Hualien: National Dong Hwa University.
- Ostrom, M. R. (1997). *Toward a Community Supported Agriculture: A Case Study of Resistance and Change in the Modern Food System*. (Unpublished doctoral dissertation). The University of Wisconsin-Madison, USA.
- OECD (2001). *Multifunctionality: towards an analytical framework*, Paris. Retrieved from <https://www.oecd.org/tad/agricultural-policies/40782727.pdf>
- Pilley, G. (2001). *A Share in the Harvest- A Feasibility study for community supported agriculture*. Bristol: Soil Association.
- Stagl, S. (2002). Local organic food markets: potentials and limitations for contributing to sustainable development, *Empirica*, 29, 145–162.
- Wiggering, H., Dalchow, C., Glemnitz, M., Helming, K., Müller, K., Schultz, A., Zander, P. (2006). Indicators for multifunctional land use-Linking socio-economic requirements with landscape potentials, *Ecological Indicators* 6, 238–249.