Institutional Factors Affecting the Economic Performance of Peasant Special Cooperative Organization——A Case of Cuiping District, Yibin City, China

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Abstract Literatures about the institutional arrangement of the Peasant Special Cooperative Organization are summarized. Based on the introduction of theoretical background, the overall level of annual earnings in the year 2008 is selected as a dependent variable to evaluate the economic performance of cooperative organizations, according to the investigation on 54 Peasant Special Cooperative Organizations in Cuiping District, Sichuan Province, China. A total of 13 institutional indices passing the correlation test are chosen as independent variables. Relationship between the development level and the institutional factors affecting the economic performance of cooperative organizations is studied by using factor analysis method. Result shows that there is relatively high consistency between the score of institutional factor and the development level of cooperative organization. Both macroscopic support system and internal benefit distribution system have greater impacts on the Peasant Special Cooperative Organization; the internal supervision factor and the interest factor of core members have insignificant impacts on the economic performance; and the production management factor has little effect on economic performance. Based on this, several suggestions are put forward, including standardizing and reforming the system, improving the countermeasures for economic performance, strengthening the support and policy guidance for Peasant Special Cooperative Organization, improving and standardizing the distribution of benefit system, the security system and monitoring system for core members' interests, and fully reflecting the interests of core members.

Key words Peasant Special Cooperative Organization, Institutional factor, Regression Analysis, China

Peasant special cooperative organization is a link of the farmer and the market. Economic performance of cooperative organization is directly related to the increase of farmers' income and the development of rural economy. As for the cooperative organizations in different areas, their economic performances differ widely due to the differences in regional economic development level, agricultural industrial base, peripheral market, governmental executive ability, local culture and custom. As for the peasants special cooperative organization in the same area, economic performance is more dependent on the combination of internal governance system and external system. According to the empirical research on peasant special cooperative organization in Cuiping District, Yibin City, effects of cooperative organization system on different economic performances are discussed in order to offer references for the development of cooperative organization.

1 Overview of literature

As long as the most basic features of agricultural production are the biological nature of production, the dispersion of region and the inhomogeneity of scale, there is necessity of peasant cooperation. Meanwhile, difference within the internal system of peasant special cooperative organization in the same area has led to the different levels of development. At present, many scholars study on the institutional arrangements and organizational norms by using the economic theory[1]. Peasant special cooperative organization takes the impact of internal system into the factors of cooperative performance evaluation[2]. Impacts of control institutions, which are regarded as a kind of organizational resource, on the development of cooperative organization are analyzed[3]. And one aspect of internal system of peasant special cooperative organization is also studied. Huang Shengzhong *et al.* argue that both the growth ability and profit-making ability are closely related to the governance mechanism[4]. Han Jie *et al.* use the Game Theory to analyze the interest distribution system of peasant special cooperative organization, pointing out that profits among patrons should be taken as the relevant institutional arrangements[5].

During the research on the performance of peasant special cooperative organization, western scholars study on the performance of cooperative organization from the aspect of social impact. By combining with the foreign research acchivements, domestic scholars enrich the evaluation content of the performance of cooperative organization. For instance, Xu Xuchu *et al.* take the operation satisfaction of organization, operational activity, membership benefits, organization development and social impact into the range of performance research[6]. Huang Shengzhong *et al.* divide the performance of peasant special cooperative organization into the growth capacity, profit ability and membership satisfaction. Nie Dan *et al.* focus on the evaluation on economic contributions of cooperative organizations and summarize them as efficiency, scale and economy.

Both the institutional research and performance research on cooperative organizations are the hot spot of academic circle at present. And penetration and integration between the two

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gradually happen. However, most of the researches are about a certain aspect of performance, and few are about the impact of system on performance level. Therefore, we take institutional factors of peasant special cooperative organization as a whole to analyze its impact on economic performance.

2 Theoretical basis and data source

2.1 Theoretical background The income increase of peasant, the enhancement of living standards, and the promotion of rural economy are the centralized embodiment of the value of existence for peasant special cooperative organization. At present, there are a great number of differences in the external morphology and internal function of cooperative organization in China. Accurate measurement of the differences among performance increase of cooperative organization is the ruler for operating results of peasant special cooperative organization. And factors affecting the performance should also be regarded as an important reference for the reform of cooperative organization.

Institutional economist North points out in the book *The Rise of the Western World* that efficient economic organization is the key factor of economic growth. And the reason for the rise of the western world is to develop an efficient economic organization. Efficient organizations need to develop institutional facilities and to establish the property ownership. Institutional arrangement is to neither deny people's pursuit of their own interests nor the conflicts between persons, but to adapt, recognize, guide and coordinate the pursuit and conflict, so as to fully mobilize the enthusiasm of benefit subject, to change the people's self-serving behavior with altruism as the premise and collective welfare as the result[7]. According to the related theory of North, system consists of the macro-system surroundings and the specific micro-systems. Combination and utilization of the two systems lead to the differences of performance level among economic organizations. Hence, as for the farmers cooperation organizations in the same area, different performances of cooperative organizations is caused by the various systems at microstructure levels, since the political, cultural, legal and other macro systems are consistent, such as the ownership system, the decision-making management system, and the benefit distribution system. In other words, development of cooperative organizations is determined by the organization's own capacity for development.

2.2 Data collection, sample analysis and variable explanation

2.2.1 Data collection. Data are from the questionnaire survey on all the peasant special cooperative organizations in Cuiping District, Yibin City. Investigation covers all the registered and unregistered peasant special cooperative organizations having the nature of economic entity in villages and towns of Cuiping District before July, 2009. We select cooperative organizations with the nature of economic entity, because many cooperative organizations neither have fixed assets, nor are engaged in direct operation. They only provide simple information and technical services and the link of interests among members is weak, thus, it is hard to directly judge its economic benefits. And these kinds of cooperative organizations are not studied in this paper. A total of 79 questionnaires are sent out and 56 available questionnaires are retrieved including 2 questionnaires with data incompleteness. Hence, there are 54 valid questionnaires with the effective rate of 96.4%.

2.2.2 Sample analysis. According to the statistical samples, the overall situation of peasant special cooperative organizations in Cuiping District is as follows. Firstly, there are great differences among the scale of cooperative organizations. The maximum and minimum members are 2 560 and 3, respectively, with an average member of 321. Secondly, according to the registration, there are 10 cooperative organizations registered in the industrial and commercial administration, accounting for 18.5% of the total samples, 28 cooperative organizations registered in the civil administration departments, occupying 51.9%. Besides, some cooperative organizations are registered in the technology association or the agricultural sector. And there are still 2 cooperative organizations not registered. Thirdly, planting is the major industrial type. There are in all 38 planting-type cooperative organizations, accounting for 70.4% of the total samples. Moreover, there are 11 cooperative organizations of fish-farming types, occupying 20.4%. Cooperative organizations of other types account for 9.2% of the total samples. Fourthly, according to the property distribution, a total of 12 cooperative organizations adopt the stock system, accounting for 22.2%. Fifthly, the maximum and minimum values of earnings are 1 600 thousand and 0, respectively. Cooperative organizations with no earnings account for 45.3%, those with earnings are between 100 thousand and 500 thousand. Sixthly, according to the situation of financial support at all levels, there is only 1 cooperative organization obtaining the central financial support; no cooperative organization has obtained provincial financial support; and cooperative organizations received city and county financial support are 15. In all, about one third of the cooperative organizations have obtained financial support at all levels.

2.2.3 Variable explanation. The overall level of earnings of cooperative organization in the year 2008 is taken as the dependent variable, which is used to evaluate the performance of cooperative organization. Firstly, the meaning of existence of peasant special cooperative organization is to increase the income of peasants; while the level of earnings directly reflects the capacity of peasant income increase in a cooperative organization. Secondly, compared with the level of earnings per capita, this variable can reflect the scale of an organization to a large extent. At present, peasant special cooperative organizations in Cuiping District have relatively small scale. Thus, promoting the quantitive index for peasant income increase should have precedence over the quality-type index causing a gap between the wealthy and the poor.

In the selection of independent variable, both availability and operability of questionnaire data should be considered according to the theoretical hypothesis. 20 system indices which might have impacts on dependent variables are selected and their correlation test with independent variables is carried out.

Table 1 reports the 13 correlation factors finally selected.

Table 1 Description of variables

Type of variable		Definition of variable
A	Meetings of council	Meetings of council in the year 2008
B	Meetings of supervisory board	Meetings of supervisory board in the year 2008
C	Number of general convention	Number of general convention in the year 2008
D	Open times of financial information	Open times of financial information in the year 2008
E	Proportion of agricultural material purchase	Proportion of agricultural material for members provided by cooperative organization
F	Proportion of unified sale of main product	Proportion of unified sale of main product for members provided by cooperative organization
G	Proportion of standardized production	Represented by the proportion of core demonstration base; as for the breeding industry, represented by the proportion of the turnover of core households in the total turnover of cooperative organization
H	Secondary rebate amount per capita	Secondary rebate amount per capita in the year 2008; concrete gift is converted into Renminbi
I	Proportion of earning distributed	Proportion of earning distributed in total earnings
J	Shareholding ratio of council	Shareholding ratio of council to total shares
K	Salary level of manager	Percentage of the salary of manager in annual earnings
L	Support from financial funds	Support from financial funds at all levels over the years
M	Tax reduction and exemption	Tax reductions and exemptions over the years

3 Empirical analysis

3.1 Factor analysis of independent variable SPSS17.0 software is used to analyze the data. Factor analysis is conducted after data standardization. (*KMO* Test Value = 0.65, which has passed the Bartlett's spherical test and the factor analysis can be carried out). Principal component extraction is adopted to select the principal component with eigenvalue greater than 1. Explanatory capability of the five principal components to original factors is 75.085%. Table 2 reports the factor loading matrix.

Table 2 Loading matrix of system factor

Variable	Principal component				
	1	2	3	4	5
A	0.870	0.118	0.137	0.008	−0.069
B	0.803	0.142	0.160	0.303	−0.034
C	0.764	0.204	−0.176	−0.167	0.231
D	0.674	−0.082	0.341	0.286	0.157
E	0.122	0.895	−0.142	0.116	−0.032
F	0.073	0.715	−0.079	−0.184	0.361
G	0.233	0.674	0.418	0.093	−0.166
H	0.175	−0.037	0.863	0.127	0.054
I	0.135	−0.023	0.679	−0.080	0.549
J	0.064	0.107	0.299	0.776	0.195
K	−0.191	0.015	0.455	−0.687	0.272
L	0.034	0.166	0.143	0.015	0.761
M	0.130	−0.331	0.040	0.509	0.610
Eigenvalue	3.575	2.124	1.786	1.210	1.067
Explanation degree//%	27.495	16.335	13.739	9.309	8.206

Table 2 indicates that the first principal component has relatively great load on *A*, *B*, *C* and *D*. The four factors mainly reflect the supervision system within the cooperative organization, which are called the internal supervision factors. The second principal component has relatively great load on *E*, *F* and *G*, which are called the production management factors. The third principal component has relatively great load on *H* and *I*, reflecting the benefits distribution system of organizations. Thus, they are named as the benefit distribution factor. The fourth principal component has relatively great load on *J* and *K*. Council members of peasant special cooperative organization are usually the managers. The two are also the core members of cooperative organization. Therefore, the fourth principal component is called the interest factor of manager. The fifth principal component has relatively great load on *L* and *M*, reflecting the metric of external institution. Thus, they are called the macro-policy supporting factor.

It is assumed that A_{ij} is the matrix of standardized values of 13 system indices (*Z* value), where $i = 1, 2, \cdots\cdots, 13$; $j = 1, 2, \cdots\cdots, 54$. B_{xy} is the factor score coefficient matrix, where $x = 1, 2, \cdots\cdots, 5$; $y = 1, 2, \cdots\cdots, 13$. Hence, the score value of comprehensive factor is

$$M = A_{ij} \times B_{xy} \times (27.495\%, 16.335\%, 13.739\%, 9.309\%, 8.206\%)^T / 75.085\% . \quad (1)$$

Table 3 reports that cooperative organizations with top-ten factor score have covered eight organizations in the organizations with top-ten real earnings. And there are three organizations having no changes in rank, indicating that system comprehensive factor score can better measure the economic performance of cooperative organization. Besides, cooperative organizations registered in the industrial and commercial administration have shown better performance in both system factor score and earning level, compared with the performance of organizations with commonalty capacity. Among the top-ten organizations, there are five cooperative organizations having industry and commerce legal person, accounting for 50% of the

total cooperative organizations.

Table 3 Changes of the rank of comprehensive scores and real earnings

Rank of comprehensive score	Comprehensive score	Code of cooperative organization	Registration department	Rank of real earnings	Comparison of rank change	Code of real earnings
1	1.056 40	4	Industrial and commercial administration	1	0	4
2	0.936 70	41	Industrial and commercial administration	4	+2	44
3	0.849 10	39	Civil administration	3	0	39
4	0.808 00	14	Technology association	6	+2	38 and 41
5	0.792 67	46	Industrial and commercial administration	5	0	46
6	0.747 08	44	Industrial and commercial administration	2	−4	14 and 40
7	0.709 24	36	Industrial and commercial administration	14	+7	34
8	0.636 93	6	Civil administration	11	+3	42
9	0.554 51	1	Technology association	10	+1	45
10	0.529 84	42	Technology association	8	−2	1

Note: Due to limitations on space, top-ten ranks are selected. Code with underline indicates that both comprehensive scores and real earnings of cooperative organizations take the top-ten places.

3.2 Regression analysis of the system factor and the economic performance level of cooperative organization According to the factor analysis, five system factors are obtained and corresponding factor scores are also calculated. It is found out that the comprehensive factor score and the earning level of cooperative organization have relatively high matching degree. Therefore, Regression Model is established with earning level as dependent variable and five system factors as the independent variables:

$$R=\beta_0+\beta_1F_{1i}+\beta_2F_{2i}+\beta_3F_{3i}+\beta_4F_{4i}+\beta_5F_{5i}, \quad (2)$$

where R is the total earning level, $F_{1i}-F_{5i}$ represent the five system indices (factor scores) of the internal supervision factor, the production management factor, the benefit distribution factor, the interest factor of manager, and the macro-policy supporting factor, $i=1,2,\cdots,54$. Based on the equation (2), regression model is obtained according to the scores of system factor:

$$R=0.374+0.169F_{1i}-0.070F_{2i}+0.258F_{3i}+0.173F_{4i}+0.479F_{5i}. \quad (3)$$

Equation (3) shows that among the five system factors, the fifth and the third system factors have relatively great impact on the peasant special cooperative organizations and have relatively high significance level. β coefficients of the fifth and the third system factors are 0.479 and 0.258; and significance level of the two are 0.000 and 0.030, respectively, which are all smaller than 0.05, indicating that they have significant impact on the peasant special cooperative organization. Besides, both the interest factor of manager and the internal supervision factor have insignificant impact on the development of peasant special cooperative organization; while the production management factor have little impact on the economic performance of organizations. Certainly, according to the level of R^2 ($Adj-R^2=0.392$) after adjustment, the regression model shows limited explanation level to the variation of variable, indicating that there are other factors affecting cooperative organizations.

4 Conclusion and suggestion

4.1 Conclusion Firstly, there is correlation between the economic performance of cooperative organization and their internal and external systems.

Secondly, a cooperative organization with better economic performance is the result of organic combination and combined action of internal system (supervision, production management, benefit distribution, rights and interests of the core members) and external system (government funding support, tax reduction). However, according to the current development of peasant special cooperative organization in Cuiping District, support of the government's macroeconomic policy is the main factor.

Thirdly, within the system impact factors of cooperative organization, benefit distribution system has the most significant impact on economic performance; while the interest factor of manager and the internal supervision factor have insignificant impact on economic performance of organizations. And compared with other factors, production management factor has much weaker impact on performance.

Fourthly, cooperative organizations with industry and commerce legal person have shown better performance than the cooperative organizations with juridical association in both economic performance and the rank of system factor score.

4.2 Suggestions

4.2.1 Strengthening the guidance and support. Government should provide financial support, tax reduction, preferential credit, land transfer and other policy benefits within the limitations, and create a relatively relaxed and favorable macro-environment for the development of cooperative organizations. At present, cooperative organization in Cuiping District still needs the guidance and support of relevant government departments.

4.2.2 Improving the benefit distribution system. Benefit distribution system is related to the vital interests of each member, and is also the core of the internal control system of cooperative organization. It should be in the form of organization statute with strict implementation. A sound benefit distribution system is the sufficient condition for the existence and sustainable development of cooperative organization. Only when the interest of members is protected, can we develop the cooperative organizations and improve the driving effect of cooperative organizations.

4.2.3 Fully reflecting the interests of core members. We should regulate the system reflecting the interests of core members, in order to exert the enthusiasm of core members, to

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mote the overall development of "Three Agriculture Problems". Therefore, this requires that the economic activities of fruit farmer and enterprise should make a breakthrough at the limitations of traditional concept and practice, and a new mode should be established creatively to meet the needs of times development and to adapt to new challenges.

According to the framework of industrialization, complete vertical—horizontal integration is an ideal and integrated model. As a new industrialization development mode, its main operation idea is to form a joint owned entity of enterprise and specialized cooperative or cooperative, so as to turn the relationship from competition to cooperation, to realize the benefit sharing and risk sharing, and to let the government make macro-control policy[5] (Fig. 1).

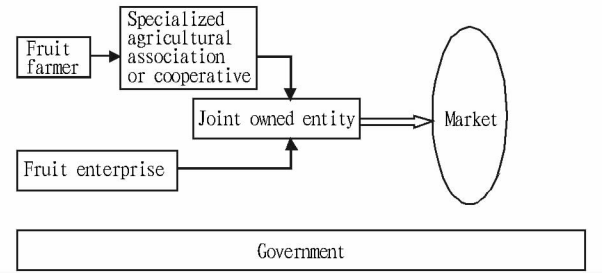

Fig.1 The vertical—horizontal integrated industry mode

4 Conclusion

The vertical—horizontal integrated mode ensures the interests of both the fruit farmer and the enterprise, stabilizes the source of goods for enterprises, helps to produce high-quality fruits, ensures the sales market for fruit farmer and cooperative, safeguards the legitimate interests of all parties in the market, and forms a sound development mechanism with mutual promotion. Therefore, this mode is a useful exploration for the fruit industrialization in China at the new historical stage. However, selection of interest sharing mode during the process of fruit industrialization should be considered synthetically according to the main objective of a region or a country at different times under different conditions, so that a suitable path of scientific development for development goal and actual situation can be found out.

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overcome the attitudes of pursuing for profits, to give play to the subjective initiative, and to actively explore the development path for cooperative organizations.

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