The Construction and Analysis of the Evaluation System of Double Performance about Farmer Cooperatives

Huimin SHAO[1,a], Yang Xu[1,b] ，Lingling Ma[1,c*]

[1]School of Economics and management, Yunnan Normal University, KunMing, Yunnan, China

[a]562859539@qq.com, [b] 982690807 @qq.com, [c] 1261682062 @qq.com

* Corresponding author

Abstract: Based on the related literature and the stakeholder theory, this paper analyzes the reliability and validity of the double performance by using the methods of questionnaire investigation and quantitative analysis. By weighting the analytic hierarchy process (AHP), calculating with the method of the weights and efficacy coefficient, and validating through the data of the 19 farmers cooperatives of Lancang, Luquan, and Changning, this paper concludes that the cooperative evaluation result is consistent with actual situation basic conclusions. The results can be used for scientific responses and solutions to improve cooperative performance, thus providing a basis for managers to guide and support the development of farmer cooperatives more scientifically.

1. Introduction

The Communist Party and government have always attached great importance to the development of China's farmer cooperatives[1]. From 2013 to 2017, developing various forms of farmer cooperatives has been specifically proposed and emphasized in the Central Document No. 1 for the five consecutive years, and the farmer cooperatives have continued to develop in depth.

Since 2000, Chinese farmer cooperatives have entered in a stage of rapid development. According to the statistics of the commercial administration, by the end of 2015, the number of farmer cooperatives registered in law had reached 1.513 million (increase 13.34 times compared of 2008), and the number of farmers' households entering in farmer cooperatives breakthrough 100 million, accounting for 42% of the total households. On the whole, although the development of farmer cooperatives is swift and fierce, in terms of the contribution of cooperatives to farmer households' income, the performance of cooperatives, especially economic performance, remains to be improved. For example, the operating income of farmers cooperatives in Yunnan Province was 7.62 billion yuan in 2015, increasing 17% over the previous year and the growth momentum was relatively fast, while it only accounted for 1% of total revenue. It can be said that China's farmer cooperatives are facing a critical period from quantitative growth to quality improvement, desiring to strengthen internal governance to improve its performance.

The existing research failed to effectively explain the mechanism of improving of the performance of farmer cooperatives. The key to this is that the performance evaluation analysis of cooperatives is not thorough enough[2,3]. However, performances have a subjective feeling to a certain extent and it will be difficult to measure[4]. At present, in the existing research literature both at home and abroad, there are relatively few contents about the complete measurement performance of farmer cooperatives. In addition, in view of the unique characteristics of the community's uniqueness of embedding and the dominant position of the core members in the cooperatives in our country, at the same time taking the existing international performance indicators system into account, we will fully consider the characteristics of Chinese farmer cooperatives, using stakeholder theory, questionnaire survey, quantitative analysis and other methods to build a performance evaluation index system for farmer cooperatives that conforms to Chinese conditions.

2.The evaluation index system framework of "dual performance"

The indicators of economic performance of cooperatives include the increase in per annual net income of members, the overall upward trend in the return interest of members, the proportion of agricultural products that cooperatives selling for members, etc. after joining cooperatives[5]. Non-economic performance includes whether members have the idea retiring from the society, whether the number of cooperatives is increasing, whether cooperatives own the brand of their products, etc. See Table 1 for details.

Table 1. Farmer cooperatives "dual performance" evaluation index and its components system

Target layer	Guidelines layer	Indicator layer
Performance	Economic Performance	After joining the cooperative, my per annual net income increased X1
		The number of profit returns I get is generally on the upward trend X2
		A higher proportion of agricultural products sold for members X3
	Non-economic performance	I currently have no idea of retreat Y1
		The number of people joining the cooperative increases Y2
		We have our own brand of products Y3

3. Inspection and weight determination of "dual performance" scale of farmer cooperatives

3.1 Reliability and validity test of performance scale

3.1.1 Sample description
From August 2015 to October 2016, the author interviewed and interviewed 25 farmer cooperative members in the four counties of Jianshui, Handan, Luquan, and Changning in Yunnan Province.Questionnaire survey combines random sampling and typical sampling methods for farmer cooperatives, collecting total of 452 samples. Taking into account the completeness of the questionnaires that the data of six cooperatives in Jianshui and Changning County were not used, we collected a total of 367 valid samples. In part, the effective recovery rate was 81.4%.

3.1.2 Variables and their metrics
In order to test the rationality of the indicator system again, the author used SPSS22.0 and AMOS22.0 to analyze its reliability and validity. It can be seen from the analysis results that the value of the variable Cronbach's α is higher than the standard 0.7, indicating that the research variable is relatively good in terms of reliability. The relevant indicators calculated by the confirmatory factor analysis method meet the standards and requirements. It shows that the variables are also very good in terms of construct validity[6]. From the perspective of social sciences, the criterion for determining whether factor loads effective is its absolute value greater than 0.4. The cooperatives' performance in this paper conforms to this principle. According to the analysis of all factor loads, all variables are higher than 0.5. This indicates that each factor has very outstanding explanatory power, possesses a good structural validity, and the survey statistics are relatively good. It will help the next step in the research.

3.2 Calculation of index weight based on AHP method

This paper consists of four college teachers, an expert from the Provincial Department of Agriculture, and a president of a farmer cooperative. In the expert scoring stage, especially the establishment of the judgment matrix, subjectiveness will be more prominent. Therefore, in order to avoid the seriousness of the problem and reduce the impact, it is optimized by using the Delphi method. According to the survey data, please see the table below.

Table 2 .Performance indicator weights and consistency test

First-level indicators	Second-level indicators	Third-level indicators
Performance	Economic performance	After joining the cooperative, my per annual net income increased（0.4）
	0.8333	The number of returns I received returned to an overall upward trend（0.4）
		A higher proportion of agricultural products sold to members（0.2）
	Non-economic performance	I currently have no idea of retreat（0.1429）
	0.1667	The number of people joining the cooperative increases（0.5714）
		We own the brand of our own products（0.2857）

Note: The judgment matrix 1CI=0, RI=0, and CR=0; the judgment matrix 2CI=0, RI=0.58, and CR=0; the judgment matrix 3CI=0, RI=0.58, and CR=0, all passed the consistency check.

4. Summary

In the process of performance evaluation of farmer cooperatives, each specific indicator represents an evaluation analysis perspective. Different indicators require their own units of measurement. In order to further compare the quantities of these different units, special treatment measures must be taken for the original data. This paper summarizes the analysis process, mainly based on the relevant content in the "Rules for the evaluation of state-owned capital performance," and uses the efficacy coefficient method to convert the impact of data on different unit to obtain a uniform value[7]. Calculation formula: The single item score of a specific indicator is the actual score of the indicator minus the minimum value of the indicator divided the highest value of the indicator minus the lowest value of the indicator, than the resulting data is multiplied by 40 and plus 60. At last, the resulting index value is in the range of 60-100. In the range. At the same time, the scores of each indicator are multiplied by the corresponding weights, and the results sorting obtained by adding together are the performance scores of agricultural cooperatives, as detailed in the following table.

Table 3. Performance values and ranking of cooperatives

Survey area	Cooperatives	Performance values	Ranking
Lan Cang	Hongfeng Coffee	64	13
	Guangyuan Tea	65	12
	Zhixing beef	70	9
Lu Quan	Zhong Fu flue-cured tobacco	68	10
	Yunlong planting	65	12
	Baiji planting	74	8
	Forest Industry Development	63	14
	Herbal cultivation	67	11
	Planted under Xinhelin	65	12
Changning	Linfuyuan Forest Animals	77	7
	Hewei Agricultural Machinery	79	6
	Shed fresh mushrooms	89	1
	Zhenqiang thin bubble walnut	88	2
	Lvyuan Herbal Planting	80	5
	Hewei Ancient Tree Tea	87	3
	Wenyin Capricorn	87	3
	Kejie Jia cuisine vegetables	85	4

Kass Chia breeder pig	80	5
Township Fuhua Rongxin Bubble Walnut	74	8

It is not difficult to see that the performance evaluation results of the selected cooperatives are far from those of the developed provinces, but they are in line with what we have actually grasped. The evaluation results can more realistically show the actual development of cooperation and have a positive guiding effect on the future development.

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