Evaluation on the Competitiveness of the Agribusiness with Plateau Characteristics in Yunnan Province Based on AHP

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Abstract The development of agriculture with plateau characteristics is a market-oriented strategic choice, made by Yunnan Province, of agricultural economy with regional characteristics, on the basis of resources and location advantages, as well as geographical division of the national economy. The characteristic agribusiness is an important carrier for building a new agricultural management system with plateau characteristics, and also a key way to promote characteristic agricultural industrialization. In this paper, with 26 agribusinesses with plateau characteristics in Yunnan Province as samples, we establish the competitiveness evaluation system for the agribusiness with plateau characteristics, and use the operating data (2012-2014) and AHP to calculate and the sample business competitiveness index and sort these businesses. Finally, we make a comprehensive analysis on the competitiveness of sample agribusinesses with plateau characteristics in Yunnan Province, in order to provide decision-making basis for promotion of the competitiveness of the agribusiness with plateau characteristics.

Key words Plateau characteristics, Agribusiness, Competitiveness, Yunnan

1 Introduction

Characteristic agriculture refers to the market-oriented agriculture with regional characteristics, which makes full use of various economic and geographical advantages, and is formed based on the geographical division of the national economy. In September 2012, Yunnan Provincial People's Government issued *Decisions on Accelerating the Development of the Agriculture* with Plateau Characteristics, which clearly stated that the development of the agriculture with plateau characteristics was of great significance to improving the quality and efficiency of agricultural development in Yunnan Province, enhancing the market competitiveness of agricultural products, improving rural people's livelihood, promoting the socialist new rural construction, and pushing forward the province's scientific, harmonious and great-leap-forward development. With the acceleration of agricultural industrialization, the characteristic agriculture in Yunnan Province has shifted from sporadic development to large-scale development and then to initial formation of characteristic industry belt, from traditional extensive cultivation to the cultivation relying on science and technology. The cultivation scale, industrial base and market impact of the agriculture with plateau characteristics in Yunnan Province are increasingly expanding, and the integration advantages of the industries with plateau characteristics loom large. The agribusiness with plateau characteristics is an important carrier for building new agricultural management system, and a key link to promote agricultural industrialization. As of December 2013, the number of leading agribusinesses reached 2734 in Yunnan Province, and the sales income reached 155.6 billion yuan. In 2013, there were 558 leading agribusinesses above the provincial level in Yunnan Province, and the sales income reached 99.2 billion yuan. In the new normal economic context, the business environment is becoming increasingly complex and dynamic, and the "inferiority" of agriculture is enlarged, so the business risk is increasing, and the enhancement role of business competitiveness is becoming increasingly prominent. In this paper, we study the evaluation system for the competitiveness of the agriculture with plateau characteristics, evaluate the competitiveness of the agribusiness with plateau characteristics, identify the key factors that restrict business competitiveness, and explore the strategies for promotion of the competitiveness of the agribusiness with plateau characteristics, which is of practical and important significance.

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2 Definition of related concepts

2.1 The competitiveness of the agribusiness with plateau characteristics The competitiveness of the agribusiness with plateau characteristics is the irreplaceable, heterogeneous, dynamic, value-added and integrated comprehensive ability of the agribusiness engaged in the agricultural production and operation with plateau characteristics compared with its competitors. It includes not only real competitiveness, but also potential competitiveness, covering corporate financial management, marketing, technology research and development, production management, organizational management, human resource management, corporate social responsibility and many other capacity dimensions.

2.2 AHP The analytic hierarchy process (AHP) is a structured technique for organizing and analyzing complex decisions, based on mathematics and psychology. It was developed by Thomas L. Saaty in the 1970s and has been extensively studied and re-

fined since then. It has particular application in group decision making, and is used around the world in a wide variety of decision situations, in fields such as government, business, industry, healthcare, shipbuilding and education. AHP helps decision makers find one that best suits their goal and their understanding of the problem. It provides a comprehensive and rational framework for structuring a decision problem, for representing and quantifying its elements, for relating those elements to overall goals, and for evaluating alternative solutions.

3 Competitiveness evaluation of the agribusiness with plateau characteristics

3.1 Design of survey and research materials Based on the literature research and early interviews, we develop Questionnaire about the Competitiveness of the Agribusiness with Plateau Characteristics in Yunnan Province, which consists of 4 parts, and 241 questions. The first part is the survey of basic information, involving property rights organization form of sample business, product unit, business level and agricultural industrialization mode. The second part shows the qualitative evaluation items of competitiveness of agribusiness with plateau characteristics, and multiple-choice is used to collect the information about corporate strategic ability, organizational design and division of labor, improvement degree of management system, organizational ability to expand outward, corporate culture adaptability, reasonable proposal adoption and employee's satisfaction. The third part shows the quantitative evaluation items of competitiveness of agribusiness with plateau characteristics, and the form is used to collect the sample business data about human resources, corporate culture, technology development, finance, agricultural marketing, agricultural production and social responsibility performance during 2012-2014. The fourth part uses the open-ended questions to get sample businesses' additional remark about business competitiveness.

3.2 Survey and research object The agriculture with plateau characteristics in Yunnan Province refers to the market-oriented agriculture with regional characteristics, which is formed on the basis of national economic and geographical division of labor, including flowers, tea, coffee, herbs, plateau animal husbandry and other industries. Yunnan Plateau Characteristic Agricultural Industry Research Institute made a survey of 76 sample businesses from January to March 2015, recovered the questionnaires regarding 48 sample businesses, and selected 26 businesses as the key samples for the competitiveness evaluation of the agribusiness with plateau characteristics. For the principle of confidentiality, we omit the real name of the businesses, and only use the code. The information about the 26 sample businesses can be shown in Table 1. For the 26 agribusinesses with plateau characteristics, the form of property rights organization is dominated by private business and limited liability company, accounting for more than 90% of the total samples. There are 4 national leading enterprises, and 9 provincial agricultural enterprises, accounting for half of the total samples. In terms of agricultural product category, there are 6 product units with plateau characteristics (Yunnan medicine; Yunnan flower; Yunnan tea; Yunnan coffee; mushroom; characteristic chicken). As to the agricultural industrialization mode, the majority of businesses adopt the "leading enterprises + base + farmers" mode, accounting for 76.38% of total sample businesses.

Table 1 Basic information of 26 sample agribusinesses with plateau characteristics

Business code	Property right organization form	Nature of company	Leading enterprise level	Agricultural industrialization mode
A	Private business	Limited liability company	Provincial level	Leading enterprises + base + farmers
B	Private business	Limited liability company	National level	Leading enterprises + specialized cooperatives + farmers
C	Private business	Limited liability company	Prefecture or city level	Leading enterprises + base + farmers
D	Private business	Limited liability company	National level	Leading enterprises + base + farmers
E	Private business	Limited liability company	Provincial level	Leading enterprises + specialized cooperatives + farmers
F	Private business	Limited liability company	National level	Leading enterprises + specialized cooperatives + farmers
G	Private business	Limited liability company	Prefecture or city level	Leading enterprises + base + farmers
H	Private business	Limited liability company	Provincial level	Leading enterprises + base + farmers
I	Private business	Limited liability company	Provincial level	Leading enterprises + base + farmers
J	Private business	Limited liability company	National level	Leading enterprises + base + farmers
K	Private business	Shareholding system	Non-leading enterprises	Leading enterprises + base + farmers
L	Private business	Limited liability company	Prefecture or city level	Leading enterprises + base + farmers
M	Private business	Limited liability company	Prefecture or city level	Leading enterprises + base + farmers
N	Private business	Sole corporation	County level	Leading enterprises + base + farmers
O	Private business	Limited liability company	Non-leading enterprises	Enterprises + specialized cooperatives + brokers + farmers
P	Private business	Limited liability company	Provincial level	Leading enterprises + base + farmers
Q	Private business	Limited liability company	Provincial level	Leading enterprises + specialized cooperatives + farmers
R	Private business	Limited liability company	Non-leading enterprises	Leading enterprises + order farmers
S	Private business	Limited liability company	Non-leading enterprises	Leading enterprises + order farmers
T	Others	Limited liability company	Non-leading enterprises	Leading enterprises + base + farmers
U	Private business	Limited liability company	Non-leading enterprises	Enterprises + specialized cooperatives + brokers + farmers
V	Private business	Limited liability company	Provincial level	Leading enterprises + base + farmers
W	Private business	Limited liability company	Provincial level	Leading enterprises + base + farmers
S	Private business	Limited liability company	Provincial level	Leading enterprises + base + farmers
Y	Private business	Limited liability company	Prefecture or city level	Leading enterprises + base + farmers
Z	Private business	Limited liability company	Prefecture or city level	Leading enterprises + specialized cooperatives + farmers

Data source: Questionnaire about the Competitiveness of the Agribusiness with Plateau Characteristics in Yunnan Province.

4 Competitiveness evaluation of the agribusiness with plateau characteristics based on AHP

4.1 AHP steps

4.1.1 Establishing the judgment matrix for competitiveness evaluation hierarchy. Based on literature research, business survey and expert advice, we establish the competitiveness hierarchy evaluation indicator structure for the agribusiness with plateau characteristics in Yunnan Province, which consists of 6 first-level indicators and 22 third-level indicators. According to the relative importance between indicators at various levels, we establish the judgment matrix of criteria layer and indicator layer.

4.1.2 Determining the weight of indicators at various levels. In April 2015, we develop *Expert Judgment Matrix Questionnaire on the Competitiveness Evaluation of the Agribusiness with Plateau Characteristics in Yunnan Province*, and combine expert interviews with questionnaires, to consult nine agricultural economics and business management experts from Yunnan Agricultural University and Yunnan University of Finance about the weight of indicators at various levels. By matrix operation and consistency test, we get the weight of criteria layer and indicator layer of agribusiness competitiveness evaluation. The analysis results are shown in Table 2 to 8.

Table 2 The criteria layer judgment matrix A-B

Business competitiveness evaluation	Financial operation ability	Marketing capability	Technology development capability	Production capacity	Human resource and organizational management capacity	Corporate social responsibility	Weight
Financial operation ability	1.0000	1.4918	2.2255	2.2255	2.7183	4.0552	0.2979
Marketing capability	0.6703	1.0000	1.4918	2.7183	3.3201	4.0552	0.2607
Technology development capability	0.4493	0.6703	1.0000	1.4918	1.8221	2.2255	0.1581
Production capacity	0.4493	0.3679	0.6703	1.0000	2.2255	3.3201	0.1384
Human resource capacity	0.3679	0.3012	0.5488	0.4493	1.0000	1.8221	0.0868
Corporate social responsibility	0.2466	0.2466	0.4493	0.3012	0.5488	1.0000	0.0582

Note: Consistency ratio of judgment matrix (0.0199); weight of overall goal (1.0000).

Table 3 The indicator layer judgment matrix B_1-C

Financial operation ability	Rate of return on common stockholders' equity	Turnover of total capital	Annual profit growth rate of agricultural industry	Asset-liability ratio	Current ratio	Weight
Rate of return on common stockholders' equity	1.0000	2.7183	4.0552	3.3201	4.9530	0.4544
Turnover of total capital	0.3679	1.0000	2.2255	1.8221	2.7183	0.2125
Annual profit growth rate of agricultural industry	0.2466	0.4493	1.0000	0.3679	2.2255	0.0994
Asset-liability ratio	0.3012	0.5488	2.7183	1.0000	2.7183	0.1672
Current ratio	0.2019	0.3679	0.4493	0.3679	1.0000	0.0666

Note: Consistency ratio of judgment matrix (0.0347); weight of overall goal (0.2979).

Table 4 The indicator layer judgment matrix B_2-C

Marketing capability	Market share of main characteristic agricultural products	Rate of return on sales of major agricultural industry	Brand value of main characteristic agricultural products	Proportion of salesman of main agricultural products	Weight
Market share of main characteristic agricultural products	1.0000	2.7183	4.0552	4.9530	0.5299
Rate of return on sales of major agricultural industry	0.3679	1.0000	2.2255	3.3201	0.2503
Brand value of main characteristic agricultural products	0.2466	0.4493	1.0000	2.7183	0.1444
Proportion of salesman of main agricultural products	0.2019	0.3012	0.3679	1.0000	0.0754

Note: Consistency ratio of judgment matrix (0.0359); weight of overall goal (0.2607).

Table 5 The indicator layer judgment matrix B_3-C

Technology development capability	Proportion of R&D expenditure to sales	The number of patents granted	Proportion of R&D personnel	Weight
Proportion of R&D expenditure to sales	1.0000	2.7183	4.0552	0.6112
The number of patents granted	0.3679	1.0000	2.2255	0.2569
Proportion of R&D personnel	0.2466	0.4493	1.0000	0.1319

Note: Consistency ratio of judgment matrix (0.0171); weight of overall goal (0.1581).

Table 6 The indicator layer judgment matrix B_4-C

Production capacity	Product percent of pass	Standardization level of business production	Efficient utilization of production capacity	Weight
Product percent of pass	1.0000	0.3012	1.8221	0.2348
Standardization level of business production	3.3201	1.0000	2.7183	0.5970
Efficient utilization of production capacity	0.5488	0.3679	1.0000	0.1682

Note: Consistency ratio of judgment matrix (0.0688); weight of overall goal (0.1384).

Table 7 The indicator layer judgment matrix B_5-C

Human resource capacity	Overall quality of management personnel	Per capita labor productivity	Clarity of strategic goal	Improvement level of management system	Weight
Overall quality of management personnel	1.0000	2.7183	1.8221	1.0000	0.3402
Per capita labor productivity	0.3679	1.0000	0.4493	0.3679	0.1132
Clarity of strategic goal	0.5488	2.2255	1.0000	0.5488	0.2063
Improvement level of management system	1.0000	2.7183	1.8221	1.0000	0.3402

Note: Consistency ratio of judgment matrix (0.0075); weight of overall goal (0.0868).

Table 8 The indicator layer judgment matrix B_6-C

Corporate social responsibility	Total annual remuneration paid by business per employee	Number of contracting farmers	Per capita annual taxes paid by business	Weight
Total annual remuneration paid by business per employee	1.0000	0.3679	0.5488	0.1721
Number of contracting farmers	2.7183	1.0000	2.7183	0.5713
Per capita annual taxes paid by business	1.8221	0.3679	1.0000	0.2567

Note: Consistency ratio of judgment matrix (0.0386); weight of overall goal (0.0582).

4.1.3 Building hierarchical evaluation indicator system for the competitiveness of the agribusinesses with plateau characteristics in Yunnan Province. Based on the revision and perfection of experts' opinions, we form the hierarchical evaluation indicator system for the competitiveness of the agribusinesses with plateau characteristics in Yunnan Province, as shown in Table 9.

Table 9 Hierarchical evaluation indicator system

Goal layer (A)	Criteria layer (B)	Criteria layer weight	Indicator layer (C)	Indicator layer weight	Indicator properties
Competitiveness evaluation of the with plateau characteristics in Yunnan Province	Financial operation ability (B_1)	0.2978	Rate of return on common stockholders'equity (C_{11})	0.1353	Positive, quantitative
			Turnover of total capital (C_{12})	0.0633	Positive, quantitative
			Annual profit growth rate of agricultural industry (C_{13})	0.0296	Positive, quantitative
			Asset-liability ratio (C_{14})	0.0498	Moderate, quantitative
			Current ratio (C_{15})	0.0198	Moderate, quantitative
	Marketing capability (B_2)	0.2607	Market share of main characteristic agricultural products (C_{21})	0.1381	Positive, quantitative
			Rate of return on sales of major agricultural industry (C_{21})	0.0653	Positive, quantitative
			Brand value of main characteristic agricultural products (C_{22})	0.0376	Positive, qualitative
			Proportion of salesman of main agricultural products (C_{23})	0.0197	Positive, quantitative
	Technology development capability (B_3)	0.1581	Proportion of R&D expenditure to sales (C_{31})	0.0966	Positive, quantitative
			The number of patents granted (C_{32})	0.0406	Positive, quantitative

(to be continued)

(continued)

Goal layer (A)	Criteria layer (B)	Criteria layer weight	Indicator layer (C)	Indicator layer weight	Indicator properties
	Production capacity (B_4)	0.1384	Proportion of R&D personnel (C_{33})	0.0209	Positive, quantitative
			Product percent of pass (C_{41})	0.0325	Positive, qualitative
			Standardization level of business production (ISO certification) (C_{42})	0.0826	Positive, qualitative
			Efficient utilization of production capacity (C_{44})	0.0233	Positive, qualitative
	Human resource and organizational management capacity (B_5)	0.0867	Overall quality of management personnel (education level, title) (C_{51})	0.0295	Positive, qualitative
			Per capita labor productivity (C_{52})	0.0098	Positive, quantitative
			Clarity of strategic goal (C_{53})	0.0179	Positive, qualitative
			Improvement level of management system (C_{54})	0.0295	Positive, qualitative
	Corporate social responsibility (B_6)	0.0581	Total annual remuneration paid by business per employee (C_{61})	0.0100	Positive, quantitative
			Number of contracting farmers (C_{62})	0.0332	Positive, quantitative
			Per capita annual taxes paid by business (C_{63})	0.0149	Positive, quantitative

4.2 AHP evaluation results

4.2.1 Competitiveness evaluation results of the sample agribusinesses with plateau characteristics in Yunnan Province. According to expert judgment matrix, we calculate the weight of competitiveness evaluation indicators for the agribusiness with plateau characteristics, and calculate the score of 6 second-level indicators regarding the 26 agribusinesses (financial operation ability; marketing capability; technology development capability; production capacity; human resource and organizational management capacity; corporate social responsibility), respectively, as well as the weight of the 6 second-level indicators. Then we calculate the comprehensive competitiveness index of the 26 characteristic sample agribusinesses. In order to compare the indicator values of the sample businesses, we conduct dimensionless processing on the single competitiveness index and comprehensive competitiveness index of 26 sample businesses with plateau characteristics. The dimensionless processing formula is as follows:

$$y_i = \begin{cases} \dfrac{x_{max} - x_i}{x_{max} - x} & x_i > x \\ 1 & x_i = x \\ \dfrac{x_i - x_{min}}{x - x_{min}} & x_i < x \end{cases}$$

(x is the optimal value; current ratio is 2; asset-liability ratio is 50%)

$$y_i = \begin{cases} \dfrac{x_i - x_{min}}{x_{max} - x_{min}} & x_{min} < x_i < x_{max} \\ 1 & x_i = x_{max} \\ 0 & x_i = x_{min} \end{cases}$$

Ultimately, the index of different levels of competitiveness evaluation indicators for 26 sample agribusinesses with plateau characteristics and the ranking are shown in Table 10.

Table 10 Index of different levels of competitiveness evaluation indicators and the ranking

Items	Financial operation ability		Marketing capability		Technology development capability		Production capacity		Human resource and organizational management capacity		Corporate social responsibility		Comprehensive business competitiveness	
	Index	Ranking	Index	Ranking	Index	Ranking	Index	Ranking	Index	Ranking	Index	Ranking	Index	Ranking
A	13.815	11	3.201	11	5.183	6	4.609	23	1.531	26	1.567	5	29.907	14
B	20.228	3	12.320	2	6.384	4	6.498	5	5.984	2	2.768	3	54.181	2
C	8.735	18	1.589	22	2.986	13	5.095	17	4.101	16	0.167	17	22.673	20
D	14.232	10	5.705	5	2.134	21	5.341	16	3.109	25	0.523	10	31.045	12
E	14.681	12	2.086	16	3.326	12	5.036	18	4.060	17	3.007	2	30.570	10
F	10.008	16	16.298	1	4.374	8	13.125	1	5.102	5	3.536	1	52.443	1
G	16.498	4	3.470	10	1.882	19	4.933	20	4.515	6	1.304	7	32.602	7
H	10.657	19	3.184	13	0.226	26	5.614	11	2.736	20	1.154	6	23.571	22
I	17.578	5	5.822	4	6.241	5	9.557	2	3.715	18	0.760	9	43.672	4
J	19.114	2	9.345	3	3.520	11	5.886	9	4.161	13	0.334	11	42.360	3
K	8.2810	17	2.271	17	2.862	16	5.973	8	3.499	21	0.252	13	23.137	17
L	11.5980	13	3.088	12	2.907	15	3.250	26	2.866	24	0.135	21	22.220	21
M	5.0370	22	1.263	23	2.645	18	4.568	24	4.478	11	0.081	26	18.072	25
N	5.9050	23	3.707	8	4.234	9	4.850	19	5.564	3	0.135	18	22.770	18
O	5.0160	25	1.009	25	0.817	25	4.471	25	3.623	19	0.090	25	13.400	26
P	5.0570	26	2.212	15	2.238	17	5.886	10	4.765	10	0.171	15	20.329	24
Q	21.1630	1	4.112	6	3.674	10	5.580	12	4.528	8	2.916	4	40.348	5
R	14.3020	9	1.597	20	1.070	22	5.580	13	3.268	22	0.100	24	24.292	16
S	5.4240	24	0.505	26	7.835	3	5.580	14	6.058	9	0.152	22	23.928	19

(to be continued)

(continued)

Items	Financial operation ability		Marketing capability		Technology development capability		Production capacity		Human resource and organizational management capacity		Corporate social responsibility		Comprehensive business competitiveness	
	Index	Ranking	Index	Ranking	Index	Ranking	Index	Ranking	Index	Ranking	Index	Ranking	Index	Ranking
T	6.7540	20	1.506	21	11.702	1	5.580	15	6.074	4	0.169	16	30.161	9
U	6.0770	21	1.152	24	10.010	2	9.251	3	4.411	14	0.152	19	27.803	15
V	15.2530	6	3.527	9	1.447	23	7.721	4	3.987	15	0.216	14	32.151	8
W	15.2810	7	3.795	7	4.861	7	4.721	21	4.669	7	0.332	12	33.658	6
X	15.2870	8	2.410	14	3.028	14	6.498	6	2.972	23	0.106	20	30.300	11
Y	10.9320	15	1.964	18	2.077	20	5.991	7	7.121	1	0.984	8	27.446	13
Z	10.4230	14	1.744	19	1.152	24	4.684	22	3.938	12	0.111	23	18.802	23
Mean	11.8206		3.8032		3.8006		5.99536		4.2629		0.8162		29.6862	

4.3 Hierarchical ordering of competitiveness of the sample agribusinesses with plateau characteristics in Yunnan Province According to AHP and dimensionless treatment results of comprehensive sample business competitiveness index, combined with the survey and research data, the competitiveness of 26 sample businesses is divided into four grades (A, B, C, D), as shown in Table 11.

Table 11 Comprehensive evaluation grading of competitiveness of 26 sample agribusinesses

Grading of business competitiveness	Business code	Number of businesses
Class A(excellent)	B, F	2
Class B(good)	J, I, Q	3
Class C(Average)	W, G, V, D, E, Y, A	7
Class D(to be increased dramatically)	T, U, Z, R, S, H, K, N, C, L, P, X, M, O	14

5 Comprehensive analysis of the competitiveness of agribusinesses with plateau characteristics in Yunnan Province

5.1 Low level of overall competitiveness and unbalanced business development The average comprehensive competitiveness index of 26 sample agribusinesses with plateau characteristics in Yunnan Province is 29.6862. Only 2 businesses have the comprehensive competitiveness index of above 50, accounting for 5.88% of the total sample companies; 3 businesses have index of 40-50, accounting for 11.11 % of total samples; 7 businesses have index of 30-40, accounting for 25.93 % of total samples; 11 businesses have index of 20-30, accounting for 42.31% of total samples. 80.77% of the sample businesses have comprehensive competitiveness index of below 40, and the overall level of competitiveness is low.

5.2 Weak business profitability and obvious industrial weakness of agriculture Agribusiness has a long production cycle, and the unique "cobweb model" of agricultural products affects the balance of supply and demand of agricultural products. The return on assets of the agricultural industry is generally low, and for the 26 sample agribusiness with plateau characteristics, some key indicators, such as rate of return on common stockholders'equity and rate of return on sales of major agricultural industry, have low mean. Weak profitability highlights the constraints of "Engel's Law" on the agriculture with plateau characteristics and reveals its "weakness".

5.3 Inadequate brand building of agricultural products and weak market impact The marketing capability index mean of the sample agribusinesses with plateau characteristics in Yunnan Province is 3.8082, and 20 businesses have index below average, accounting for 76.92% of total samples. It indicates that for most sample enterprises, the brand building of agricultural products is backward, the marketing channels are limited, and market development capability is weak, thereby affecting corporate profitability and overall competitiveness.

5.4 Weak technological innovation capability and low added value of products The technology development capability index mean of the sample businesses is 3.8006, and 17 businesses have this index below average, accounting for 65.38% of total samples. For most sample businesses, the technology development capability index is 3.0000 or less. It leads to low overall level of agribusiness industrialization, short industrial chain, low technological content, high degree of homogeneity and low profit margins, and the agricultural products stay mostly at the initial processing stage.

5.5 Lack of human capital and imperfect modern enterprise management mechanism The index mean of human resource and organizational management capacity is 4.26288, and 13 sample businesses have this index below average, accounting for half of total samples. Among 26 sample businesses with plateau characteristics in Yunnan Province, private businesses account for 96.15% of total samples, the business investment is mainly based on the entrepreneurs' funds, and the business scale is small. The internal management system is not perfect, it lacks effective checks and balances, and the management is loose. It also lacks scientific and rational strategic plans, easily forming short-sighted

decisions and blocking sustainable development.

5.6 Poor interest combination performance between businesses and farmers and difficulties in farmers' income growth

For the indicator of corporate social responsibility, a third-level indicator ("number of contracting farmers") is set. During 2012-2014, for the 26 sample businesses, the annual maximum, average and minimum number of contracting farmers was 40667, 4858 and 7, respectively, indicating that there was a significant difference in the number of contracting farmers between businesses. Based on AHP evaluation results and normalization, the annual average index of number of contracting farmers for the 26 sample agribusinesses during 2012-2014 was 0.11945, and the mode was 0.0000, demonstrating that the interest combination performance between most sample businesses and farmers is not good, and it fails to effectively increase farmers' income.

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the competitiveness advantage in the fish production sector. As to fish processing (manufacturing) sector, the provinces with obvious competitiveness advantage are Liaoning, Fujian, Hainan, Anhui, Hubei, Hunan, Jiangxi, and Sichuan. The provinces exhibit both obvious advanced industrial structure and competitiveness in the fish marketing (distribution) sector, such as Tianjin, Jiangsu, Guangdong, Guangxi, Anhui, Hubei, Jiangxi, and Sichuan. This study is one of the first comprehensive studies on the status of regional fishery industrial structure, and the competitiveness of regional fishery industry in China. However, the technique is not designed to explain how a region acquires particular industry mix (fishery industrial mix in this paper) or what attracts particular mixes to a region, therefore, the future research will pay close attention to studying what attracts particular mixes to a region and explaining or predicting the relationship between the fishery industrial structure and regional fishery industry growth.

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