Evaluation of the Factors Affecting the Employment of College Students in Agricultural Enterprises in Fujian ProvinceBased on Dematel Analysis

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Abstract: Agriculture is both a primary and a secondary industry. Agribusiness is the most important industry. It is a legal organisation engaged in agricultural production, distribution and service. In this paper, through literature review, survey visits and application of rooting theory, after open coding and selective coding, we obtained 28 sub-factors(employment solution, pursuit of wealth, pursuit of social status, interest, dedication, passion, self-presentation, enterprise basic salary, enterprise other salary, enterprise welfare, family support, talent resources, access to market information, employment project selection, ability to bear, physical and mental quality, social skills, knowledge and skills, vision, employment experience, corporate culture building, teamwork ability, customer retention ability, operational ability) and 4 main factors(employment intention, employment resources, employability, employment environment) of factors affecting the employment of university students in agricultural-related enterprises in Fujian Province. Then, the reliability test was conducted using Cronbach's alpha, which proved that this study had good reliability. Finally, the Dematel method was used to rank the factors influencing the employment of university students in agricultural enterprises in Fujian Province. Based on the analysis of the research results, it was suggested that the employees should continuously strengthen their own quality training, clarify the work nature of the employment enterprises and strengthen their own business level. At the same time it can promotes the development of agricultural enterprises in Fujian province and safeguards the safety of agriculture in Fujian province.

1. Introduction

By reading the relevant literature, we refer to the research results of previous scholars such as Lei Guoquan (2009) [1], Liu Qing (2010) [2], and Li Mingzhe (2014) [3]. With the help of relevant units, a large number of visits and interviews were conducted with 20 agricultural enterprises in Fujian Province, and 28 conceptualization categories were proposed through open coding. The 28 conceptualisation categories are employment solution, pursuit of wealth, pursuit of social status, interest, dedication, passion, self-presentation, enterprise basic salary, enterprise other salary, enterprise welfare, family support, talent resources, access to market information, employment project selection, ability to bear, physical and mental quality, social skills, knowledge and skills, vision, employment experience, corporate culture building, teamwork ability, customer retention

ability, operational ability. The results were then quantified and analysed, and the Dematel method was used to rank the factors influencing the employment of college students in agricultural enterprises in Fujian Province, and finally the results of the study were analysed.

2. Research Methods and Model Selection

2.1 Research Methods

The questionnaire survey method is designed by the investigators to understand the specific ideas of the interviewees on the survey questions from the results. This paper has conducted a questionnaire survey on 700 college students' employment in agricultural enterprises in Fujian Province in the past five years. Through the survey results, we have learned the true views of these employees in terms of employment intention, employment resources, employment ability and employment environment.

2.2 Model Selection

The full name of the DEMATEL method is Decision Experiment and Evaluation Laboratory Analysis Method. In a complete system there are influence factors with different weights. The DEMATEL method uses them to create an association matrix for calculation. Through the calculation results, we can understand the relationship between the factors, and classify and sort the influence factor set to facilitate the analysis of the research object. The application of the DEMATEL method usually involves the following steps:

(1) Determine the set of influence factors;

(2) Determine the relationship between the influence factors by questionnaire or expert method. And establish the incidence matrix, $X = (a_{ij})_{n \times n}$;

(3) Normalise the matrix and sum the X rows;

(4) Calculate the comprehensive influence matrix T. $T = G + G_2 + ... + G_n$, if n is large enough, $T = G(I - G)$, I is the unit matrix.

(5) Calculate the degree of influence and the degree of influence of the factors.

(6) Calculate the centrality and the cause of the factors. If the cause degree is less than 0, it means that the factor is strongly influenced by other factors.

If the centrality is large and the cause degree is positive, it means that the indicator has a causal relationship and is the basic factor to solve the problem; at the same time, if the cause degree is large, it can be considered as the basic factor of the indicator. Centrality is small and causality is negative, indicating that this indicator is relatively independent and can only influence a few other indicators.

3. Results Analysis

3.1 Questionnaire

The research object of this paper is 700 college graduates employed in agricultural enterprises in Fujian Province within five years. In order to facilitate the statistics, the author converted the questionnaire into an electronic questionnaire by using the questionnaire software. With the help of the staff of Fujian Provincial Bureau of Human Resources and Social Security, the questionnaire was distributed to the eligible research subjects. After completing the response, the response results were counted in the background of the questionnaire software, and the results were entered into SPSS19.0 software for further processing.

A total of 700 questionnaires were distributed in this survey, and finally 619 valid questionnaires were obtained, with an effective rate of about 88.42%. From the information provided by the

respondents, it can be seen that the proportion of male graduates (57.51%) recruited by agricultural enterprises in the last five years is slightly higher than that of female graduates (42.49%), most of whom are male. In terms of age, the majority (85.78%) are aged between 20 and 25 years. The distribution of majors shows that the majority of recruits (48.14%) are science and engineering majors, and most respondents are from Fujian Province, indicating that the employment situation in the province is relatively stable.

3.2 Questionnaire Test

In The questionnaire consists of three parts: volume introduction, basic information and questionnaire. According to grounded theory, the four core categories, namely employment intention, employment resources, employment environment, employment ability, and the eight categories under them, namely employment goals, employment concepts, capital resources, market resources, management ability, personal characteristics, social environment, and family environment, are all variables that are difficult to quantify. Therefore, this paper uses the Likert scale to design the scale and measure various indicators. Each item in the questionnaire has five levels of indicators corresponding to the responses. The values assigned in SPSS19.0 software are 5, 4, 3, 2 and 1 respectively.

3.2.1 The Scale of Employment Intention

Table1: Employment Intention Scale

Scale	Number	Corresponding Categorized Genus
Employment goals	A1	Solution employment
	A2	Pursuit of wealth
	A3	Pursuit of social status
Employment concepts	A4	Interest
	A5	Dedication
	A6	Passion
	A7	Self-expression

Referring to the research results of Zhong Yunhua (2019)[4]andJiao Jinpeng (2019)[5],the instrument is designed from the perspective of employment goals and employment concepts. There are seven questions, each represented by A1-A7. The corresponding categorical categories of each question are shown in Table 1.

3.2.2 Scale of Employment Resources

The scale of influencing factors of employment resources, based on the research results of Zhang Zhiping(2014)[6] and Shen Jiaxian (2018)[7], designed the scale from three perspectives of capital resources, human resources and market resources, and designed a total of seven questions, which are expressed in B1-B7. The corresponding categorical categories of each topic are shown in Table 2.

3.2.3 The Scale of Employability

Based on the research results of Zheng Xiaofang (2016)[8], Ding Chunfu (2022)[9], the scale of influencing factors of employability was designed from the perspective of personal characteristics of management ability. Ten questions were designed, which were expressed in C1-C10. The corresponding categorical categories of each topic are shown in Table 3.

Table2: Scale of employment resources

Scale	Number	Corresponding Categorized Genus
Capital resources	B1	Enterprise basic salary
	B2	Enterprise other salary
	B3	Enterprise welfare
	B4	Family support
Market resources	B5	Human resources
	B6	Access to market information
	B7	Employment project selection

Table3: Employability Scale

Scale	Number	Corresponding Categorized Genus
Personal characteristics	C1	Affordability
	C2	Physical and mental quality
	C3	Communication ability
	C4	Knowledge and skills
	C5	Vision
	C6	Employment experience
Management capabilities	C7	Enterprise culture construction
	C8	Teamwork ability
	C9	Customer retention ability
	C10	Operation ability

3.2.4 Scale of Employment Environment

Table4: Scale of Employment Environment

Scale	Number	Corresponding Categorized Genus
Social environment	D1	Vocational training
	D2	Social recognition
Family environment	D3	family support
	D4	Family employment experience

The scale of influencing factors and employment environment is designed from the perspective of social environment and family characteristics, based on Chen Jianhong (2022)[10] and Xu Zhen[11]. Four questions are designed, which are expressed in D1-D4. The corresponding categorical categories of each topic are shown in Table 4.

3.3 Reliability Test of the Scale

The reliability of the scale is a measure of whether the survey data can accurately reflect the actual situation, and a higher reliability coefficient means that the survey results are more accurate and reliable. In this paper, we use Clonalbach's coefficient to test reliability. In the field of social science research, it is considered that if the coefficient is too low, the question items of the scale should be modified or deleted according to the following criteria (Table 5).

Table5: The test criteria of Cronbach'salpha

Clonebach coefficient range	Result
Cronbach'salpha< 0.3	Very low credibility
0.3< Cronbach'salpha< 0.4	Low credibility
0.4 < Cronbach'salpha< 0.5	credible
0.5< Cronbach'salpha< 0.7	Fair high credibility
0.6< Cronbach'salpha< 0.9	high credibility
Cronbach'salpha> 0.9	The highest credibility

The reliability of the questionnaire in this paper was measured according to the above standards, and the results were obtained by entering the survey data into SPSS19.0 (Table 6). It can be seen that the Clonebach coefficient of the total scale reached 0.786, which proves that the reliability of this questionnaire is good.

Table6: Total table reliability

Cronbach'salpha	Number of items
0.786	28

3.4 Based on Dematel's Analysis of the Influencing Factors on the Employment of College Students in Agricultural Enterprises

3.4.1 The Influencing Factors System

Table7: System of Factors Affecting the Employment of College Students in Agricultural Enterprises in Fujian Province

Target	Main factors	Sub-factors
Factors Affecting the Employment of College Students in Agriculture related Enterprises in Fujian Province	Employment goals R1	Solution employment A1,Pursuit of wealth A2,Pursuit of social status A3
	Employment concepts R2	Interest A4,Dedication A5, Passion A6, Self-expression A7
	Capital resources R3	Enterprise basic salary B1,Enterprise other salary B2, Enterprise welfare B3,Family support B4
	Market resources R4	Human resources B5,Access to market information B6, Employment project selection B7
	Personal characteristics R5	Afford ability C1,Physical and mental quality C2,Communication ability C3,Knowledge and skills C4, Vision C5, Employment experience C6
	Management capabilities R6	Enterprise culture construction C7, Teamwork ability C8, Customer retention ability C9, Operation ability C10
	Social environment R7	Vocational training D1, Social recognition D2
	Family environmentR8	family support D3, Family employment experience D4

According to the results of the previous section, determine the A1-D4 factors affecting the employment of college students in agricultural enterprises in Fujian Province, a total of 28. Build a system of factors affecting the employment of college students in agricultural enterprises in Fujian Province, as shown in Table 7.

3.4.2 Measurement Results

According to the operating process of the Dematel method, first, according to the survey results of the scale, the direct impact matrix, the normalised impact matrix and the comprehensive matrix are constructed, as shown in Table 8.

Table8: Comprehensive matrix of sub factors influencing the employment of college students in agricultural enterprises in Fujian Province

Sub-factor	Influence degree	Affected degree	Centrality	Causality
Solution employment A1	4.48	6.14	10.62	-1.66
Pursuit of wealth A2	4.67	5.89	10.56	-1.22
Pursuit of social status A3	4.68	5.88	10.56	-1.20
Interest A4	5.14	5.34	10.49	-0.20
Dedication A5	5.11	5.39	10.49	-0.28
Passion A6	5.13	5.37	10.50	-0.24
Self-expression A7	4.96	5.37	10.50	-0.58
Enterprise basic salary B1	5.62	4.89	10.51	0.73
Enterprise other salary B2	5.63	4.88	10.51	0.72
Enterprise welfare B3	5.73	4.81	10.54	0.91
Family support B4	5.81	4.72	10.54	1.06
Human resources B5	5.32	5.17	10.49	0.15
Access to market information B6	5.02	5.48	10.50	-0.45
Employment project selection B7	5.04	5.46	10.50	-0.41
Affordability C1	5.42	5.08	10.50	0.4
Physical and mental quality C2	6.18	4.45	10.63	0.34
Communication ability C3	6.08	4.52	10.61	1.73
Knowledge and skills C4	6.22	4.42	10.64	1.80
Vision C5	5.90	4.66	10.56	1.25
Employment experience C6	6.04	4.55	10.59	1.49
Enterprise culture construction C7	4.89	5.64	10.59	-0.75
Teamwork ability C8	4.96	5.54	10.50	-0.58
Customer retention ability C9	4.85	5.67	10.52	-0.82
Operation ability C10	4.89	5.62	10.51	-0.73
Vocational training D1	5.31	5.18	10.49	0.14
Social recognition D2	5.25	5.23	10.48	0.02
family support D3	4.73	5.81	10.54	-1.08
Family employment experience D4	4.72	5.83	10.55	-1.11

4. Conclusions

Agriculture is the root of our country, but in recent years, agricultural enterprises are not the first choice in the job market for college students, mainly because most of the agricultural enterprises have the disadvantages of remote work, low wages and low transformation of science and innovation. Fujian is located in the southeast of China. There are not only traditional agricultural cities in the region, but also economic cities with a high transformation rate of agricultural products. Agricultural activities in the province are more active.

Using the Dematel method, the factors influencing the employment of college students in agricultural enterprises in Fujian Province were evaluated, and it can be concluded that the top factors in descending order of influence are: professional knowledge C4, physical and mental quality C2, sociability C3, and work experience C6, so the employees should strengthen their own quality, acquire more knowledge needed in the industry they work in, strengthen their own psychological resistance to stress, and sociability to communicate with others.

All the influencing factors are ranked in order of the role of outcome factors: solving employment

A1, striving for wealth A2, striving for social status A3, family work experience D5, these factors have an indirect role in the independent employment of university graduates because they are influenced by other factors, solving employment A1, striving for wealth A2, striving for social status A3 belong to employment goals.This suggests that it is important to understand the reasons why people have these as their employment goals and to tackle the problem at source.

From the analysis of the centrality of all the influencing factors, the central issues affecting the employment of college students in agricultural enterprises in Fujian Province are, in descending order, professional knowledge C4, physical and mental quality C2, solving employment A1, and sociability C3, which shows that professional knowledge C4, physical and mental quality C2, and sociability C3 are also the main issues affecting the employment of college students in agricultural enterprises, which also shows that it is important to improve the ability in these aspects.

Agricultural enterprises should actively offer business training courses and make reasonable training plans in advance to improve the ability of university graduates to adapt to the enterprises. Those employed in the enterprises should also actively supplement their knowledge of agriculture through their own studies, so as to improve their own business standards and adapt more quickly to the development of agriculture-related enterprises. The government and public welfare organisations should also broaden the financing channels of agricultural enterprises, provide effective financial protection for agricultural enterprises and colleges that are looking for tasks, strengthen the positive publicity of agricultural enterprises, and create a good environment for enterprises that are looking for jobs. Finally, through the joint efforts of enterprises, graduate job seekers, government and public welfare organizations, we will continue to promote the development and growth of agricultural enterprises in Fujian Province, accelerate the construction of a modern agricultural province, provide a strong guarantee for agricultural security in Fujian Province, and paint a new picture of rural revitalization.

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