The Choice of Pillar Industries in Yongxiu County under the Background of Financial Policy Support

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Abstract: After the establishment of the National New Area was approved by the State Council in 1992, it has been shouldering the heavy responsibility and striving to develop into a large urban area with new functions. Based on the introduction of the research background and significance, combined with the current industrial development situation of Yongxiu County, this paper constructs a molecular model based on the 12 industrial data of the city in 2020 through the principal component analysis method, ranks the final score, and selects the pillar industries of Yongxiu County through the ranking, and determines that the current pillar industries of Yongxiu County should be chemical raw materials and chemical products, non-metallic mineral products, non-metallic mineral mining and dressing industry Electrical equipment and equipment manufacturing industry and cultural, educational, sports and entertainment goods manufacturing industry. According to the future development plan of Yongxiu County, suggestions are put forward to optimize the development and quality of the pillar industries in Yongxiu County in terms of ensuring the fresh impetus for industrial development.

Keywords: Financial Policy; Urbanization; Ganjiang New Area; Yongxiu County Pillar Industry; Principal Component Analysis

1. Introduction

Yongxiu County is located in the middle of Ganjiang New Area, connecting Nanchang Economic Development Zone and Jiujiang Gongqing City. It used to produce organic silicon and tourism as its main economic income. After the production of five emerging industries in 2012, the economy has made further growth. In Ganjiang New Area, Yongxiu Group is focusing on the development of five new industries - non-metallic new materials, new building materials manufacturing, new electronic industry, new bionic pharmaceuticals New machinery manufacturing industry, pillar industry is different from emerging industry. Pillar industry is the pillar of regional economic development. Determining a good pillar industry can greatly promote regional economic development, increase employment and drive the development of other industries.

In 2015, the Guangzhou Branch of the People's Bank of China and the Jieyang Municipal People's Government decided to jointly build an industrial finance innovation and development pilot zone, innovate the way of combining industry and finance, focus on the Sino-German metal eco-city, make full use of the support policies of the Guangdong Provincial Government, deepen the reform of the local financial system, and actively carry out the pilot of combining industry and finance. As a reference, in order to innovate the financial support industry development mode of the non-metal industry in Yongxiu County, it is proposed to initiate the establishment of the non-metal industry investment fund with the non-metal industry as the focus, and provide a new support mode for the park construction and project financing of the non-metal eco-city in Yongxiu County. Yongxiu County should rely on its superior geographical location, rich natural resources, and strong pillar industries to develop urbanization, strive to build pillar industries, drive urban economic growth, and contribute to accelerating the development of Ganjiang New Area.

2. Analysis of the mechanism

2.1 Principal Component Analysis

2.1.1 Algebraic model

The algebraic model represents the raw data as the following mathematical model:

$$\begin{cases} x_1 = a_{11}F_1 + a_{12}F_2 + \cdots + a_{1m}F_m + a_1\varepsilon_1 \\ x_2 = a_{21}F_1 + a_{22}F_2 + \cdots + a_{2m}F_m + a_2\varepsilon_2 \\ \qquad\qquad\qquad \vdots \\ x_p = a_{p1}F_1 + a_{p2}F_2 + \cdots + a_{pm}F_m + a_p\varepsilon_p \end{cases}$$

x_1, x_2,$\cdots$, x_p, p are original variable indicators, $F_1, F_2,...F_m$ are m factor variables, when m is less than p, it can be simplified as:

$$X = AF + a\varepsilon$$

F——Common factor, A——Factor load matrix, a_{ij}——Factor load.

For the weight of indicators in principal component analysis, Quedong should first calculate the coefficients of indicators in the linear combination of each component b_{ij} and variance contribution rate of principal components c_{ij}. $b_{ij} = \dfrac{a_{ij}}{\sqrt{\lambda_i}}$ λ_i is the characteristic value of components.

Secondly, Index coefficient b_i is equal to the weighted average of the coefficient of the index in the principal component linear combination with the principal component variance contribution rate as the weight, Through calculation formula

$b_i = \dfrac{\left(b_{i1}c_{i1} + b_{i2}c_{i2} + \cdots + b_{ij}c_{ij}\right)}{c_i}$, the index weight is standardized finally.

2.1.2 Construction of evaluation index system of pillar industries in Yongxiu County

This paper mainly studies the selection and development quality of the pillar industries in Yongxiu County through principal component analysis, so we should choose an evaluation standard and build an index system first. According to the development situation of Yongxiu County and referring to the previous literature, the choice of pillar industries can be analyzed from five aspects：

a.　The asset profit and tax rate is the ratio of the sum of net profit and tax to the total assets. The higher the asset profit and tax rate, the better the economic benefits. The profit rate of output value is the ratio of the total sales profit to the total output value, with the same effect as the asset profit and tax rate.

b. The employment absorption rate is the ratio of the average number of people employed to the total output value. The higher the employment absorption rate, the better the social benefits of the industry.

c. Sales output value ratio is the ratio of output value to sales value. The higher the sales output value ratio, the better the development potential of the industry.

d. The industrial profit and tax rate is the ratio of profit tax to cost. The higher the industrial profit and tax rate, the larger the industrial scale. The ratio of fixed assets is the ratio of fixed assets to total assets, which is the same as the industrial profit and tax rate.

e. The industrial growth rate is the ratio of the increment of output value to the output value of the previous year. The higher the industrial growth rate is, the more obvious the industrial comparative advantage is.

2.2 Analysis process and results

2.2.1 Analysis process

2.2.1.1 Feasibility test

After using SPSS25. 0 to standardize the indicator data, KMO and Bartlett test were conducted. The value of KMO was 0. 845, greater than 0. 5, indicating that the model could be used for factor analysis; The value of Sig is 0. 00, and the Chi-square coefficient of Bartlett spherical test is. 75. 483, the significance level is zero, absolutely less than 0. 05, indicating that the data is from the population of multivariate normal distribution, which is suitable for further analysis.

表 1   Excel 1: KMO and Bartlett inspection

KMO sampling suitability quantity.			. 845
Bartlett sphericity test	Approximate chi-square	Freedom	Significance
	75. 483	21	. 000

2.2.1.2 Extract common factor

The correlation coefficient matrix and common factor variance contribution rate are obtained after factor analysis using SPSS25. 0 software. The correlation coefficient matrix shows that many coefficients between the three indicators are greater than 0. 3, and the variables are considered to be significantly correlated.

表 2   Excal 2: Correlation matrix

	Asset profit and tax rate	Profit rate of output value	Employment absorption rate	Sales output rate	Industrial profit and tax rate	Fixed assets ratio	Industrial growth rate
Asset profit and tax rate	1	0. 669	0. 525	0. 255	-0. 458	-0. 557	-0. 209
Profit rate of output value	0. 669	1	0. 384	0. 391	0. 107	0. 157	-0. 006
Employment absorption rate	0. 525	0. 384	1	0. 568	-0. 513	-0. 356	-0. 515
Sales output rate	0. 255	0. 391	0. 568	1	-0. 309	-0. 137	-0. 27
Industrial profit and tax rate	-0. 458	0. 107	-0. 513	-0. 309	1	0. 891	0. 697
Fixed assets ratio	-0. 557	0. 157	-0. 356	-0. 137	0. 891	1	0. 43
Industrial growth rate	-0. 209	-0. 006	-0. 515	-0. 27	0. 697	0. 43	1

(x_1 = **Asset profit and tax rate**, x_2 = **Profit rate of output value**, x_3 = **Employment absorption rate**, x_4 = **Sales output rate**, x_5 = **Industrial profit and tax rate**, x_6 = **Fixed assets ratio**, x_7 = **Industrial growth rate**)

Extract the feature value greater than 1 as the principal component. According to the principle of cumulative contribution rate of

70%, the cumulative contribution rate of the first two principal components in this application is 72. 575%, greater than 70%, meeting the conditions for extracting the principal component, and finally determine the principal component factor F_1, F_2.

表 3　Excel 3: Principal component characteristic value, contribution proportion value and cumulative contribution proportion value

component	Initial eigenvalue		
x_i	total	Percent Variance	accumulate%
1	3. 373	48. 18	48. 18
2	1. 708	24. 395	72. 575
3	0. 964	13. 768	86. 343
4	0. 551	7. 866	94. 208
5	0. 327	4. 678	98. 886
6	0. 057	0. 812	99. 699
7	0. 021	0. 301	100

The component score coefficient matrix shows that the first principal component has a large load on the asset profit and tax rate and employment absorption rate, and the second principal component has a large load on the output value profit rate, fixed asset ratio, and industrial profit and tax rate, which are expressed with F_1, F_2.

2.2.1.3 Ranking by industry

表 4　Excel 4: Principal component factor load matrix

Component score coefficient matrix		
index	component	
	1	2
Asset profit and tax rate=(net profit+tax)/total assets	. 218	. 217
Profit rate of output value=total sales profit/total output value	. 102	. 517
Employment absorption rate=average employment/total output value	. 237	. 146
Sales output rate=output value/sales value	. 166	. 232
Industrial profit and tax rate=profit tax/cost	-. 254	. 278
Fixed assets ratio=fixed assets/total assets	-. 222	. 289
Industrial growth rate	-. 204	. 187

Build scoring model：

$$F_1 = 0.218x_1 + 0.102x_2 + 0.237x_3 + 0.166x_4 - 0.254x_5 - 0.222x_6 - 0.204x_7$$

$$F_2 = 0.217x_1 + 0.517x_2 + 0.146x_3 + 0.232x_4 + 0.278x_5 + 0.289x_6 + 0.187x_7$$

$$F = 0.4818 \times F_1 + 0.24395 \times F_2$$

Calculate with the contribution rate of principal component as the weight, and rank the final score to get the comprehensive score ranking of each industry.

表 5　Excel 5：Industrial score ranking

ranking	industry	F1	F2	Comprehensive score

1	Chemical raw materials and chemical products	0. 1891672	0. 491993	0. 211162
2	Cultural and educational, industrial and artistic, sports and entertainment goods manufacturing	0. 1993826	0. 362584	0. 184515
3	Electrical equipment and equipment manufacturing industry	0. 1353182	0. 451024	0. 175223
4	Non-metallic ore mining and dressing industry	0. 1739274	0. 374156	0. 175073
5	Non-metallic mineral products	0. 1582874	0. 400787	0. 174034
6	Food manufacturing	0. 1792557	0. 325070	0. 165661
7	Professional equipment manufacturing	0. 1399170	0. 358740	0. 154926
8	Rubber and plastic products	0. 0946864	0. 433431	0. 151355
9	textile industry	0. 1301135	0. 355820	0. 149491
10	Paper and paper products industry	0. 1256989	0. 363455	0. 149226
11	Wine, beverage and refined tea manufacturing	-0. 041331	0. 598943	0. 126198
12	Wood processing and wood, bamboo, rattan, palm and grass products industry	-0. 010341	0. 412405	0. 095623

2.2.2 Analysis results and evaluate

It can be seen that the top five comprehensive industrial evaluation scores of Yongxiu County's industrial department in 2020 are electrical equipment and equipment manufacturing, cultural, educational and entertainment supplies manufacturing, chemical raw materials and chemical products, non-metallic mineral mining and processing industry and non-metallic mineral products.

The employment absorption rate of cultural and educational, industrial and artistic, sports and recreational goods manufacturing industries is high. The expansion of the industry will bring a large number of jobs and attract highly educated talents, that is, the social benefits of the industry are good; The asset profit and tax rate and output profit rate of chemical raw materials and chemical products are high, that is, the industrial economic benefit is good, the growth of output value can greatly promote economic growth, and the higher profit increases the local per capita income and financial income; The ratio of sales and output value of chemical raw materials and chemical products even exceeds 1, which indicates that the industry has strong development potential, good market demand and certain prospects for the development of the industry; The industrial profit and tax rate and fixed assets of chemical raw materials and chemical products as well as electrical equipment and equipment manufacturing industry are relatively high, which is reflected in the large scale and strong strength of the industry. The large scale industry has a good scale effect in theory, and the average cost will be slightly lower than that of peers, with a certain cost advantage; The industrial growth rate of chemical raw materials and chemical products, electrical equipment and equipment manufacturing industry and non-metallic ore mining and dressing industry is relatively high, indicating that the development of these industries has comparative advantages in the local area.

3. Policy suggestion

First, encourage innovation and guide the development of pillar industries. It can be seen from the data of various industries that Yongxiu County is still the first industry with the chemical industry as the pillar industry, and the development of chemical raw materials and chemicals can further drive the development of other pillar industries. As a pillar industry of the city for a long time, Xinghuo Chemical Plant has been improving the independent innovation ability of the industry, and should improve the innovation level of Xinghuo Chemical Plant, It can be carried out by strengthening the professional technical training of employees, improving the independent innovation atmosphere of enterprises, commending and rewarding the active independent innovation enterprises, and taking innovation as the enterprise evaluation performance. The government should encourage the independent innovation of enterprises, let the wind of innovation rise among enterprises, and form a healthy competition.

Second, improve the technological content and give full play to the role of pillar industries. At present, the pillar industries in Yongxiu County have a good momentum of development, but there is still a lot of room for improvement. Therefore, enterprises are encouraged to improve their technological innovation capabilities, promote the integrated development of enterprise production,

research and learning, provide technical support for core enterprises, guide enterprises to increase their technological reserves, and improve the overall technological level.

Third, take advantage of regional advantages to introduce talents. Yongxiu County is close to the Economic Development Zone of Nanchang City, close to Jiangxi University of Finance and Economics, Jiangxi Agricultural University and other places. The adjacent Communist Youth City is planning a university town with a large number of talents. Under the construction background of Ganjiang New Area, it is a good opportunity to introduce high-tech and highly educated talents. Based on the needs of industrial development, it is difficult to meet the demand for high-quality talents, The government should increase the attractiveness of cities by implementing welfare policies such as housing subsidies for the introduction of talents, and increase the impetus for improving the industrial innovation ability.

Fourth, build an investment and financing platform for the nonmetal industry. The Yongxiu County government should, in accordance with the principle of "government guidance, market operation, and scientific decision-making", take the construction of the investment and financing platform for the financial industry and the innovation of the investment and financing system and mechanism as the breakthrough, drive all sectors of society to invest in the nonmetal industry, especially, and give full play to the guiding role of industrial policy and the leverage role of financial support, Support the development and expansion of Yongxiu non-metallic industry in a market-oriented way.

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