

Study on the layout evaluation and optimization of cultural and creative industries in Liaoning province

Fan Xiaonan^{1,a}, Zhang xue^{2,b,*}

¹Dalian polytechnic university, Dalian, Liaoning province, China

² Dalian polytechnic university, Dalian, Liaoning province, China

^a16038050@qq.com, ^b342128331@qq.com

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Abstract. The cultural and creative industry is an important driving force for traditional industrial innovation. It is an emerging industry with creativity as the core under the background of economic globalization. Since the "Twelfth Five-Year Plan", the cultural and creative industries in Liaoning Province have been flourishing. However, limited by traditional concepts and uneven distribution of cultural resources, the layout of cultural and creative industries in Liaoning province has some deficiencies. Therefore, this paper combines the current problems in the layout of cultural and creative industries in Liaoning Province, proposes development proposals, and then optimizes the layout of cultural creative industries in the province and promotes the development of cultural and creative industries in Liaoning Province.

1. Introduction

With the continuous improvement of science and technology, cultural and creative industries, as an emerging industry, have become the main tone of industrial development in all countries of the world, showing great development prospects. However, due to the late start of China's cultural and creative industries, the basic theoretical research is relatively lagging behind. At present, there are relatively few studies on the layout of cultural and creative industries, which can't guide the practical development of spatial layout in various regions. Therefore, through the research on the layout of cultural and creative industries in Liaoning Province, finding problems based on the status quo and proposing optimization ideas and suggestion strategies are of great significance for the development of cultural and creative industries in Liaoning Province and the development of cultural and creative industries in various provinces and cities.

2. Analysis on the Distribution of Cultural and Creative Industries in Liaoning Province

Section headings

2.1 The current situation of the layout of cultural and creative industries in Liaoning Province

By the end of 2012, there were 35,400 cultural enterprises (things) in the province, with 348,000 employees, and the added value of the cultural industry reached 26.2 billion Yuan, an increase of 31% over 2011. The value of the cultural system industry has been increased for three consecutive years. Achieved 30% growth, of which the cultural and creative industry added value of 5.842 billion Yuan, accounting for 22.3% of the province's cultural industry added value.

2.2 Problems in the layout of cultural and creative industries in Liaoning Province

(1) Cultural and creative industries are too concentrated in urban layout

The layout of the cultural and creative industries in Liaoning Province is mainly based on the two points of Shenyang City and Dalian City. The rest of the cities lack the layout of cultural and creative industries; and each city is a separate camp, lacking effective communication and communication, leading to the cultural and creative industries of various cities. [1]

(2) Unbalanced layout of various types of cultural and creative industries

Cultural and creative industrial parks can be divided into five types: industrial, hybrid, artistic, recreational and local. The layout of the province's cultural and creative industries is mainly based on industrial and mixed styles, while the layout of art, leisure and entertainment and local characteristics is backward.

(3) Excessive use of creative cultural resources and idle resources.

Liaoning province is rich in creative and cultural resources with a complete variety, which are distributed in all cities of the province. However, in terms of the layout of cultural and creative industries, the distribution is too concentrated in Shenyang and Dalian, resulting in the excessive development and utilization of creative and cultural resources, and even the repeated layout of industrial projects of the same type. [2]

3. Construction of Evaluation System for the Distribution of Cultural and Creative Industries in Liaoning Province

3.1 Evaluation method selection

The development of cultural and creative industries in Liaoning Province is still in its infancy, and the determination of the weights of different types of economic indicators is still being explored. Moreover, the evaluation of the layout of cultural and creative industries in Liaoning Province involves many influencing factors, and the categories are complex, which is a complex evaluation of complex factors. Therefore, in order to achieve the purpose and practicality of the evaluation system, factor analysis method will be used to construct the evaluation system of cultural creative industry layout in Liaoning Province.

3.2 Evaluation system construction

Based on the current layout characteristics, development stage and data availability of Liaoning cultural and creative industries, the evaluation system of cultural and creative industries in Liaoning Province was established. This paper selects 10 evaluation indicators: regional GDP (X1); per capita disposable income (X2); number of cultural and creative industrial parks (X3); science and technology input (X4); total population (X5); AAA or above scenic spots (X6); art colleges (X7); cultural and creative industry practitioners (X8); regional patent applications (X9); regional patents (X10), and according to their mutual relationship, Liaoning Province The cultural and creative industry layout evaluation index system is divided into three levels: the first level (A layer) is the overall goal: the comprehensive evaluation of the layout of cultural and creative industries in Liaoning Province; the second level (B level): the impact of industrial layout The economic factors, government institutional factors, social and cultural factors, talent knowledge factors and technical support factors are composed of five major factors; the third layer (C layer) is the evaluation index: 10 indicators constitute a set of evaluation indicators to interpret the five layers of the B layer Class factor.

(1) Gross Regional Product (GDP) refers to the final result of the initial distribution of income of all resident units in a region over a certain period of time. It is used to measure the overall economic development level of the region and is represented by X1.

(2) The per capita disposable income reflects the part of the income that the household's family's total cash income can be used to arrange the daily life of the family, reflecting the local consumption capacity, expressed in X2.

(3) The number of cultural and creative industrial parks can reflect the local government's support for the layout of cultural and creative industries, expressed in X3.

(4) The investment in science and technology reflects the government's fiscal expenditure on investment in science and technology innovation, expressed in X4.

(5) The total population refers to the combination of living individuals within a certain time and within a certain area, which can reflect the potential labor and consumption power of the area, expressed by X5. [3]

(6) The national AAA or above scenic spots are the embodiment of the regional natural resources and human resources, which can reflect the regional cultural background and are represented by X6.

(7) The ability and level of art-based colleges and universities to reflect the cultivation of professional talents in the region is represented by X7.

(8) High-level and above cultural level Cultural and creative industry practitioners refer to the cultural quality of employees, reflecting the cultural and creative industry talent structure, expressed by X8.

(9) The number of regional patent applications reflects the speed of technological innovation, expressed in X9.

(10) The number of regional patent grants indicates the officially recognized technology, reflecting the level of regional science and technology and support for the cultural and creative industries, expressed in X10.

4. Empirical analysis

4.1 Sample selection and data source

This paper mainly evaluates the spatial layout of cultural and creative industries in Liaoning Province. Therefore, in the selection of samples, the cultural and creative industries of 14 prefecture-level cities in Liaoning Province are used as samples of the evaluation system of cultural and creative industries in Liaoning Province: Shenyang (Y1), Dalian City (Y2), Anshan City (Y3), Fushun City (Y4), Benxi City (Y5), Dandong City (Y6), Jinzhou City (Y7), Yingkou City (Y8), Fuxin City (Y9), Liaoyang City (Y10), Panjin City (Y11), Tieling City (Y12), Chaoyang City (Y13), Huludao City (Y14).

4.2 Factor analysis

4.2.1 Standardized processing of sample data

Since the unused indicators have inconsistent units of measurement, if these data are used directly to evaluate the layout of cultural and creative industries in Liaoning Province, the correlation matrix of the observed data will be uncontrollable, which may eventually lead to bias in the evaluation results. Therefore, the raw data is first standardized.

4.2.2 Extract common factors and factor rotation

In order to ensure the correlation between variables, it is necessary to determine whether the evaluation system is applicable to the factor analysis method by performing KMO and Bartlett's spherical test on the processed data. After the standardized data was input, the test results were obtained using SPSS16.0 software, $KMO=0.769>0.7$, and Sig (ie, P value) $=0.000<0.05$, so it was judged that the factor analysis was suitable.

According to the eigenvalue and variance contribution rate, the common factor of the evaluation system is extracted. By orthogonal rotation, the factor load of the first principal factor in X3, X4, X9 and X10 is relatively high; the second principal factor is The factor load of the two indicators X1 and X2 is relatively high; the third principal factor has a relatively high factor load on the four indicators X5, X6, X7 and X8, so the following three economic factors can be explained and named.

The first main factor: including the number of cultural and creative industrial parks, government science and technology investment, regional patent applications and regional patent grants, these four indicators are the financial technical indicators supporting the layout of cultural and creative industries, so you can A main factor is named as the financial technology factor for the layout of cultural and creative industries.

The second main factor, including the two indicators of regional GDP and per capita disposable income, systematically describes the economic background of the layout of cultural and creative

industries in Liaoning province. Therefore, the second main factor can be named as the economic environment factor of the layout of cultural and creative industries.

The third main factor: including the population, the national AAA or above scenic spots, art schools and high-level and above cultural level cultural and creative industry practitioners four indicators, it mainly reflects the cultural environment of talents and cultural industries The impact of the third main factor can be named as the cultural culture factor of the cultural creative industry layout.

4.2.3 Comprehensive evaluation score

According to the above analysis results, the three main factors are The variance contribution rate is determined by its weight, and then the formula for calculating the comprehensive evaluation score of the cultural creative industry layout in Liaoning Province is obtained, as shown in formula (1):

$$F = 0.728F_1 + 0.114F_2 + 0.068F_3. \quad (1)$$

Among them, F1, F2, and F3 are the score coefficient matrices of the three main factors, that is, the scores of the three main factors. The main factor scores, comprehensive scores, and overall ranking results are shown in Table 1.

Table 1. Liaoning province cultural and creative industry layout evaluation system main factor, comprehensive score and ranking

	F1	F2	F3	Comprehensive score	Ranking
Shenyang	1.60	0.41	1.09	1.05	2
Dalian	2.32	0.31	1.77	1.63	1
Anshan	0.84	-0.36	0.82	0.61	4
Fushun	0.28	-0.76	-1.28	0.19	9
Benxi	0.75	-0.32	0.59	0.97	3
Dandong	0.48	-0.01	-1.95	0.22	8
Jinzhou	0.70	0.21	0.52	0.50	5
Yingkou	-1.13	-0.61	-0.46	-0.82	12
Fuxin	-1.34	-0.01	-0.36	-1.00	13
Liaoyang	0.00	-0.20	0.19	0.03	10
Panjin	0.74	-0.75	0.34	0.48	6
Tieling	-0.27	-0.43	0.36	-0.22	11
Chaoyang	0.34	-0.11	-0.56	0.36	7
Huludao	-1.72	-0.36	-1.11	-1.37	14

4.3 Conclusion

(1) According to the ranking of cities under the representative capital and technology factor F1, it can be seen that Dalian, Shenyang, Anshan and Benxi can ensure sufficient capital and technology supply, with strong pulling effect, and have the potential to dominate the layout of Liaoning's cultural and creative industry.

(2) It can be seen from the ranking of cities under the economic environment factor F2 that the development of the economic environment of Shenyang, Dalian and Jinzhou relative to other cities in the province has begun to take shape, and the cultural and creative industries have certain development capabilities in this layout. However, as a whole, the economic environment with a large layout of cultural and creative industries in the province is still at a preliminary stage of development.

(3) According to the ranking of cities under the representative talent culture factor F3, it is known that Dalian, Shenyang, Anshan, Benxi and Jinzhou are in the forefront of the cultural atmosphere and talent structure of the province's cultural and creative industries, and the cultural and creative industries. The layout relies on the creation of local cultural resources and human brain thinking.

From the ranking of the comprehensive scores of the evaluation system, it can be seen that the cities ranked first to fifth in the layout of cultural and creative industries in Liaoning Province are

Dalian, Shenyang, Benxi, Anshan and Jinzhou, which shows that they are culturally creative. The overall layout of the industry tends to be reasonable and the comprehensive strength is strong. It is the five cities with the best layout of cultural and creative industries in Liaoning Province. However, the five cities have different advantages in the layout of cultural and creative industries. In terms of the actual effect of development, the layout of cultural and creative industries in Dalian and Shenyang has the highest integrity, that is, cultural and creative atmosphere, talent and knowledge resources, government policy support, support of technology-related industries and economic environment are all advantageous factors for the layout of their cultural and creative industries.

5. Suggestions on optimizing the layout of cultural and creative industries in Liaoning province

5.1 Prioritize the development of the central region

The Liaozhong region contains half of the prefecture-level cities in the province. The creative and cultural resources are the most prominent, with in-depth development potential, and priority should be given to the development. [4]

5.2 Focus on the development of the Liaodong Peninsula region

On the government support policy for the layout of cultural and creative industries, the Liaodong Peninsula region should establish superior cultural and economic policies and investment policies that encourage entrepreneurship, and introduce a reasonable tax system to ensure a good market order and promote the layout of cultural and creative industries in the region.

5.3 Vigorously develop and develop disadvantaged areas in the west

In terms of the optimization and integration of regional cultural and creative resources, the "Liaoxi historical and cultural corridor" should be actively arranged to position the historical and cultural integrity of Liaoxi in accordance with higher standards, break the boundaries between cities and integrate cross-city creative and cultural resources.

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