

Study on Regional Differences of Cultural Consumption about Urban Residents in China

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Abstract—Based on related statistical data about Chinese cultural consumption, this paper analyzes and compares the regional differences of it in China in the environment, level and tendency of cultural consumption by establishing statistical models, and explores the main influencing factors in different regions. Finally this paper puts forward some policies and suggestions according to the results to elevate the cultural consumption level of residents.

Keywords—cultural consumption, regional differences, consumption tendency

I. INTRODUCTION

With the fast development of Chinese economy, the residents' concept of consumption changes greatly. In the entire expenditures, one kind of consumption accounts for a little but has strong potentials, and that's cultural consumption.

Cultural consumption is the residents' consumption behavior to acquire knowledge, artistic influence and spiritual satisfaction in the activities of education and studying, art appreciation, entertainment etc, including cultural products and services and other related consumption[1].

Developing cultural consumption can not only benefit Chinese cultural industry, but also increase cultural consumption of residents and promote the development of national economy.

However, China covers many regions in which cultural consumption is quite different. How to shorten the distance is important for balanced development. Therefore the study can find reasons and sources for undeveloped regions of cultural consumption[2], and help government departments in different regions implement measures to improve it.

This paper mainly compares the regional differences of cultural consumption about urban residents in three aspects: cultural consumption environment, level and tendency.

II. MODELS AND INDEXES

A. Factor Analysis Model

This paper uses factor model to analyze regional differences of cultural consumption[3]. Factor analysis uses a

few factors $F = f_1, f_2, \dots, f_m$ to describe the relationship between original variables. The described variables $X = X_1, X_2, \dots, X_p$ are observable random variables, yet these factors are unobservable potential variables. Factor analysis is to use these potential variables or essential factors to explain the observable variables. Model of factor analysis is

Here matrix $A = (a_{ij})$ is called factor loading matrix, a_{ij} means the load of j th factor f_j of the i th variable X_i . Factor load represents the linear correlation coefficient between each factor and each original variable, which can be used for the description of factors.

B. Indexes on Residents' Cultural Consumption

To know the cultural consumption environment in all regions in China and find the difference, this paper first quantifies the cultural consumption of 31 regions divided by province. There exist missing values in some provinces in statistical yearbook, so the data in 2014 can be used. This paper chooses 14 indicators representing two kinds of environment. One is the cultural consumption infrastructure environment, and the other is basic equipment environment[4].

The two kinds of indicators are as follows:

One is cultural consumption infrastructure environment. It includes 7 indexes, and each is the total amount of a region. They are public library (quantity), museum (quantity), art performance group (quantity), art performance venue (quantity), book publishing (kind), journal publishing (kind), newspaper publishing (kind).

The other is basic equipment environment. Also includes 7 indexes, in which each is the average amount of urban residents in its region per 100 families. They are color televisions, computers, stereo equipment, video camera, camera, upscale instrument, fitness equipment.

III. MODEL ANALYSIS' RESULTS

A. Tests in Factor Analysis

This paper uses KMO and Bartlett's test to see whether the indexes selected are suitable or not, and the results are shown in the table below:

TABLE I. KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	403.376
	df	91
	Sig.	.000

In table 1 the KMO value is 0.746, showing that factor analysis can be conducted (the value of KMO is between 0 to 1, and the closer to 1, the stronger the correlation of variables, the more suitable for factor analysis). The sig value in Bartlett's test is less than 0.05, by which we can deny the null hypothesis, proving that factor analysis is suitable (the null hypothesis is that variables are independent).

B. Factor Selection

When doing factor analysis, because the dimensions of the variables are different, we should perform z score normalization for the data first, then conduct factor analysis. The results are shown below:

TABLE II. EIGENVALUE AND THE TOTAL VARIANCE EXPLAINED

Component	Rotation Sums of Squared Loadings		
	total	% of variance	cumulative %
F1	5.913	42.239	42.239
F2	3.533	25.234	67.473
F3	1.429	10.205	77.678

^a. Extraction method: principal component analysis

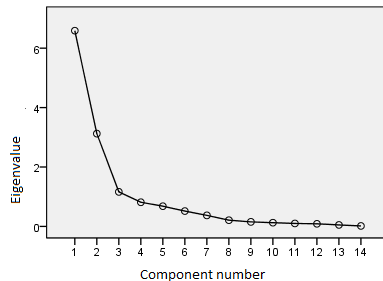


Fig. 1. scree plot

From table 2 and figure 1, we can see that the eigenvalue of the first three factors are greater than 1. And the total contribution of cumulative variance reaches 77.678%, so the first three factors are chosen to build the factor loading matrix (extracted by principal component method). Then we rotate the factor loading matrix by varimax orthotropic rotation, and the results are as follows:

TABLE III. ROTATED COMPONENT MATRIX

	Component		
	F1	F2	F3
Camera	.952	.042	.019
Computer	.932	.099	.203
Fitness equipment	.901	.124	.220
Video camera	.841	-.056	-.155
Instrument	.823	.188	-.054
Stereo	.739	-.059	.217
Television	.702	.138	.542
Book	.628	.527	-.175
Newspaper	.230	.857	-.069
Museum	.115	.856	.296
Library	-.286	.758	.229
Are performance venue	-.009	.754	.319
Journal	.591	.671	-.168
Art performance group	.111	.326	.816

From table 3, the first component F1 is mainly decided by camera, computer, fitness equipment, video camera, instrument, television, book and journal; the second component F2 is mainly determined by book, newspaper, museum, library, art performance venue and journal; the third one F3 is art performance group factor, and its contribution rate of variance is only 10.205%.

In summary, the first component F1 mainly represents the cultural consumption basic equipment (the micro environment); the second component F2 mainly denotes the cultural consumption infrastructure (the macro environment); the third one F3 is art performing group. Finally calculate the factor scores based on each component. Do the weighted aggregation and the weight is each factor's variance contribution/the total variance contribution rate, and we get the comprehensive score F. That is, $F = (42.239 \times F1 + 25.234 \times F2 + 10.205 \times F3) / 77.678$.

C. Analysis on The Cultural Environment Difference of Each Region

Here are the factor scores and the ranks of each region.

In table 4, under the micro environment of cultural consumption basic equipment (component F1), the first three areas are Shanghai, Beijing and Guangdong, while the last three areas are Ningxia, Heilongjiang and Qinghai. This indicates that the micro environment of cultural consumption is closely linked to its economy. Only when the economy development is good will people spend more time and money to build this environment.

Under the macro environment of cultural consumption infrastructure (component F2), the top three regions are Jiangsu, Henan and Sichuan, while the last three are Ningxia, Xizang and Hainan. By the analysis of these regions, it's easy to find that the macro environment is closely related to the population. This means the average amount is considered in constructing local cultural infrastructure which makes the infrastructure balanced in all regions.

As to the art performing group(component F2), the top three regions are Anhui, Zhejiang and Fujian; Heilongjiang, Xinjiang and Jilin lag behind.

From the perspective of comprehensive scores, the cultural consumption micro environment accounts for 54.4% in the final score, greater than 50%, and the macro environment and

the art performing group account for 32.5% and 13.1% respectively, so the comprehensive score is mainly influenced by micro environment.

TABLE IV. THE FACTOR SCORES AND THE RANKS IN EACH REGION

Region	F1	F2	F3	F	F rank
Shanghai	3.536	-0.021	-0.939	1.793	1
Jiangsu	0.823	1.920	0.095	1.084	2
Guangdong	1.339	0.782	0.253	1.015	3
Zhejiang	0.841	0.185	2.248	0.813	4
Shandong	0.667	1.354	-0.144	0.784	5
Beijing	2.163	-1.493	-0.265	0.657	6
Fujian	0.697	-0.743	2.079	0.411	7
Hubei	0.186	0.956	-0.345	0.366	8
Henan	-0.829	1.626	0.778	0.179	9
Sichuan	-0.654	1.374	0.559	0.164	10
Shaanxi	-0.129	0.776	-0.391	0.131	11
Guangxi	0.481	-0.366	-0.095	0.130	12
Anhui	-0.451	0.077	2.332	0.086	13
Liaoning	-0.035	0.424	-1.082	-0.023	14
Yunnan	0.058	-0.346	0.180	-0.057	15
Hebei	-0.757	0.706	0.625	-0.100	16
Jiangxi	-0.447	-0.139	0.842	-0.178	17
Jilin	-0.035	0.186	-1.783	-0.193	18
Tianjin	0.512	-1.195	-0.909	-0.229	19
Hunan	-0.669	0.436	-0.142	-0.241	20
Shanxi	-0.776	0.537	0.050	-0.241	21
Xinjiang	-0.450	0.583	-1.624	-0.269	22
Gansu	-0.621	-0.114	-0.355	-0.421	23
Chongqing	-0.326	-1.148	0.937	-0.427	24
Heilongjiang	-0.975	0.722	-1.324	-0.470	25
Guizhou	-0.383	-1.013	0.135	-0.520	26
Inner Mongolia	-0.713	-0.156	-0.707	-0.531	27
Xizang	-0.244	-1.603	0.223	-0.624	28
Hainan	-0.864	-1.606	-0.107	-1.006	29
Qinghai	-1.058	-1.160	-0.489	-1.017	30
Ningxia	-0.887	-1.540	-0.632	-1.066	31

This ranking reflects the overall condition of cultural consumption environment in different regions, and the higher the rank is, the better the consumption foundation is, and the higher tendency of consumption is, so there will be more opportunities.

D. Analysis on the Cultural Consumption Level Difference of Each Region

The rank of the cultural consumption per capita in different regions is shown in figure 2:

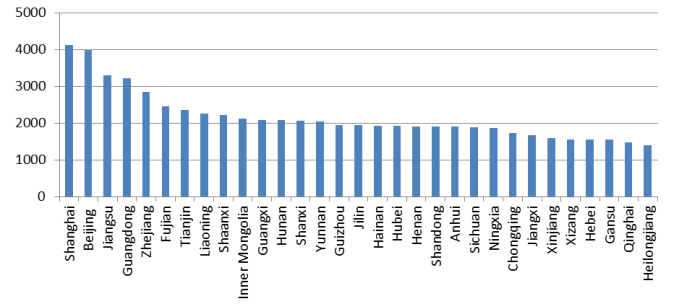


Fig. 2. rank of cultural consumption per capita in different regions unit: yuan

In figure 2, the first one (Shanghai) is three times greater than that of Heilongjiang(the last one)with a difference of 2725.7 yuan which indicates a big regional difference of cultural consumption in China. By comparison with the rank of environment of cultural consumption, the region that is good in the cultural consumption level also has a good environment to consume, and vice versa. Does it mean the consumption level is related to the consumption environment?

Consequently, Spearman rank correlation test is conducted to the rank of average cultural consumption and environment in 31 regions. The result is shown below:

TABLE V. RANK CORRELATION TEST OF CULTURAL CONSUMPTION LEVEL AND ENVIRONMENT

		Consumption level	Consumption environment
Spearman's rho	Cultural consumption level	Correlation Coefficient	1.000
		Sig. (2-tailed)	.620**
		N	.000
			31
	Cultural consumption environment	Correlation Coefficient	.620**
		Sig. (2-tailed)	1.000
		N	.000
			31

In table 5, the coefficient is 0.62, and the sig (2-tailed) value is less than 0.01 which shows the significance test is passed. This indicates the correlation of the two indexes above. The coefficient is not big which shows the environment factor is only one of the many influencing factors, and it's the first concern to improve the consumption level[5].

E. Analysis on the Cultural Consumption Tendency Difference of Each Region

As is well known, one's attention to cultural consumption reflects directly on his participation, that is, he will consume no matter how much he earns. Consequently, we can measure the tendency by the percentage which is average cultural consumption/ per capita disposal income.

From figure 3, the 31 regions are classified into four categories. The first kind (7 provinces): Jiangsu, Beijing, Guangdong, Shaanxi, Guizhou, Shanghai, Shanxi. The cultural consumption tendency is the highest in these provinces, reaching 9.6% in average which shows the residents there are prone to consume.

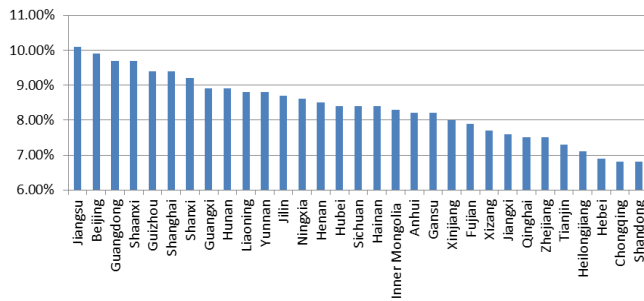


Fig. 3. rank of cultural consumption tendency per capita in different regions

The second (14 provinces): Guangxi, Hunan, Liaoning, Yunnan, Jilin, Ningxia, Henan, Hubei, Sichuan, Hainan, Inner Mongolia, Anhui, Gansu, Xinjiang. These provinces have moderate tendency to cultural consumption, 8.5% in average.

The third (7 provinces): Fujian, Xizang, Jiangxi, Qinghai, Zhejiang, Tianjin, Heilongjiang. A lower tendency. About 7.5% in average.

The fourth (3 provinces): Hebei, Chongqing, Shandong. The tendency is the lowest. It's around 6.8% in average showing the unwillingness to cultural consumption. The consumer awareness should be strengthened there.

According to the analysis above, residents in regions of high cultural consumption tendency do not necessarily earn much money, vice versa.

IV. CONCLUSIONS AND ADVICE

According to the cultural consumption environment, cultural consumption level and cultural consumption tendency ranking, we can see the regional cultural consumption differences clearly.

1) If a region's all aspects of cultural consumption ranking are the higher, then its comprehensive cultural consumption is certainly higher in our country; If a region's all aspects of cultural consumption ranking are the lower, then its comprehensive cultural consumption is certainly lower in our country. However, a lot of regions are in uneven development in the three aspects, cultural consumption environment, cultural consumption level and cultural consumption tendency, which is worth studying.

2) From cultural consumption environment of urban residents, the cultural consumption tendency of Hunan, Shanxi and Guizhou is the top 10 in the 11 places where the cultural consumption environment ranks last, indicating that the urban

residents in these three regions want cultural consumption, but its regional environment is not allowed, so the local government should actively build the region's cultural consumption environment. The consumption environment rank of Inner Mongolia is 27, but its consumption level rank is 10, indicating that residents there have the ability to consume. If the cultural consumption environment is improved, the consumption level will be further increased.

3) From cultural consumption level of urban residents, the cultural environment rank of Sichuan is 10 in the 11 places where the cultural consumption level ranks last, showing that the cultural environment is good in Sichuan but the residents there didn't take full advantage of it. In response to this problem the local government can increase the publicity of local cultural consumption facilities, equipment, so that residents will actively participate in cultural consumption.

4) From cultural consumption tendency of urban residents, Fujian and Zhejiang rank 22 and 26 respectively in cultural consumption tendency of urban residents, and their ranks in cultural consumption environment and level are in the top 10. This indicates the residents in these two regions have the ability and the condition for cultural consumption but don't have a strong desire, maybe because the existing cultural products are not rich. The local government should innovate cultural products actively to meet the cultural consumption of urban residents. Consumption tendency ranks 27 in Tianjin, its cultural consumption level ranks 7, showing Tianjin has the ability to carry out cultural consumption, but its willingness is not strong, which is mainly related to its cultural environment and poor cultural products. On the one hand, Tianjin should construct cultural consumption actively, on the other hand, it should also innovate cultural products.

REFERENCES

- [1] Lu Hong, Li Xiaoqing. Case study on the influencing factors of cultural consumption of urban residents in Shanghai [J]. Consumer Economics, 2013, pp 55-58.
- [2] Lu Lixin. Analysis on regional difference and dynamic effect of influencing factors of cultural consumption of rural residents[J]. Statistics and Decision, 2009(9), pp 81-83.
- [3] Gao Tiemei. Econometric analysis and modeling—EViews examples and cases[M]. Beijing, Tsinghua University Press, 2006.
- [4] Chen Haibo, Zhu Huali. Analysis on the influencing factors of residents' consumption satisfaction [J]. Statistics and Decision, 2014, pp 104-107.
- [5] He Xiaogun. Multivariate statistical analysis[M]. Beijing, China Renmin University Press, 2008.