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ARTICLE

Research on the Financial Maturity of the Yangtze River Economic Belt

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ABSTRACT

The Yangtze River Economic Belt is a key development project in China, and financial development is the core driving force for economic growth in the Yangtze River Economic Belt. At present, the financial development of the Yangtze River Economic Belt is not balanced, and there is an urgent need to quantify the differences in financial development. Drawing on the research of "maturity model" at home and abroad, from the two new perspectives of subjective and objective, the financial development difference is introduced into the maturity model as an organic whole, forming financial maturity and its indicator system, then taking the Yangtze River Economic Belt as the research object, the principal component analysis method is used to calculate the maturity. The results show that the financial development of the middle and lower reaches of the Yangtze River Economic Belt has obvious gradient differences both subjectively and objectively. The financial acceptance of the lower reaches of the Yangtze River and the total financial structure and structure are significantly higher than the middle and upper reaches, while financial efficiency is lower than the middle and upper reaches due to factors such as financial costs. Therefore, the financial development of the Yangtze River Economic Belt needs to improve the systematicness of finance, coordinate the growth of financial volume and structural adjustment, and improve the overall financial operation efficiency.

1. Introduction

The Yangtze River Economic Belt is the golden corridor for China's economic development. Promoting the development of the Yangtze River Economic Belt is conducive to tapping the huge domestic demand potential contained in the vast hinterland of the middle and upper reaches, and promoting the economic growth space from the coastal to the inland river, thus forming a complementary, collaborative and interactive pattern of the upper, middle and lower reaches, and narrow the development gap between the eastern, central and western regions.

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At present, the development of the Yangtze River Economic Belt faces many difficulties and problems that need to be solved urgently. One of the most important problems is the imbalance of financial development between the regions of the Yangtze River Economic Belt. Solving the outstanding problems of regional financial development imbalance requires an intuitive, comprehensive and accurate description of the state of financial development. Based on the previous studies, this paper attempts to construct a comprehensive financial maturity indicator, and use this indicator to measure the financial development of the 11 provinces and cities in the Yangtze River Economic Belt as comprehensively as possible.

2. Literature Review

Raymond. W. Goldsmith (1969) used financial activities and financial phenomena as a structure or financial structure, and proposed financial correlation ratio as a tool to measure financial structure,[1] which laid the theoretical foundation for financial development. Ronald McKinnon (1973) and ES Shaw (1973) provide insightful insights into the interrelationship between finance and economic development and financial development in developing countries or regions,[2] marking developing countries Or the real emergence of the financial development theory of the research object.

The earliest foreign research on the maturity model was Crosby's Quality Management Maturity Grid (QMMG),[3] which was used to assess the current status and evolution of enterprise quality management methods. The most influential now is the American scholar W. S. Humpbrey (1987) proposed the SW-CMM software capability maturity model, which is a description of the various stages of development of the software organization in the practice of defining, implementing, measuring, controlling and improving its software processes. The SW-CMM Software Capability Maturity Model provides a new way for organizations that want to evaluate and improve software process capabilities.

Domestically, Xincai Gao and Yang Li (2009) applied the maturity model to the financial sector for the first time.[4] They used financial maturity as a comprehensive indicator and combined multiple indicators to measure the rural financial maturity of China. Zhaozhang Ren and Yunsheng Liu (2010) used this model to study the financial maturity indicator of Guangdong based on the growth of financial aggregates, the optimization of financial structure and the improvement of financial efficiency.[5] Jianjun Zhang and Chen Chen (2012) measured and compared the financial maturity of the East, Central and West regions based on the perspective of financial development in China's nine provinces and cities;[6] Yongjian Pu and Yamin Wei (2013) on the convergence of China's provincial financial maturity.[7] The above description of the total amount, structure and efficiency of financial maturity can be roughly classified into the total view, structure view and function view of financial development differences, but there is no corresponding description of the systematic view of financial development differences. This paper attempts to incorporate the subjective factors of financial development from the perspective of maturity definition from the perspective of financial system view, and to measure financial development with a new financial maturity indicator.

3. The Construction of Indicator System for Financial Maturity

To understand the differences in financial development, we need to combine the total amount, structure, system, and function of finance as an organic combination. Based on a large number of references and combined with the results of previous studies, this paper makes a breakthrough in the quantification of financial development differences, and attempts to incorporate the financial system concept into the financial maturity indicator system. And the new indicator system is shown in Figure 1.

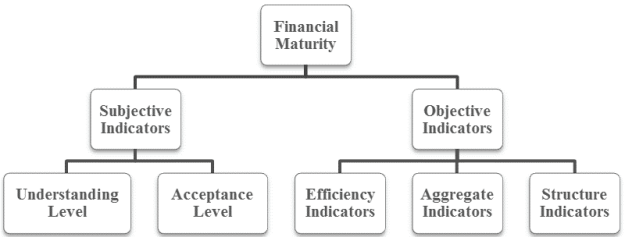

Figure 1. Financial Maturity Indicator System

3.1 Subjective Indicators

3.1.1 People's Cognition Degree of Finance

The increase in financial maturity requires a deeper cognition of finance. The deeper people understand financial, understand the principle of financial operation, understand the financial operation mechanism, the faster financial development will be, and the financial maturity will be improved rapidly. Measuring people's perception of finance is the proportion of people who have a deep understanding of finance. Therefore, this paper measures the degree of financial awareness by the proportion of financial practitioners.

3.1.2 People's Acceptance Level of Finance

The development of finance needs the support of the market, and the widespread acceptance of people is an important driving force for the growth of demand in the financial market. The higher the degree of acceptance, the greater the demand in the financial market, the faster the financial development, and the financial maturity will increase.

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Table 1. Financial Maturity Indicator System

First-class Indicators	Second-class Indicators	Third-class Indicators	Units
Subjective Indicators	Understanding Level	Number of Financial Practitioners /Total Number of Employees (X1)	%
	Acceptance Level	Per Capita Financial Added Value/Per Capita Disposable Income (X2)	%
Objective Indicators	Aggregate Indicators	Financial Practitioners (X3)	10 Thousand People
		Financial Added Value (X4)	100 Million Yuan
		Deposit Balance of Domestic and Foreign Currencies (X5)	100 Million Yuan
		Loan Balance of Domestic and Foreign Currencies (X6)	100 Million Yuan
		Number of Listed Companies (X7)	Pcs
		Equity Financing Amount (X8)	100 Million Yuan
		Premium Income (X9)	100 Million Yuan
		Insurance Claims (X10)	100 Million Yuan
	Structure Indicators	Loan-to-Deposit Ratio (X11)	%
		Financial International Ratio (X13)	%
		Insurance Penetration (X13)	%
		Insurance Density (X14)	%
	Efficiency Indicators	Credit Resource Occupancy Coefficient (X15)	%
		Insurance Industry Profit Ratio (X16)	%

This paper refers to the Engel consumption coefficient, and measures the degree of people's acceptance of finance by personal financial expenditure and personal disposable income, that is, the ratio of per capita financial value added to per capita disposable income to measure people's acceptance of finance.

3.2 Objective Indicators

There are too many objective indicators to measure financial maturity, following the principle of scientific and systematic indicator selection. Based on the financial resource allocation efficiency in the concept of financial aggregate, structure and function, this paper selects 14 representative indicators including the total elements, structure and efficiency.

For more convenient and intuitive, this paper summarizes all the indicators as follows: (See Table 1)

4. Empirical Analysis——Measurement of Maturity of the Yangtze River Economic Belt

4.1 Method and Model Selection

There are many indicators for quantifying financial structure and financial development capabilities, but most of them are single, and financial maturity is a comprehensive indicator that integrates many indicators. In the data analysis and processing, this paper selects the principal component analysis method for data processing based on a large number of references.

4.2 Data Selection and Description

This paper takes 11 provinces and cities in the Yangtze River Economic Belt as the research object. After querying the statistical yearbooks of each province and city, the average value of the three-year data from 2013 to 2015 is taken as the initial value and relevant processing is carried out. After obtaining specific data, in order to avoid the influence of different dimensions of the indicator, this paper adopts the Z-score standardization method, and the results are shown in Table 2.

Table 2. Standardized Values of Financial Maturity Measurement Indicators of Various Provinces and Cities in the Yangtze River Economic Belt

Indicators	Shanghai	Zhejiang	Jiangsu	Anhui	Jiangxi
X_1	2.475	0.666	0.408	-0.185	-0.758
X_2	2.739	0.332	0.574	-0.545	-0.570
X_3	0.477	0.961	1.657	0.0831	-0.926
X_4	1.234	0.757	2.233	-0.541	-0.773
X_5	1.078	1.272	1.913	-0.516	-0.808
X_6	0.696	1.778	1.830	-0.494	-0.789
X_7	1.062	1.727	1.594	-0.332	-0.863
X_8	0.265	2.279	0.658	-0.11	-1.060
X_9	0.525	1.137	2.098	-0.409	-0.797
X_{10}	-0.52	1.327	2.213	-0.170	-0.746
X_{11}	1.318	-1.70	-0.11	-0.028	0.2237
X_{12}	2.621	-1.03	-0.25	-0.276	-0.212
X_{13}	1.990	0.462	-0.54	-0.264	-0.618

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X_{14}	2.574	0.779	0.611	-0.558	-0.618
X_{15}	1.471	1.184	-.145	-0.254	-2.180
X_{16}	2.765	-0.30	-0.13	-0.808	0.0425

Hubei	Hunan	Chongqing	Guizhou	Sichuan	Yunnan
-0.701	0.464	0.0361	-0.810	-0.717	-0.877
-0.410	-0.65	0.0858	-0.630	-0.405	-0.517
-0.599	1.435	-0.638	-1.126	-0.299	-1.024
-0.295	-0.61	-0.406	-0.960	0.0482	-0.681
-0.274	-0.50	-0.684	-1.043	0.3566	-0.787
-0.347	-0.57	-0.561	-0.943	0.0894	-0.684
-0.265	-0.18	-0.775	-0.985	-0.077	-0.896
-0.471	-0.22	-0.269	-1.100	0.9146	-0.877
-0.120	-0.37	-0.781	-1.118	0.6924	-0.852
-0.194	-0.25	-0.688	-0.965	0.6992	-0.691
0.6247	0.865	-0.943	-0.841	1.3894	-0.782
-0.109	-0.32	-0.506	-0.526	1.0292	-0.408
-0.599	-1.32	-0.040	-0.711	1.5620	0.0897
-0.296	-0.68	-0.139	-0.768	-0.198	-0.701
-0.527	-0.86	0.5221	0.3023	0.0631	0.4348
0.4390	-0.27	-0.221	-0.893	0.0776	-0.679

4.3 Calculation Process and Results

Principal component analysis was performed on the normalized values of Table 2 using SPSS 18.0 to obtain a total variance interpretation table (see Table 3).

Table 3. Total Variance Interpretation

Ingredients	Initial Eigenvalues			The Square of Extracted Load		
	Eigenvalues	Variance (%)	Accumulation (%)	Eigenvalues	Variance (%)	Accumulation (%)
1	9.275	57.967	57.967	9.275	57.967	57.967
2	3.518	21.987	79.954	3.518	21.987	79.954
3	1.504	9.398	89.351	1.504	9.398	89.351

It can be seen from Table 4 that the requirements for the number of principal component extractions are satisfied: (1) the eigenvalue is greater than 1; (2) the cumulative contribution rate of the extracted principal components is more than 85%, and the contribution rate of the first three principal components has reached 89.35%, which has been able to reflect this group of data information very well. In this way, the contribution rate v of each principal component to the new variance can be calculated. The contribution value of the eigenvalue of the first principal component to the new variance is 64.88%, and the contribution value of the eigenvalue of the second principal component to the new variance is 24.6%. The contribution of the eigenvalue of the third principal component to the new variance is 10.52%.

By dividing the data of the initial factor load matrix of Table 5 by the square root of the eigenvalue corresponding to the principal component, the coefficients corresponding to each of the three principal components (represented by the symbols CF1, CF2, CF3) can be obtained, and the specific data is as Table 6 shows.

The Linear representation is:

$$CF_1 = 0.003X_1 - 0.032X_2 + 0.17X_3 + 0.122X_4 + 0.132X_5 + 0.133X_6 + 0.129X_7 + 0.105X_8 + 0.165X_9 + 0.193X_{10} + 0.028X_{11} - 0.059X_{12} - 0.075X_{13} - 0.006X_{14} - 0.082X_{15} - 0.044X_{16}$$

$$CF_2 = 0.136X_1 + 0.182X_2 - 0.086X_3 + 0.008X_4 - 0.001X_5 - 0.016X_6 + 0.002X_7 - 0.008X_8 - 0.054X_9 - 0.127X_{10} + 0.021X_{11} + 0.175X_{12} + 0.195X_{13} + 0.162X_{14} + 0.184X_{15} + 0.175X_{16}$$

$$CF_3 = -0.01X_1 - 0.054X_2 + 0.171X_3 + 0.047X_4 + 0.027X_5 - 0.073X_6 - 0.022X_7 - 0.146X_8 + 00.094X_9 + 0.058X_{10} + 0.519X_{11} + 0.204X_{12} - 0.135X_{13} - 0.058X_{14} - 0.443X_{15} - 0.155X_{16}$$

Then, the maturity indicator P can be expressed as the product of the sum of the three principal components and their corresponding eigenvalues:

$$P = \sum_{i=1}^{3} CF_i * v_i = 0.034X_1 + 0.018X_2 + 0.107X_3 + 0.086X_4 + 0.088X_5 + 0.075X_6 + 0.081X_7 + 0.051X_8 + 0.104X_9 + 0.1X_{10} + 0.078X_{11} + 0.026X_{12} - 0.014X_{13} + 0.03X_{14} - 0.055X_{15} + 0.031X_{16}$$

According to the standardized data, the financial maturity P of the 11 provinces and cities in the Yangtze River Economic Belt can be calculated, and the financial maturity is 100% based on Shanghai, as shown in Table 4.

5. Calculation Results Analysis and Policy Recommendations

5.1 Results Analysis

According to the principal component analysis, after the overall situation of financial development differences in the Yangtze River Economic Belt is obtained, the differences between subjective indicators, aggregate indicators, structural indicators and efficiency indicators in financial development differences can be calculated in a similar way. Based on the equal interval method in the GIS standard classification method, this paper obtains: The Difference Chart of the Comprehensive Indicators of Financial Maturity in the Yangtze River Economic Belt (Figure 3); The Difference Chart of the Subjective Indicators of Financial Maturity in the Yangtze River Economic

Table 4. Financial Maturity of Various Provinces and Cities in the Yangtze River Economic Belt

Regions	P	M	Regions	P	M
Shanghai	1.31355935	100	Hunan	0.02242798	44.1928572
Zhejiang	0.73024642	74.787207	Chongqing	-0.55475369	19.2450784
Jiangsu	0.76415523	76.252625	Guizhou	-0.88892944	4.800852
Anhui	-0.26186237	31.904853	Sichuan	0.26638579	54.7375536
Jiangxi	-0.48955764	22.0630761	Yunnan	-0.74127156	11.1831339
Hubei	-0.1604013	36.2903463			

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Belt (Figure 4); The Difference Chart of the Aggregate Indicators of Financial Maturity in the Yangtze River Economic Belt (Figure 5); The Difference Chart of the Structure Indicators of Financial Maturity in the Yangtze River Economic Belt (Figure 6); The Difference Chart of the Efficiency Indicators of Financial Maturity in the Yangtze River Economic Belt (Figure 7).

5.1.1 Analysis of the Differences in the Financial Maturity Comprehensive Indicators of the Yangtze River Economic Belt

The analysis of the financial development differences in the Yangtze River Economic Belt cannot be separated from the current imbalance of economic development. According to the average per capita GDP of the Yangtze River Economic Belt in 2013-2015, the economic development level of the nine provinces and two cities in the Yangtze River Economic Belt can be divided into four gradients (Figure 2). The maturity indicator of the 9 provinces and 2 cities in the Yangtze River Economic Belt can be divided into five gradients (Figure 3). Generally speaking, there is a clear positive correlation between economic growth and financial development. From a regional perspective, the financial maturity of the three regions of the Yangtze River Economic Belt is different and the difference is obvious. The financial maturity of the lower reaches of the Yangtze River is the highest, far higher than the middle and upstream; the mid-stream maturity is second, the upstream region has the lowest maturity, and the financial maturity between the middle and lower reaches is small, which is also consistent with the relatively low and relatively low level of economic development between the middle and upper reaches, while the economic development level of the downstream areas is significantly higher than the actual status of the middle and upper reaches.

5.1.2 Analysis of the Differences in Subjective Indicators of Financial Maturity in the Yangtze River Economic Belt

The subjective indicator of financial maturity is part of the systemic view of financial development. From the perspective of the subjective indicators of financial maturity (Figure 4), Shanghai is the highest, in the first gradient; Jiangsu, Zhejiang, and Hubei are in the second gradient; Anhui, Jiangxi, Hunan, and Sichuan are in the third gradient; Yunnan and Guizhou are in the fourth gradient. As a special economic zone in China, Shanghai has a large preferential policy. At the same time, Shanghai is one of the first cities in China to open to the outside world. Its impact on foreign culture is more inclusive and inclusive. According to the actual situation in China, the differences in the financial development system are not big in government and law. They are mainly influenced by history and culture. The geographical position of the 9 provinces and 2 cities in the Yangtze River Economic Belt directly determines the size of its financial subjective indicators. Figure 4 can directly reflect that: from the coastal to the inland, the financial subjective indicators showed a decreasing trend, and the gradient gradually declined.

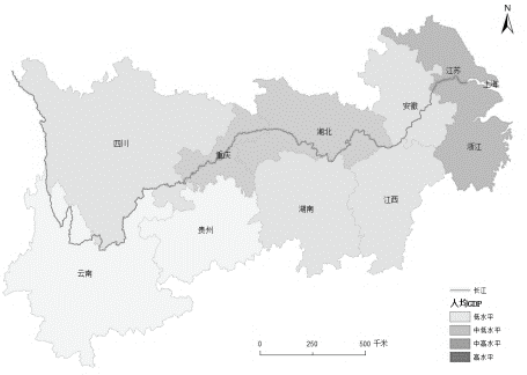

Figure 2. The Difference Chart of Per Capita GDP in the Yangtze River Economic Belt

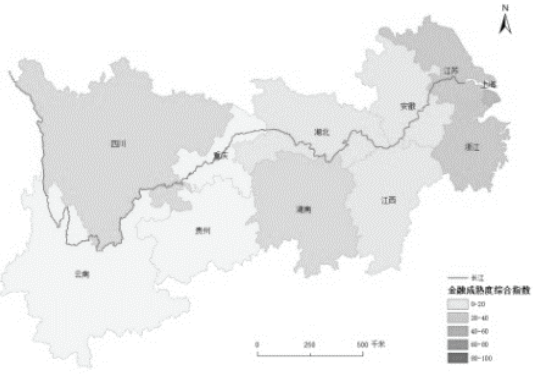

Figure 3. The Difference Chart of the Comprehensive Indicators of Financial Maturity in the Yangtze River Economic Belt

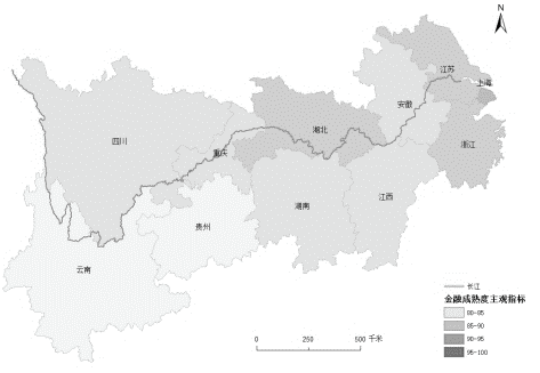

Figure 4. The Difference Chart of the Subjective Indicators of Financial Maturity in the Yangtze River Economic Belt

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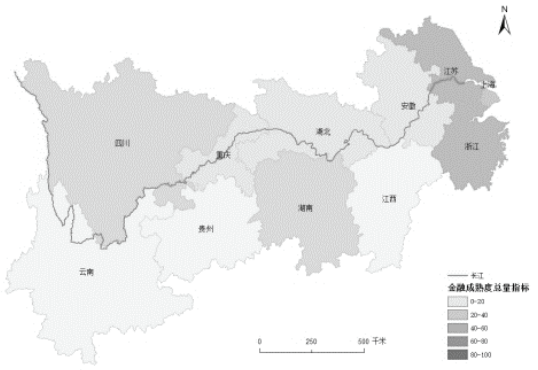

Figure 5. The Difference Chart of the Aggregate Indicators of Financial Maturity in the Yangtze River Economic Belt

5.1.3 Analysis of the Differences in Aggregate Indicators of Financial Maturity in the Yangtze River Economic Belt

As shown in Figure 5, Jiangsu and Zhejiang are the first gradients in terms of financial total; Shanghai is the second gradient; Hunan and Sichuan are the third gradients; Anhui, Hubei, and Chongqing are the fourth gradients; Jiangxi, Guizhou, and Yunnan are the fifth gradients. There are many factors affecting the total amount of financial resources, but the factors such as financial policy and financial institution layout are small, and the regional economy is the main reason for the large difference in regional financial aggregates. It can be seen that different regions in different economic development stages determine the financial resources available in the region, and financial resources are constrained by the level of regional economic development.

5.1.4 Analysis of the Differences in Structure Indicators of Financial Maturity in the Yangtze River Economic Belt

Since the financial system of the Yangtze River Economic Belt is dominated by banks, it is inevitable to study the structural differences in financial maturity of the Yangtze River Economic Belt from the traditional theory. The empirical results show that the structural differences in financial maturity of the Jiang Economic Belt are as follows (Figure 6): the first gradient is in Shanghai and Sichuan, and the second gradient is in Zhejiang, Jiangsu, Anhui, Hunan, Hubei, and Jiangxi. The third gradient is in Chongqing, Guizhou, and Yunnan. It is undeniable that, apart from the banking sector-led or market-oriented theory, the financial development differences from the traditional financial structure theory are not large, and the Yangtze River Economic Belt shows only three gradient differences. It can be seen from the figure that the financial structure in the middle and lower reaches of the Yangtze River is generally higher than that in the upper reaches.

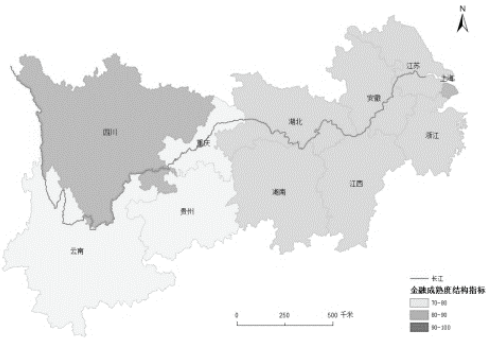

Figure 6. The Difference Chart of the Structure Indicators of Financial Maturity in the Yangtze River Economic Belt

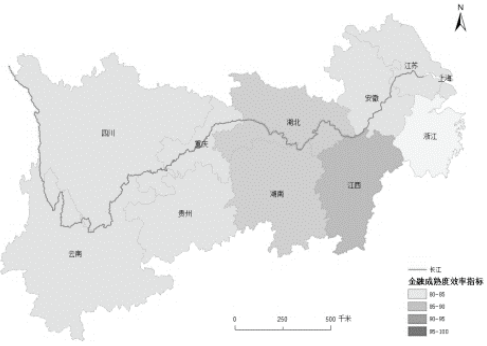

Figure 7. The Difference Chart of the Efficiency Indicators of Financial Maturity in the Yangtze River Economic Belt

5.1.5 Analysis of the Differences in Efficiency Indicators of Financial Maturity in the Yangtze River Economic Belt

The financial maturity efficiency difference of the Yangtze River Economic Belt from the perspective of financial development function (Figure 7): Jiangxi Province is in the first gradient, Hubei and Hunan are in the second gradient. Shanghai, Jiangsu, Chongqing, Sichuan, Anhui, Yunnan, and Guizhou are in the third gradient, and Zhejiang is in the fourth gradient. Studies have shown that financial development has increased savings, promoted information sharing, improved resource allocation, and promoted financial system diversification and financial risk management. However, financial development has reached a certain stage, and the income from financial development has decreased, and the cost of financial development has risen.

5.2 Policy Recommendations

This paper studies the financial development differences in the Yangtze River Economic Belt from the perspective of financial maturity. It is not to eliminate this difference.

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Instead, it can coordinate the imbalance of financial development in various regions and promote the overall financial development of the Yangtze River Economic Belt under the conditions of allowing moderate differences in financial development. . Under this goal, the following three suggestions are proposed for the financial development of the Yangtze River Economic Belt:

5.2.1 Focus on Financial System Construction and Enhance Financial Soft Image

The overall systemic construction of the Yangtze River Economic Belt is insufficient, and the perception and acceptance of finance is generally low. Therefore, it is particularly important to improve the overall financial system. The construction of the financial system needs to strengthen the construction of political, legal, economic, and cultural institutional environments, so as to make up for the deficiencies in the financial system construction of the Yangtze River Economic Belt as a whole, improve the overall level of financial practitioners, and provide a favorable external environment for financial development[8] to better play the role of financial services.

5.2.2 Coordinate the Growth of Financial "Quantity" and the Adjustment of "Structure"

The growth of financial volume is an inevitable path in the early stage of financial development. The financial development maturity of the middle and upper reaches of the Yangtze River, such as Yunnan, Guizhou, and Jiangxi, is still very low, and needs to be expanded, which will inevitably require the local government to strengthen economic construction and give full play to the local resource endowment advantage. In areas with high financial maturity, such as Shanghai, Jiangsu, Zhejiang, etc., the financial aggregate is huge, and the growth of financial volume should be moderate. It is more important to pay attention to the market ratio of banks, insurance and securities, and optimize financing methods and financing mechanisms. Financial development must coordinate the growth of financial volume and structural adjustment from its own situation.

5.2.3 Maintain Stable Financial Development and Improve Financial Efficiency

The low financial efficiency is a key issue in the financial development of the Yangtze River Economic Belt. The rapid development of regions with higher maturity has brought financial instability and risk, and financial efficiency has gradually decreased. Therefore, the Yangtze River Economic Belt needs to establish a sound financial supervision system and sound financial supervision laws to maintain financial stability, improve financial efficiency, and achieve stable financial development.

Figure Legends

(1) Figure Legends of Figure 2:

The provinces along the Yangtze River (the thick line in the middle of the figure) in the figure, from left to right, top to bottom, are respectively: Sichuan, Chongqing (municipality), Hubei, Anhui, Jiangsu, Yunnan, Guizhou, Hunan, Jiangxi, Zhejiang.

The plotting scale of the figure is 1:25000000.

The words at the right bottom of the figure are respectively: the thick line: the Yangtze River; Per Capita GDP, representative colors from shallow to deep, are respectively: low level, medium to low level, medium to high level, high level.

(2) Figure Legends of Figure 3-7

The provinces along the Yangtze River (the thick lines in the middle of the figures) in the figures, from left to right, top to bottom, are respectively: Sichuan, Chongqing (municipality), Hubei, Anhui, Jiangsu, Yunnan, Guizhou, Hunan, Jiangxi, Zhejiang.

The plotting scale of the figures is 1:25000000.

The words at the right bottom of the figures are respectively: the thick line: the Yangtze River; Indicators of Financial Maturity, representative colors from shallow to deep, are respectively: low level, medium to low level, medium to high level, high level.

References

[1] Goldsmith. Financial Structure and Financial Development[M]. Shanghai People's Publishing House, 1996.

[2] John. G. Gerry, Edward. S. Shaw. Money in Financial Theory[M]. Shanghai Sanlian Publishing House, 1994.

[3] Crosby, P.B. Quality Is Free. New York: McGraw-Hill, 1979.

[4] Xincai Gao, Yang Li. Measurement and Research on Rural Financial Maturity in China[J]. Nanjing Normal University: Social Science Edition, 2009.1. (in Chinese)

[5] Zhaozhang Ren, Yunsheng Liu. Research on Guangdong Financial Maturity Composite Indicator[J]. Financial Research,2010.3. (in Chinese)

[6] Jianjun Zhang, Chen Chen. Measurement and Comparative Study of Financial Maturity in Different Regions of Eastern, Middle and Western Regions——Based on the Development of Financial Markets in 9 Provinces and Cities in China[J]. Development Research, 2012,03: 85-88. (in Chinese)

[7] Yongjian Pu, Yamin Wei. Convergence of China's Provincial Financial Maturity——An Empirical Analysis Based on Spatial Panel Data Model[J]. Technological Economics, 2013, 32(04):104-109+129. (in Chinese)

[8] Xu Nuojin. Financial Ecology: The Challenge to Traditional Financial Ideas.China Financial Press, 2006.12. (in Chinese)

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ARTICLE

Analysis on the Efficiency of Technology Innovation of Listed Companies in China's Machinery Manufacturing Industry

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ABSTRACT

On the basis of the definition of technological innovation and efficiency, based on the DEA method, this paper takes the panel data of 20 listed companies in China's machinery manufacturing industry from 2011 to 2015 as samples, evaluating the technological innovation efficiency of listed companies in China's machinery manufacturing industry. Finally, it sums up and puts forward effective countermeasures to improve the technological innovation of listed companies in China's machinery manufacturing industry. It is hoped that it will play a guiding role in the technological innovation activities of listed companies in China's machinery manufacturing industry.

1. Introduction

In the development of the national economy, the machinery manufacturing industry is the foundation and premise, contributing to the development and progress of society, and is also an important criterion for measuring the comprehensive strength of the country. Nowadays, the globalization trend of the world economy is gradually strengthening, and China has become the center of machinery manufacturing. But at the same time, we should also clearly see that China's machinery manufacturing industry is not strong; there are problems such as the lack of core technology, high-end products relying on imports to be controlled by people, and the ability to independently innovate. Therefore, "Made in China 2025" highlights the innovation-driven development strategy and regards innovation as its core competitiveness. In the "three-step" strategy of building a strong country, innovation plays an irreplaceable role.

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As such, technological innovation has become an important outlet for the future development of China's machinery manufacturing industry. This has directly contributed to the government's strong support and investment in technological innovation. China's manufacturing R&D expenditures and personnel input have grown substantially for many years. Even so, compared with the world's advanced level, there is still a considerable gap, the technical content has not been significantly improved, and international competitiveness is still relatively low, mainly due to the inefficiency of technological innovation. Technological innovation has its inherent laws. If resources are not allocated according to the law of technological innovation, it is often difficult to achieve success by merely increasing investment. In the process of developing the manufacturing industry, China must not only pay attention to the total investment of innovative resources, but also pay attention to its efficiency. Therefore, the correct grasp of the laws of technological innovation by the machinery manufacturing industry, grasping the direction according to the law, allocating resources and promoting innovation are essential to improve the efficiency of technological innovation.

2. The Meaning of Technological Innovation and Technological Innovation Efficiency

Technological innovation is the process of combining the existing technologies, scientifically applying the technology, absorbing relevant knowledge from new technologies, and providing products and services to the market through low cost. The most obvious feature of technological innovation is the commercialization of technological innovations. The purpose of technological innovation is to occupy a dominant position in the market and thus obtain certain benefits. The efficiency of technological innovation is actually the ratio between the resources invested and the resources produced in the process of technological innovation, that is to say, using the output of technological innovation to remove input, it can show the contribution rate of technological innovation resources to output, which is actually the efficiency of arranging technological innovation resources.

3. Technical Efficiency Evaluation of China's Machinery Manufacturing Listed Companies

3.1 Sample Data Selection

This paper takes the machinery manufacturing industry companies listed in the Shanghai and Shenzhen stock markets as the research object. The selection of samples mainly follows the following principles:

(1) Excluding companies with shorter listing years. The research span of this paper is from 2011 to 2015. If it is listed after 2011, the company will be excluded.

(2) Eliminate companies with incomplete data. For the sake of statistical analysis, companies with any missing data are excluded.

(3) Excluding ST and ST* companies. Because these companies are in an abnormal financial situation, it will affect the correctness of the calculation results.

Manually sort the relevant data of 20 representative listed companies in the machinery manufacturing industry from 2011 to 2015. The data in this article are from the annual reports of listed companies and the website of the State Intellectual Property Office.

3.2 The Selection of input and output indicators

Regarding the investment in technological innovation activities, technological innovation activities require financial support, and at the same time, it is inseparable from the participation of personnel. Capital and labor input are the two most important aspects of technological innovation investment. For the input of these two aspects, the most commonly used indicators in previous studies are R&D (Research & Development) expenditures and R&D personnel (e.g. Pavitt & Wald, 1971; Sharma & Thomas, 2008; Shunzhong Liu & Jiancheng Guan, 2002; Bing Yan & Genfu Feng, 2006).[1-4] In the research of this paper, two indicators of R&D expenditure and R&D personnel are also used as indicators of technological innovation investment. The most commonly used indicators for investment in technological innovation activities are the number of patent applications and the sales revenue of new products (Liu Junjie & Yuwei Fu, 2008; Xue Na, 2007; Ying Wu & Hongjin Yang, 2006; Fang Wei & Yulin Zhao, 2008).[5-8] Among them, the sales revenue of new products mostly comes from special statistical reports issued by relevant national departments for industries or regions. But for listed companies at the micro level, the sales revenue of new products involves enterprise secrets. The sample company's annual report is generally not published separately. The micro-level data of this indicator is difficult to obtain. As a result of technological innovation, patents can directly reflect the output level of enterprise technological innovation activities. The relevant data of the enterprise patent application can be obtained conveniently in the website of the State Intellectual Property Office. Therefore, considering the scientificity and availability of data, this paper selects the number of patent applications as a measure of technological innovation output, as shown in Table 1.

3.3 Selection of evaluation methods

The Data Envelopment Analysis (DEA) method is based on Farrell's efficiency theory, a linear programming

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method developed by Cooper and Rhodes (1978)[9]. The basic principle of DEA is mainly by keeping the input or input of the decision unit (DMU) unchanged. By means of mathematical programming method, the relatively effective production frontier is determined, and each decision-making unit is projected onto the production front surface of DEA, and their relative effectiveness is evaluated by comparing the degree of decision-making unit deviating from the front surface of DEA. The basic models are mainly input-oriented scale-invariant CCR models and variable-scale BCC models. This paper uses the CCR model to measure the technological innovation efficiency of listed companies in China's machinery manufacturing industry.

3.4 Result Analysis

Based on the CCR model of DEA method, the paper uses DEAP2.1 software to measure the technological innovation efficiency of 20 mechanical manufacturing listed companies in 2011-2015. The specific results are shown in Table 1:

Table 1. Measurement results of technological innovation efficiency of listed companies in machinery manufacturing industry

Company Name	2011	2012	2013	2014	2015	Mean Value
Bearing-Sci&Tech	0.389	0.501	0.480	0.539	0.427	0.467
GRG Banking	0.145	0.384	0.486	0.328	0.206	0.310
Jiangsu Shentong	0.599	0.424	0.387	1.000	1.000	0.682
Haiyuan Machinery	0.297	0.221	0.274	0.518	0.471	0.356
Yawei Corporation	0.121	0.344	0.521	0.610	0.330	0.385
Bosun Tools	0.299	0.221	0.220	0.118	0.187	0.210
Nantong Metalforming	0.570	0.764	0.660	0.339	0.487	0.564
HZ Advance Gearbox	0.262	0.361	0.351	0.259	0.196	0.286
NanFang Bearing	0.685	0.464	0.154	0.236	0.671	0.442
Xinzhu Corporation	0.761	1.000	0.845	0.580	0.302	0.698
Weihai Guangtai	0.200	0.359	0.353	0.445	0.344	0.340
Tech-Long	1.000	1.000	1.000	1.000	1.000	1.000
Sunlight Corporation	0.475	0.392	0.510	0.263	0.166	0.361
Masterwork Group	1.000	1.000	0.774	0.408	0.386	0.714
Edan Instrument	0.505	0.475	0.486	0.486	0.362	0.463
Tofflon-Sci&Tech	0.256	0.263	1.000	0.727	0.970	0.643
Jinming Machinery	0.856	0.388	0.372	0.772	0.756	0.629
Xuzhou Handler	1.000	0.633	0.120	0.298	0.213	0.453
Tianguang Fire-fighting	0.208	0.428	0.420	1.000	0.240	0.459
Lanpec Tech	0.208	0.960	0.748	0.372	0.560	0.570
Mean Value	0.492	0.529	0.508	0.515	0.464	0.502

Table 1 shows the technological innovation efficiency of the sample of 20 listed companies in the machinery manufacturing industry from 2011 to 2015. It can be seen that the overall mean is 0.502, the overall efficiency is low, and the efficiency of technological innovation needs to be improved. Some companies have technical efficiency values of more than 0.8 or even more than 1 in some years. The technological innovation activities of these enterprises have high input-output efficiency (Tech-Long, 2011-2015; Jiangsu Shentong, 2014-2015; Masterwork Group, 2011-2012, etc.), In addition, the efficiency value of enterprises in some years is still less than 0.2, indicating that technical efficiency needs to be improved (GRG Banking, 2011; Bosun Tools, 2014-2015, etc.).

In order to more clearly describe the change of the mean value of technological innovation efficiency with time, the time trend graph of the average efficiency of technological innovation efficiency over the years is drawn as follows (Figure 1):

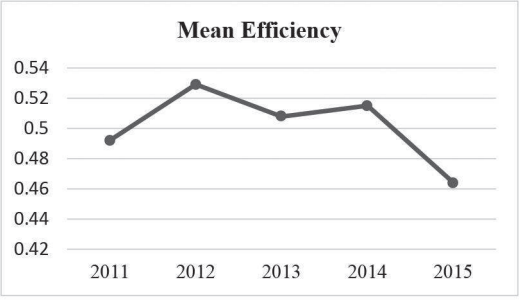

Figure 1. The time trend graph of the average efficiency of technological innovation efficiency over the years

It can be seen from Figure 1 that the average technical efficiency of the sample enterprises has generally declined during the whole period of investigation. After reaching the highest value of 0.529 from 2011 to 2012, there is a downward trend. However, there was a slight rebound in 2013-2014, but there was a significant decline in 2014 as a turning point. In the five years from 2011 to 2015, the average value of technological innovation efficiency of sample companies fluctuated around 0.5, and generally showed a state of "rise-decrease-rise-fall".

4. The Countermeasures

4.1 Realize the Mechanism Innovation and Create an Excellent Policy Environment

The government's technology investment has an extremely important impact on the efficiency and effectiveness of technological innovation of listed companies in the machinery manufacturing industry. The machinery manufacturing industry is dominated by technology research and development, and the government's technology investment has obvious market orientation for the market. Through the guidance of the government, the technical

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mechanism will be innovated to ensure that the objectives of technological innovation management are more clear, decision-making is more correct, and the efficiency of technological innovation is better promoted.

The government not only needs to guide and regulate the behavior of the company, but also to intervene in a timely manner to disrupt the market order, or to have excessive competition. At the same time, it is necessary to actively encourage enterprises to carry out technological innovation and give their policy guidance so that listed companies in the machinery manufacturing industry can develop better. Encourage listed companies to apply for foreign patents, and actively build subsidiaries to achieve international technical level.

The government also needs to set up a special technology innovation fund to enable enterprises to provide sufficient funds for technology application and product development, provide loans and guarantees, and further simplify the approval process so that funds can be put in place in time. Enterprises that want to innovate in technology also need the government to further optimize tax policies. For enterprises with increased R&D investment, tax rebates can be implemented when developing new technologies and integrating production with industry, it is necessary to realize preferential policies, and encourage enterprises to innovate technologies through subsidies, financial allocations and incentives.

4.2 Transform Pure Technology Input and Realize Optimal Allocation of Resources

At present, many people think that increasing investment in technological innovation can increase the output of technological innovation. But in fact, this kind of increase in input does not necessarily increase output, mainly because of the lack of linear correlation between input and output of technological innovation. They believe that the increase in investment may result in excessive costs, and the result will be unable to make ends meet, resulting in less innovation output. For listed companies with strong machinery manufacturing, not only technological innovation and input factors are needed, but more importantly, attention is paid to the efficiency of resource allocation. Enterprises need to allocate resources according to their actual conditions and capabilities, avoid arbitrarily increasing investment, optimize the allocation of resources and factors, so that the efficiency of technological innovation can be effectively improved, and the basic innovation resources invested can guarantee good technical results. Therefore, it is necessary to actively learn from the advanced experience and development model of listed companies in the machinery manufacturing industry and become a strong company in machinery manufacturing.

4.3 Raise Awareness of Patents and Strive to Achieve Independent Innovation

The government not only needs to improve the patent system, but also the enterprise itself needs to improve the patent management system, mainly involving the use, attribution, dispute handling and rewards of property rights. At present, there are some specialized patent attorneys, agents and institutions in China's machinery manufacturing industry. However, because the machinery manufacturing industry is relatively high in technology, it is more necessary to have patent awareness.

Therefore, it is necessary for the listed companies in the machinery manufacturing industry to improve the patent agency department, strengthen the patent awareness, and actively absorb the advanced experience, so that the innovation results of the enterprise can be guaranteed, and the awareness and enthusiasm for the independent innovation of the enterprise can be better promoted, and the efficiency of technological innovation can be avoided.

4.4 Strengthen Industry-University-Research Cooperation to Achieve High-efficiency Technological Innovation

In enterprise technology innovation, the combination of industry-university-research cooperation is a very important method. That is to say, in technological innovation, listed companies need to cooperate with universities and research institutes to achieve complementary advantages, risks and interests. To achieve mutual development and achieve cooperation, technology transfer and commissioned development between listed companies and cooperative units, industry-university-research cooperation can make the technological achievements better transformed, and the scientific research results of universities can enter the market through the enterprise, so as to realize economic benefits.

Technological innovation needs to use industry-university-research cooperation as the basis and premise, and through the enterprise, through the guidance of the government, to achieve new types of cooperation. In the process of industry- university-research cooperation, the relationship between basic science, applied science, and technical research needs to be clarified. Under the circumstance of continuous cooperation between enterprise-university-research cooperation, the cooperation effect can be better and the interests of both parties can be realized smoothly.

4.5 Do a Good Job in Personnel Training and Improve the Level of Technological Innovation

In order to be successful, enterprise technology innovation must have high-quality talents as a guarantee.

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People are the core of enterprise operations and the main decision-makers of technological innovation activities. Entrepreneurs need to have a certain level of innovation awareness and level, so as to be able to better influence the technological innovation and technological innovation efficiency of enterprises. Scientific and technical personnel are the main personnel of technological innovation activities and a very important part of the talent team. Enterprises should fully demonstrate the talents of science and technology personnel, and form a perfect talent introduction, training, evaluation and incentive mechanism, so that personnel can be more active and enthusiastic, so that the efficiency of technological innovation can be steadily improved. Among the various activities of the enterprise, technological innovation is the most basic, and at the same time, the technical innovation personnel need full participation and support. Therefore, it is necessary to do a good job in education and training of talents, strengthen the sense of innovation of talents, improve the overall level of scientific research personnel, and better contribute to technological innovation.

5. Conclusion

This paper applies the DEA method to empirically analyze the technological innovation efficiency of 20 representative listed companies in the machinery manufacturing industry from 2011 to 2015. Its value reflects the basic situation of the efficiency of China's manufacturing technology innovation in recent years, thus providing practical help for China to realize the grand blueprint of "Made in China 2025". The research in this paper finds that the overall level of technological innovation efficiency of listed companies in China's machinery manufacturing industry is low, and the efficiency values fluctuate around 0.5, indicating that the level of technological innovation needs to be improved. Therefore, it is necessary to optimize the entire enterprise technology innovation system from the perspective of system engineering, thereby improving the level of technological innovation.

References

[1] Pavitt K, Wald S. The Conditions for Success in Technological Innovation[M]. Organization for Economic Cooperation and Development, 1971.

[2] Seema Sharma, Thomas, V. J.. Inter-country R&D Efficiency Analysis: An Application of Data Envelopment Analysis[J].Scientometrics, 2008, 76(3): 483-501.

[3] Shunzhong Liu, Jiancheng Guan. Evaluation of Innovation Performance of Regional Innovation System[J]. China Management Science, 2002, 10(1): 75-78. (in Chinese)

[4] Bing Yan, Genfu Feng. Analysis of Chinese Industrial R&D Efficiency Based on Stochastic Frontier Production Function[J]. Contemporary Economic Science, 2006, 27(6): 14-18. (in Chinese)

[5] Junjie Liu, Yuwei Fu. Research on Innovation Efficiency of High-tech Enterprises Based on DEA Method[J]. Science and Technology Management Research, 2008, (3): 11-15. (in Chinese)

[6] Na Xue, Shudong Zhao.Evaluation of Innovation Efficiency of High-tech Industry Based on DEA——Taking Jiangsu Province as an Example[J].Research on Local Economic and Social Development,2007(5):135-141. (in Chinese)

[7] Ying Wu, Hongjin Yang. The Efficiency of Science and Technology Resource Allocation in High-tech Industry Based on R&D Stock[J].Science of Science and Technology Management,2006(9):32-35. (in Chinese)

[8] Fang Wei, Yulin Zhao. An Empirical Analysis of the Innovation Efficiency of China's High-tech Industry[J]. Industrial Technology & Economy, 2008, (8): 45-49. (in Chinese)

[9] A, Cooper, W.W., Rhodes, E. Measuring the Efficiency of Decision Making Units[J]. European Journal of Operational Research, 1978, 2(6): 429-444.

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ARTICLE

Analysis on the Status Quo and Countermeasures of Food Enterprise Management

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ABSTRACT

In recent years, with the progress and development of China's social economy, the living conditions of our people have been significantly improved, which has indirectly led to the development of the food processing industry and has brought tremendous contributions to the national economy. However, in the process of development of food enterprises, there are still problems such as lack of food safety awareness, imperfect management system, and inadequate government supervision, and food safety problems often occur. Based on this, in order to reduce food safety risks and promote the healthy development of the food industry, this paper proposes countermeasures such as optimizing the enterprise supervision and management system, building a sound supervision and management system, improving the level of automated production, and improving employee responsibility and belonging. Through these measures, it is possible to ensure the safe production of food enterprises, provide people with safe food, and promote the sustainable development of China's food enterprises.

1. Introduction

Food safety is a common problem faced by people all over the world. To ensure food safety is to ensure people's health. In recent years, China's food industry has developed rapidly, and it has made tremendous contributions to the development of China's national economy. Due to the uneven employment of food enterprises and the scale of enterprises, China's food safety problems frequently occur, in order to better protect the sustainable development of China's food industry and reduce the risk of food safety. China's food enterprises should effectively protect food safety processing, and must strengthen the management of enterprise food production. If it should provide certain technical support for the operation of production enterprises, and constantly improve the corresponding laws and regulations.[1]

2. Status Quo of Production Management in China's Food Enterprises

Since many food enterprises in China are pursuing short-term capital return benefits, they are more focused on production efficiency and production volume, while the focus on safety management is relatively small. In addition, as many regions in China continue to increase the number of food production enterprises, and thus increase the competition between food production enterprises to a certain extent, in order to seek for the survival and development of the company itself, most enterprises only value production profits, but they have neglected the concern for production safety to a certain extent, so that food enterprises have many problems in production management. The following is a detailed analysis and discussion of related issues.

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2.1 Enterprise Managers Lack Food Safety Awareness

Compared with developed countries, China's food enterprises start relatively late, but the production, cost and sales links of enterprises are relatively flexible. As a result, many food production enterprises are relatively less restricted in the process of food production, thereby increasing the development speed of food enterprises. Based on this, due to the rapid development, many food enterprises have certain security problems. Many enterprises have no certain norm in the process of development, which is mainly reflected in the following points:

First, the management personnel of food enterprises do not pay attention to food safety management, and the production management personnel of many food enterprises are poor in personal quality and lack certain safety production awareness;

Second, many enterprises only pay attention to short-term benefits in the process of production management. In addition, food enterprise management personnel believe that safe production cannot bring direct economic benefits to enterprises, so that food enterprises do not pay attention to the safe production of food;

Third, because many food enterprises have not carried out safe production, and there is no loss caused by not carrying out safe production, so that enterprises have a certain chance of luck, resulting in the traditional management methods have been used;

Fourth, many food production enterprises currently use traditional small-scale production management models. In the process of production, they believe that their own enterprises are the correct production methods and lack a sound production management concept.[2]

2.2 Inadequate Management System

Although in recent years China has successively issued the relevant laws and regulations such as "the Food Safety Law of the People's Republic of China", "the Measures for the Administration of Food Production Licenses", and "the National Food Safety Standards", few food enterprises implement the corresponding rules and regulations.[2] In the process of food production, it is still relatively random, and there is no strict food production management rules and regulations, especially for some small and medium-sized enterprises, the foods produced are all regional products. There are no relevant normative management methods in each directly managed area, and there is no production model that can be referenced. Many enterprises are implemented according to the ideas of their own enterprises. There is even a production enterprise model with only a few people in a family, and only one person has the final say in the process of production of food enterprises. There is no management system to refer to, and there is no unified guidance document. In the process of management, the management order is more chaotic. In some respects, there is no strict management system, which makes the food enterprises more confusing in production, which will bring serious security problems.[2]

2.3 Poor Processing Environment and Low Level of Automation

Since there are many links in the process of food processing, certain safety problems will arise in the process of production. In order to ensure the safety in the process of food processing, it can be managed from the following aspects:

First, the equipment and devices for safely managing processed foods are directly accessible to foods because they cannot be separated from mechanical equipment and processing equipment during the processing of food. Therefore, the safety of the mechanical equipment that processes the food during the processing of the food largely affects the safety of the food, for example, in 2013, when the Fonterra milk powder raw material was tested, Botox was detected. It is caused by the incomplete cleaning of the equipment;

Second, safely manage the processing environment. In the process of food processing, the processing environment is referred to the production environment in the entire production workshop, in which the drainage conditions of the production workshop, the exhaust conditions and the sanitary conditions of the entire workshop, etc. In the process of food production, a good production environment can avoid safety problems to a greater extent. Therefore, it is necessary to strengthen the safety monitoring and management of the entire processing link to avoid food safety problems.[3]

2.4 Lack of Professional Technicians

According to relevant research, many production enterprises equipped by the food industry are not professional technicians, and they have not been directly employed through detailed training. Moreover, many existing production personnel generally have a low level of education and a weak awareness of production safety, such as wearing jewelry in the process of food production, not wearing formal work clothes, and not using special production tools.[4] In addition, many enterprises are seriously lacking professional production engineers and laboratory analysts. If there is no professional laboratory technician in the process of food processing, the basic indicators in cost and raw materials cannot be detected; if there is no response data, it cannot prove whether the products produced are safe; if there is a lack of production engineers in the process of food production, the production equipment cannot be effectively managed and maintained; if there are certain problems in the process of food production, the

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only choice is to stop production, which will bring serious economic losses to food production enterprises.[4]

3. The Response Measures of Food Enterprise Management

3.1 Strengthen to Attach Importance to Safety Production

The progress and development of society has increased the demand for food, which has intensified the competition of food processing enterprises. In the face of fierce competition, food enterprises should raise awareness of safety production management. The state can formulate a benign competition mechanism for food enterprises, guide food production enterprises to strengthen their emphasis on production management, publicize and establish quality culture, and open a quality supervision hotline. If a company finds that there is a safety problem in the production process, it can report it immediately. It can also encourage consumers to participate in food quality supervision and form a concept of human text, which can make the quality of food determine the success or failure of enterprise development [5]

3.2 Popularize Food Safety Knowledge

Enterprises should strengthen the popularization of food safety knowledge among employees within the company, regularly carry out food safety knowledge popularization courses, strengthen management between production departments, and do safe production at every stage to ensure safe production at every stage.[7] In addition, the people's awareness of food safety should be improved. The multimedia network can be used for supervision and publicity to raise awareness of food safety among the people, and to identify unsafe food. In addition, it should also deal with the laws and regulations on the promotion and promotion of food safety for food company employees, so that unqualified products will not appear in the market. For example, enterprises can hire relevant experts to train their managers and staff on food management and safety production knowledge. What's more, the governments of various regions may introduce some corresponding policies. They should mobilize the awareness of anti-counterfeiting among the people in various regions. The government can also allocate funds to reward the people who report unsafe foods. Only in this way can the food production enterprises improve their own requirements, eliminate all unsafe food production phenomena and ensure the safety and health of people. Food enterprises should establish a people-oriented concept in the process of food processing. First of all, we must provide a safe and comfortable living environment for the relevant staff, so that employees have a certain sense of belonging and responsibility in the process of work, so that employees can do what they do as their own business. Food production enterprises can provide safe production supervision and management personnel with reasonable application personnel advantages, which can effectively guarantee the safety, efficiency and automation of food production. Enterprises can open more safety production management activities and continuously improve the management awareness of safety production.[8]

3.3 Build a Sound Food Inspection System

According to the food safety standards set by the state, build a food quality inspection management system jointly established by the government and enterprises. The government can fund the construction of food safety committees or institutions. Each food enterprise can play a certain intervention role through the supervision and management organization, and ensure the safety and quality of food enterprises in the production process from a technical perspective. The food inspection of food processing enterprises may be carried out by a third-party enterprise with inspection qualifications, and the inspection shall be strictly carried out, and the data detected in the process of execution shall be scientific, objective, impartial and accurate. In order to ensure the safety of food produced by food enterprises, a sound food supervision and management system can be established through the interaction between the Food Safety Supervision Clerk, third-party analysis agencies and food safety production departments to encourage enterprises to ensure the safety of food produced by food enterprises through relevant supervision and management.[9] The established third-party supervision and management institution shall strengthen the inspection of the management and production of the current food enterprises. The food enterprises shall be sampled regularly or irregularly, and the market may enter the market strictly according to the access standards of food products. According to the processing conditions of each food enterprise, formulate food safety production and operation management mechanisms, and develop a supervision and management mechanism suitable for each enterprise's own conditions. For example, the responsibility system and inspection system of the supervisory personnel of the supervisory organization, the emergency response system for emergencies, and the food safety early warning system of the supervisory agency are established.[10] Within each supervision and management organization, a food production safety exchange platform for different food enterprises can be constructed, which facilitates communication between the company and the supervisory authority, thereby strengthen the management of food enterprises, and also enable food enterprises to systematically collect food safety information about each enterprise through the system, improve the major problem handling system and food safety notification system of food enterprises, etc. The governments of various regions

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can continuously improve the legal supervision system, so that the supervision and laws and regulations can be truly implemented in various food enterprises, so that the food is guaranteed.[11]

3.4 Improve the Level of Automated Production of Food Processing

With the advancement and development of science and technology, various food companies have rationally integrated technology into the process of production and processing. In the process of food production and processing, not only can the production efficiency of food processing be improved, but also the quality of production can be improved. It can be implemented by the following methods:

First, food companies can increase investment in food production equipment, introduce advanced machinery and equipment into enterprises, use mechanical equipment instead of manual operation, and use automation technology to strengthen supervision of the entire processing process. In turn, the quality and safety of food processing can be ensured to a certain extent, so that food enterprises can be safely produced;

Second, optimize the production management order of the production workshop, ensure the clean environment of the production space, and thus reduce the investment in personnel and reduce personnel expenses.[11]

3.5 Strengthen Innovation and Produce Quality Products

In recent years, China's food enterprises have developed rapidly. For example, the dairy industry is more problematic, and the food safety problems in the dairy industry have brought great adverse effects to the industry. Milk is imported from the West, many raw materials are imported, and domestic enterprises consume a lot of manpower and material resources in the production process. However, everyone does not believe that the nutritional value of soy milk is not lower than milk. In the process of supplying raw materials, China itself can do it completely. Based on this, China can appropriately change ideas and use it in innovation in the process of related food processing, which can create more convenient ways for food enterprises.[11]

4. Conclusion

Food processing enterprises are an indispensable part of social development. However, many small and medium-sized enterprises have made the development level of China's overall food processing enterprises relatively backward due to limited funds, low thresholds, backward production equipment and lack of professional and technical personnel. And many food companies have difficulty building a sound food safety guarantee system through their own ideas. Therefore, in order to better realize the safety management of China's food enterprises; we can effectively use the power of the government to achieve a sound safety management system between the enterprise and the government. For example, the construction of safety management system, management system testing system, enterprises can hire experts to train relevant managers and production personnel to enhance food safety awareness, and then effectively protect the food production safety of food enterprises.

References

[1] Xichen Wang, Jinfeng Liu, Ling Zhou, et al. Survey on current situation of food safety emergency management in 905 fast food enterprises in Dalian[J].Modern Preventive Medicine, 2017,44(9). (in Chinese)

[2] Jin Shen, Hongyang Duan, Jiaqi Wang, et al. Investigation on the status of cleaning and disinfection of food enterprises in China[J]. Chinese Journal of Disinfection, 2016, 33(10): 1009-1011. (in Chinese)

[3] Yin Wei. Application of Computer Information Technology in Food Safety Management of Food Enterprises under Big Data[J]. Food And Machinery, 2016(2):226-228. (in Chinese)

[4] Jing He, Jie Liu, Xinlei Zhang. Identification and Assessment of Safety and Credit Risk in Food Supply Chain[J]. China Dairy Industry, 2016,44(7):36-40. (in Chinese)

[5] Jianfang Liu, Fang Liu, Lang Wang, et al. How to deal with the strict inspection of the US Food and Drug Administration in China's food enterprises in the United States[J]. Journal of Food Safety and Quality, 2017,8(7):2815-2818. (in Chinese)

[6] Rongqin Li. Health Food Supervision Problems under the New Food Safety Law and Its Countermeasures[J]. Food and Machinery, 2016,32(11):229-231. (in Chinese)

[7] Miao Liu. Investigation and Analysis of Cost Accounting and Control of Small Food Enterprises[J]. Journal of Food Safety and Quality, 2018(5). (in Chinese)

[8] Hongyun Feng, Guizhi Wu, Yan Fan, et al. Analysis of drug risk monitoring and control status of drug manufacturers in China after listing[J]. Chinese Journal of Medical Alert, 2018,15(1):16-19. (in Chinese)

[9] Linlin He, Fei Lan, Zili Feng. Analysis on the Status Quo of the Development of Registered Vitamin D Health Food in China[J]. Food Research and Development, 2018(5): 203-208. (in Chinese)

[10] Jing Zhou, Xiang Ye, Xuehua Jiang.Status of production of aseptic and implantable medical devices in medical device manufacturing enterprises in Sichuan Province: Investigation and analysis of 31 companies[J]. Journal of Chinese Tissue Engineering, 2017,21(6):928-933. (in Chinese)

[11] Yang Yuan, Chuang Zeng, Jinxi Lin, et al. Application of Project Teaching Method in Teaching Reform of Food Enterprise Management Course[J]. Education and Teaching Forum, 2018(18):121-123. (in Chinese)

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ARTICLE

How to Promote Financial Management Level of Public Hospital under the New Medical Reform

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ABSTRACT

Following the continuous development of our country's economy, the new medical reform of our country is also gradually speeding up. And potential problems existing in public hospital's financial department are being gradually magnified that has brought new challenge to financial management. The financial staff are studying the problems and trying to solve the problems through their working experiences from long-term practices and on a certain basis. Therefore, in this article, we try to find out the existing problems and to explore efficient solutions to the problems under the background of new medical reform and in the light of the importance of financial management to public hospital's development. The main purpose of this study is to try to solve the existing problems in financial management of public hospital so as to promote perfecting the systems of public medical institutions to get a better development.

1. Introduction

At the present stage, under the background of the new medical reform, public hospital has achieved certain development but managers of such hospital still has some shortcomings in handling financial affairs, and for public hospital its financial management has a certain importance to its development, which not only can control its operating cost but also can manage its financial capital rationally to promote its management efficiency and management level. However, such hospital has many departments and personals that bring challenge to hospital management. So the study in this article has a certain important significance to the financial management of our country's public hospital.

2. The Significances of Financial Management for Development of Public Hospital under the Background of New Medical Reform

2.1 Financial Management Contributes to Hospital Cost Control

In the course of public hospital running, financial management also plays a very important role, and in financial management, controlling hospital cost is the most important. Hospital cost is restrained by its personnel cost, material cost, fixed asset cost and other costs which can impact the smooth running of financial management in some way.[1] So under the condition of the new medical reform, the fund that public hospital has must be able to ensure that public hospital can run normally, and by using scientific and rea-

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sonable methods to optimize public hospital's controllable resources, to rationally plan public hospital's expenditure, to control various medical consumptions within a reasonable range, to control public resources of each department as well as to control the staff's medical service cost and R&D cost, etc., cost expenditure and unreasonable fund expenditure of public hospital can correspondingly be reduced in a certain degree. Thus, under the effect of reducing public hospital's cost, the economic level of public hospital is promoted and its medical status in the medical industry is guaranteed.

2.2 Financial Management Helps to Improve Management Efficiency of Public Hospital

Under the background of new medical reform, if public hospital wants to achieve stable operation at the present stage when the industrial competition is stiff, it must establish a financial management system that can accord with the development of present medical industry. In hospital management, it is a guarantee to have a complete financial management system for hospital running normally. Using scientific and reasonable management methods can maximize the application of the controllable and uncontrollable resources of public hospital so as to increase effective utilization of resources of public hospital, and can promote financial management system of public hospital to achieve a maximally optimal extent, so that hospital can run normally in a reasonable range. Make a clear financial management system of public hospital, so that the hospital also can on certain economic basis obtain a maximal economic benefit under the condition that investment amount reduce, which has certain significance for promoting the financial management level of public hospital.[2]

2.3 Financial Management Contributes to Hospital's Sustainable Development

For a public hospital, except for own fund, financial aid also plays a certain role in the hospital's operation. According to hospital's daily operation, normally financial aid goes to the part of policy-related loss of hospital and is designedly used by hospital. A good operation of fund is very important to development of public hospital. To achieve a better development in the medical market with stiff competition, public hospital has to have certain economic strength and must enhance its financial management level under the condition of enough fund.[3] Therefore, public hospital has to set up scientific and normative financial regulations that should accord with its own economic conditions and must perfect its old regulations so as to enhance professional skill of managers and finance department's staff, besides, financial management department should study the development of medical market and ensure that it can use and administrate fund more reasonably and help its hospital further develop under the condition that hospital's fund is limited by means of paying the best money to get a maximal economic profit in purchasing medical supplies and ensuring that the purchased medical supplies can meet the requirements of national standard, etc., so as to promote the public hospital to develop sustainably.[4] Therefore, in order to get a rapid development in the future operation, public hospital has to ensure that its medical service level can reach standard and that financial management level and financial staff's work efficiency can get raised so as to provide a certain guarantee for fund running.

3. Existing Problems in Financial Management of Public Hospital under the Background of New Medical Reform

3.1 Public Hospital's Financial Staff without Strong Professional Skill and Clear Fund Management Consciousness

As financial work is quite professional, so financial administrative staff of public hospital must have not only basic accounting skill but also certain financial management ability, therefore, when hiring employees to do financial management work, it is necessary to heighten hiring requirement and to conduct other relevant comprehensive examinations. Now, at work, most of financial management personnel of public hospital lack professional knowledge of financial management of hospital with low professional level, and hospital lack management expertise that cause a low financial management level in public hospital. Besides, the heavy workload of public hospital make its managers ignore the working conditions and professional training of workers,[5] as a result, financial management staff of public hospital cannot fully exert their own professional knowledge and meet the requirements of the present medical industry in the complicated and multiple work environment.

3.2 Lacking of Internal Management Regulations of Finance

With the reform of medical system of our country, our medical insurance mechanism is also improving incessantly and the insurance mechanism has also come deeply into public hospital. Now the competition in the medical market is quite stiff, which makes a certain financial cost risk in the market.[6] Therefore, public hospital should pay more attention to financial cost under the background of new medical reform. Our country's public hospital has certain risks in the financial cost management, and financial administrative department lacks necessary guard consciousness and ignores the importance of financial specialized management which makes under-capitalized

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condition appear when financial department using fund and counting cost of funds. Besides, once financial management department lacks of an internal management system, it is easy to make the staff reduce guard consciousness to financial risk and the public hospital produce underfunded condition in the aspect of using funds, which can give rise to an adverse effect on the future developent and management of public hospital.

3.3 Imperfection of Financial Budgeting

In public hospital's operation, as a huge fund is needed so it is very important for financial staff to conduct an effective management of the fund under the precondition of satisfying the country's relevant provisions. But, at present, the compiling system of our country's financial budgeting is not perfect enough which has at the present stage become a prominent problem existing in financial department, and a scientific and rational budgeting can play an important role in financial staff's work. The low usage efficiency of public hospital's budget fund, big deviation of fund amount and non-standard budget seriously impact the use of public hospital's fund. According to relevant survey, most of our country's public hospitals haven't set up a reward and punishment system for the loss of financial management which has caused risk of financial cost budgeting existing in financial management of public hospital, and that can easily make fund waste.

4. Explore Efficient Ways to Solve the Existing Problems in Public Hospital's Financial Management under the Background of New Medical Reform

4.1 Raise Professional Level of Public Hospital's Staff

Under the institutions of new medical reform, public hospital's financial department should in actual work analyze and research the relevant data of reforms and innovations under the present financial institutions and consider an effect the institutions have on financial cost of hospital so as to prompt hospital's managers to pay more attention to the work of cost control and to request the hospital's financial staff in the range of management of financial department to apply the modern accounting system to prompt the hospital's financial institutions to change with their relevant technical supports.[7] Generally in the process of management of financial department, as some mangers of public hospital do not pay much attention to the management plus that financial workers lack of professional skills so hospital's fund cannot be used rationally and managed appropriately which causes some losses of hospital's fund. Therefore, managers of public hospital should pay more attention to accounting activity forming an environment of taking accounting activity seriously and conduct more relevant training and regular evaluations to the financial staff so as to train high-class accounting personnel and build up a talent team of accounting profession so that they can in actual work improve work efficiency and take full advantage of hospital's fund flow into the important medical and health services to bring about better and higher economic benefit for public hospital.

4.2 Perfect Institutions of Internal Financial Management of Hospital

To achieve an effective control on various costs of hospital under the background of new medical reform, hospital's managers should first conduct a rational and effective management of hospital's financial department meanwhile should implement supervision to management system of the department so as to ensure that the financial department can in hospital's daily operation control various costs of hospital effectively, during which, hospital managers should according to hospital's actual conditions determine concrete working aim of financial management and make up definite working methods about cost control so as to perfect hospital's internal financial control system and prompt that financial management work can achieve development of a modern hospital and can ensure to provide solid and effective measures for cost control. Therefore, in the process of establishing a perfect hospital's internal financial control system, public hospital can intensify formulating rules and regulations of hospital's financial work by studying the relevant laws and regulations of our country's accounting system to prompt financial management work more detailing and to promote financial staff's risk awareness in term of duty so as to be able to control hospital's cost more rationally at work providing effective guarantee for hospital's development and cost control.[8] Secondly, hospital's financial managers should intensify calculation work and enhance custody of relevant accounting information of each department, during which, financial manager can do a good work on collecting financial information and bookkeeping of each department to enhance accounting accuracy of financial staff and ensure authenticity of financial information so as to promote hospital to get effective intensification and promotion in term of cost control. Finally, hospital should set up corresponding cost control mechanism based on self-practical condition and apply it into each work to supervise and manage practical usage of hospital's financial fund and check hospital's cost so as to prompt cost control work to be done more comprehensively and systematically to promote hospital to be able to develop long.

4.3 Build up a Sound Financial Budget System

Before setting up financial budget control system, public

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hospital's managers must have a clear understanding of the importance of financial management. Financial budget not only can reduce risk for public hospital but also increase its medical technical level in certain degree[9]. Besides, financial staff need in the process of financial management to further enhance their work ability of budgeting to ensure that public hospital can rationally dominate funds within budgeting range when purchasing medical supplies and should according to self-financial condition timely report to hospital's managers to let them know financial situation comprehensively and be able to give accurate data support in the future allocation of funds. At the end of a year, it is necessary to analyze progress rate of budget schedule so as to provide fund guarantee for hospital work of next year. In medical services, public hospital must establish financial budget system according to national relevant standards so that when purchasing goods and materials it can reduce operating cost and boost economic benefit of public hospital.

4.4 Formulate Scientific and Rational Cost Control Countermeasures

To control cost effectively, public hospital shall analyze scientific data and then concretely plan a cost control measure. Generally, to make cost control have reasonability, public hospital must control its relevant departments in medical financial work; meanwhile, all departments shall analyze concrete costs and rationally adjust and control them according to actual demands to ensure that relevant departments in the process of involvement achieve reasonable control of cost so that public hospital can lay a certain foundation for its sustaining and healthy development in the medical market. Under the policy of new medical reform, hospital's cost control strategy has become diversifying that provides more helps for the hospital's financial administrative staff at work,[10] for example, the value engineering. It is a quite common method used in hospital to control cost, and the so called "value engineering" means to organize hospital's managers to investigate medical service cost, medical consumptions, and apparatus and consumables' service conditions within a certain time and to put forward multiple cost control countermeasures and at last to formulate a scientific and rational cost control system in the best cost control countermeasures so as to promote the real value of public hospital's work and to reduce cost as far as possible to promote hospital's rapid development.

5. Conclusion

With stiffer competition in the medical market, under the background of new medical reform and for consolidating own status in the market, public hospital must enhance work efficiency of financial management, perfect the system of financial management departments and financial control system as well as relevant departments according to the national standards. In this article, we stress the importance of financial management for public hospital under the background of new medical reform, analyze the present shortcomings existing in public hospital's financial department including low professional level and bad risk awareness of financial department's staff as well as imperfect financial calculating formulation, and explore effective solutions to the existing problems under the background of new medical reform to raise professional level of financial staff, perfect financial internal control system and build up a sound financial budget system.

References

[1] Hongyan Jing. How to Raise Financial Management Level of Public Hospital under the New Medical Reform[J]. China Collective Economy, 201603(3):145-146. (in Chinese)

[2] Huashen Liu. How to Raise Financial Management Level of Public Hospital under the New Medical Reform[J]. Modern Economic Information, 201803(3):158-158. (in Chinese)

[3] Deqin Fu. Analysis of the Problems and Solutions of Financial Management of Public Hospital under the New Medical Reform[J].Times Finance, 2015(3). (in Chinese)

[4] Limin Zheng. Analysis of Financial Management of Public Hospital under the Background of New Medical Reform[J]. China Chief Financial Officer, 2015,12(12):94-95. (in Chinese)

[5] Yuqiang Dong. On the Financial Management Reform of Public Hospital at County Level under the Background of New Medical Reform[J]. Money China (Academic Edition), 2015,03(3):171-171. (in Chinese)

[6] Yifei Cheng. Exploration of Financial Management Objective and Realization Way of Public Hospital under the New Medical Reform[J]. New Silk Road Horizon, 2016,22(22):30-31. (in Chinese)

[7] Dongyu Li. Problems and Solutions of Financial Management of Public Hospital under the New Medical Reform[J]. Economic Management Journal: Digest edition, 2016(4):58-58. (in Chinese)

[8] Hengbiao Pan, Lianghong Xu, Yanjun Ge. Probe of Financial Management Work of Public Hospital at County level under the New Medical Reform[J]. Modern Economic Information, 2017,10(10):156-157. (in Chinese)

[9] Guiliang Wang. Reform of Financial Management of Public Hospital under the Background of New Medical Reform[J]. Money China(Academic Edition), 2017,22(22):56-57. (in Chinese)

[10] Yuhua Zheng. Analysis of Financial Management of Public Hospital under the Double Backgrounds of "NCMS" and "NMR"[J]. Business Conditions, 2017,25(25):16-17. (in Chinese)

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ARTICLE

Research on Influences of Employment in Manufacturing Industry on that in the Service Industry Based on Bayes Model

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ABSTRACT

Using the data of 285 prefectural and the above-level cities from 2004 to 2016, this thesis reveals the impact of employment in China's urban manufacturing industry on the employment of service industries with the Bayesian model. Under the Bayesian framework, partial linear semi-parametric model is proposed. The nonlinear functions are fitted by using truncation base cardinal spline and considering the random error terms of mixed normal fitting models. The results show that: employment in the urban manufacturing industry in China has significant influence on the employment in the service industry. When the number of employees in the manufacturing industry changes from 0 to 650,000, the manufacturing industry has less influence. When the number of the employees in the manufacturing industry changes from 650,000 to 900,000, the employees of the service industry will dramatically increase. When the number of the employees in the manufacturing industry is more than 900,000, the employees in the service industry will be prone to stable growth.

1. Introduction

From 21th century, a large proportion of new employment posts of most developed countries in the world originated from the service industry. At the same time, China pays much attention to growth of large-scale employment posts in the manufacturing industry and further optimizes the employment structure, so different employees transfer from the low-efficiency production departments to the moderate and highly efficient production department. Research on new employment posts in China is very meaningful in theory and practice to improve urbanization speed and level in China, optimize the economy structure and industry structure and improve the employment rate.

Domestic scholars have conducted plentiful theoretical research and discussion on the employment effect in the manufacturing industry and service industry. Yifei Li, Jing Li and Ming Xu (2017) established a measurement model and the results of the model show a causal relationship between employment in the manufacturing industry and

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the service industry. Every 1% increase of employment in the urban manufacturing industry will lead to employment growth of 0.47% in the manufacturing industry. On the contrary, every 1% increase of employment in the service industry will boost 1.5% of employment growth in the manufacturing industry.[6] Desheng Lai and Man Gao (2017) studied multiplier utility of employment in the manufacturing industry and service industry by using the tool variant method. The results show that the multiplier utility varies in the eastern, central and western China. The employment multiplier utility of the labor market with different scales is very different. The larger the labor market is, the higher the multiplier utility of the manufacturing industry on the service industry would be.[7] Yu Li (2016) conducted empirical analysis by using the measurement model and tool variant. The results show that the employment effect of the high-end manufacturing industry is higher than that of the middle and low-end manufacturing industry, and the bigger a city is, the more obvious the employment multiplier effect of the manufacturing industry will become.[8]

Based on the above analysis, although there are analysis and research in existing references, Bayes model has yet to be used to study influences of the manufacturing industry on the service industry in China. In a word, a partially linear model is established under the Bayes frame to make the results approximate to true distribution due to weaknesses in the existing references. The mixed normal fitting errors are used to study the influence of urban employment in China on employment in the local service industry and differences of employment effect in city scales and regional differences of employment effect in the manufacturing industry are further investigated in this paper.

2. Model Construction

This paper recommends the semi-parametric partially linear model as follows:

$$y_i=x_i^T\alpha+f(t_i)+\epsilon_i \quad (1)$$

$\alpha=(\alpha_1...\alpha_p)^T$ is the linear unknown parameter vector, $x_i=(x_{i1}...x_{ip})^T$ is the covariant vector of i_{th} individual and y_i is the dependent variable. The unknown parameters $f(t)$ exists and it is not practicable to estimate the unknown parameter by using Bayes, so the following splines under the Bayes frame is used to approximate to the unknown smooth function $f(t_i)$,

$$f(t_i)=\beta_0+\beta_1 t_i+...+\beta_s t_i^s+\sum_{l=1}^{I}\beta_{s+l}(t_i-K_l)_+^s=Z^T(t_i)\beta \quad (2)$$

The s is multinomial order (freedom of the spline), I is the node number defined for approximate smooth function, the node I is equivalent to $I+1$ regression intervals defined for the smooth function. For easy description, given that the regression coefficient vector $\beta=(\beta_0, \beta_1..., \beta_s, \beta_{(s+1)}, \beta_{(s+I)}{}^T$ and the spline's basic vector $Z(t_i)=(1, t_i, \ldots, t_i^s, (t_i-K_l)_+^s,...,(t_i-K_I)_+^s)^T$, here the truncation power base function $a_+^s=\{\max(a,0)\}^s$, K_l is l_{th} node. Generally the node number d is between 20-40 < so it can ensure enough flexibility.

It's generally supposed in the typical partial linear model that the measurement error vector ϵ_i of the response variants is subjective to parameter distribution such as normal distribution. When the actual distribution is different from the given normal distribution, it may lead to incorrect conclusions. Therefore, to enhance the model flexibility, capture more data information and ensure model robustness, the error ϵ_i of the response variants are subjective to the mixed normal distribution in the model (2).

$$\epsilon_i\sim\sum_{g=1}^{G}\pi_g N(\mu_g, \sigma_g^2), \quad (3)$$

Here π_g is a random weight and indicates the probability of getting g^{th} *normal* distribution. Its value ranges from 0 to 1 and satisfies $\sum_{g=1}^{G}\pi_g=1$. G is the set positive integer and indicates the number of optional normal distributions for ϵ_i distribution approximation. Generally satisfactory results can be obtained when G is between 20 50.[6] However, it is difficult to conduct Bayes deduction from the mixed normal distribution above. Generally the latent variant L_i is used to record ϵ_i distribution. ϵ_i is subjective to normal distribution under the given L_i condition.

$$\epsilon_i|\mu, \sigma, L_i\sim N(\mu_{Li}, \sigma_{Li}^2), \quad (4)$$

σ_{Li}^2 is L_i^{th} vector in the variance set σ^2 and $\sigma^2=\{\sigma_g^2: g=1,..,G\}$. Given that the prior distribution is $(\sigma_g^2)^{-1}\sim$Gamma(c_1,c_2).

Similarly, μ_{Li} is the L_i mean vector in the mean vector set $\mu=\{\mu_g: g=1,...G\}$. Suppose the prior distribution is $\mu_g\sim(\mu_\mu, \sigma_g^2)$, generally μ_μ gives a normal prior distribution and L_i can be generated from the following multi-point distribution:

$$L_i|\pi\sim\text{Multinomial}(\pi_1, \ldots, \pi_g), \quad (5)$$

Here $k_g\sim Beta(1,\tau)$, $g=1, \ldots G$ and $k_G=1$ is regulated to make $\sum_{g=1}^{G}\pi_g=1$.

For the convenience of calculation, the equation (2) is substituted into the equation (1) to get the fully linear equation (1):

$$y_i=w^T\gamma+\epsilon_i, \quad (7)$$

$w_i=(x_i^T, z_i^T)^T$ and $\gamma=(\alpha^T, \beta^T)^T$. Given that $\theta=\{\gamma, \theta_\epsilon\}$,$\theta_\epsilon$ indicates unknown parameters on error ϵ_i and $y=\{y_i|i=1, \ldots, n\}$. The prior distribution of the unknown parameters in the model (7) are set as follows: $\pi(\alpha)\sim N_p(\alpha_0, \sigma_\alpha^2 I_p)$ and $\pi(\beta)\sim N_{s+I+1}(\beta_0, \sigma_\beta^2 I_p)$. After two equations are combined, $\pi(\gamma)\sim N_{p+s+1+1}(\gamma_0, \Sigma_r)$. $\gamma_0=(\alpha_0^T, \beta_0^T)^T$, $\Sigma_r=\begin{bmatrix}\sigma_\alpha^2 1_p & 0\\ 0 & \sigma_\beta^2 1_p\end{bmatrix}$ and σ_α^2 and σ_β^2 are the super parameters. Bigger the value is, smaller the prior distribution is. On the contrary, if the value is smaller, it indicates more information on unknown parameters. The α_0 and β_0 values are estimated by using other methods. If no other methods are available, generally it takes 0.

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3. Empirical Analysis

3.1 Introduction to Data Estimation Method

Based on the theory above, a model can be used to analyze the relation between the manufacturing industry and service industry via the relation equation (1).

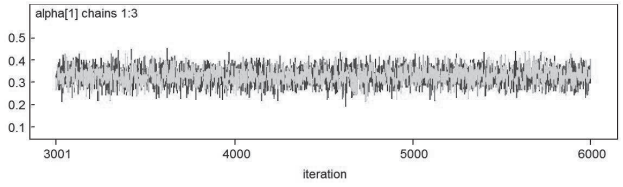
Given that the prior distribution of the super parameter α is a normal distribution. First we conduct linear regression by using the least square method to get the parameter and use it as the initial value of the super parameter α in the Markov chain.[4,5]We set the initial value α=(0.037,0.336,0.283). The prior distribution of all parameters from α_1 to α_3 is set as $N(0,1)$.y_i is the number of the practitioners in the service industry of different cities. [2,3] The spline t_i is set as the number of practitioners in the manufacturing industry of cities, $f(t_i)$ is the spline, namely non-linear part. The equation (2) is used to linearize $f(t_i)$. The number of nodes in this equation is selected as 20 and the corresponding unknown parameters are from β_1 to β_{23}. The prior distribution is given as follows.The prior distribution of β_k is $N(0,10)$, k=1,2,3,4. The prior distribution of β_{k+q} is $N\beta(_{k+q-1},\tau)$ and q=1,...,19, τ~Gamma(0.1,0.1); ϵ_i error is fitted by the mixed normal distribution. For the linear part $x_i^T\alpha$, x_i^T is the 3D data. We set x_1 as the area of the urban construction land, x_2 is set as the gross output of the city. To avoid disturbance in different years, we set x_3 as the year. 1 is recorded for 2004, 2 is recorded for 2005 and 3 is recorded for 2006. Others are deduced similarly. x_4 is added to represent regional difference and urban scale difference and further analyze influences of these differences.

3.2 Data Source and Processing

The data from different provinces and cities, municipalities and autonomous regions are selected are selected as the sample points based on data in 2004-2016 Statistics Yearbook for cities in China. The data are processed as follows for all areas. To maintain data confidence level and uniformity of data, the data are pre-processed. Cities without complete years and sample points without significant differences are removed. To eliminate influences due to the unit, the data is standardized.

3.3 Empirical Results and Related Analysis

The above data are iterated by calling the WINBUGS software in the R package for 6000 iterations. [1]



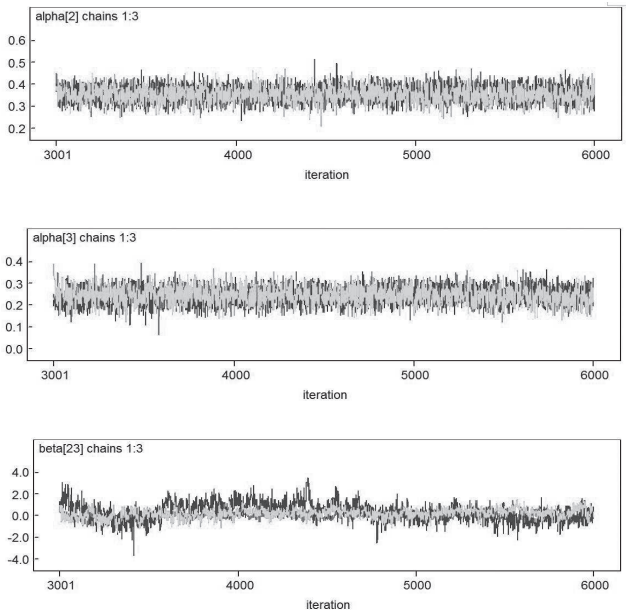


Figure 1. Iteration effect

The Figure 1 shows that three Markov chains are nearly overlapped, so the Markov chain converges roughly and reaches the stable status. This model features better fitting effect.

The results in the Table 1 show that the standard deviation SD and MC error (standard deviation of posterior sample means) are very small and can be ignored nearly, so the results are relatively reliable.

Table 1. Posterior results of parameters

Parameter	Mean	Standard deviation	MC error
α_1	0.036	0.005	0.000
α_2	0.335	0.068	0.005
α_3	0.283	0.010	0.000
β_1	8.734	12.140	0.878
β_2	-0.090	0.124	0.010
β_3	0.420	0.274	0.021
β_4	0.347	0.633	0.050
β_5	0.090	0.236	0.018
β_6	-0.177	0.500	0.039
β_7	-0.072	0.190	0.015
β_8	-0.038	0.248	0.019
β_9	-0.162	0.369	0.029
β_{10}	-0.011	0.434	0.034
β_{11}	-0.035	0.275	0.021
β_{12}	-0.048	0.284	0.022
β_{13}	-0.021	0.333	0.026
β_{14}	0.271	0.702	0.055
β_{15}	0.089	0.390	0.030
β_{16}	0.107	0.130	0.010

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β_{17}	-0.210	0.449	0.035
β_{18}	-0.162	0.657	0.051
β_{19}	-0.391	1.171	0.092
β_{20}	0.058	0.654	0.051
β_{21}	0.187	0.397	0.030
β_{22}	0.210	0.313	0.021
β_{23}	0.204	0.430	0.028

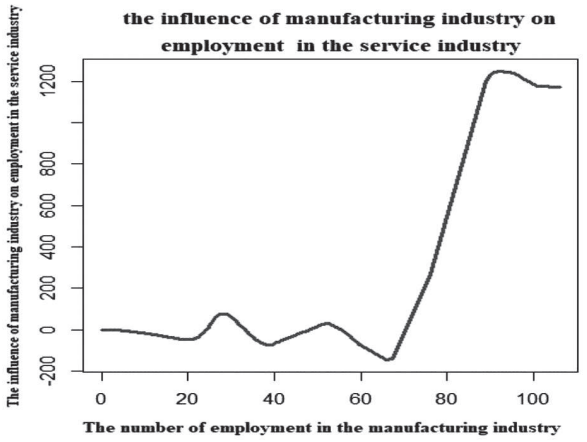

Figure 2. Fitting diagram of the influence of manufacturing industry on employment in the service industry

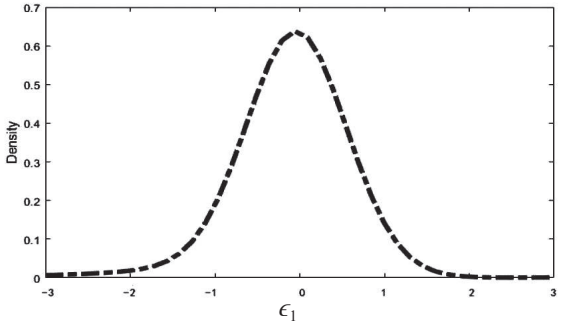

Figure 3. Kernel density distribution

We draw the splines, as shown in the figure 2. Based on the curve, when the number of employees in the manufacturing industry changes from 0 to 650,000, the manufacturing industry has less influence on the number of employment in the service industry and employees of the service industry may increase or decrease. When the number of the employees in the manufacturing industry changes from 650,000 to 900,000, the employees of the service industry will dramatically increase. At this time, the manufacturing has significant impact on the employees of the service industry and the effect is optimal. It indicates that developed manufacturing industry in the cities can drive employees of the service industry. When the number of the employees in the manufacturing industry is more than 900,000, the employees in the service industry will grow stably because the employment space of the urban service industry is limited and will not increase without a limit with changes of the manufacturing industry. Therefore, when the employees are in a small number in the manufacturing industry, it will have less impact on the employees in the service industry and can also show undeveloped service industry of small cities to some extent. When the employees of the manufacturing industry reach certain scale, the employees in the service industry will increase massively. When the manufacturing industry reaches certain scale, it will have significant influence on the service industry and increase the employees in the service industry. When the number of employees in the manufacturing industry exceeds a limit, it is prone to stable growth, which complies with the decreasing law of the marginal effect in the economy, that is, with the growth of the employees in the manufacturing industry, the effect of employment in the manufacturing industry on that in the service industry will decrease. In addition, the influence of employment in the manufacturing industry on that in the service industry is also restricted by other factors. For instance, growth space of new employment in the service industry of some cities is limited, or support of the policies for the service industry decreases, so the employees in the service industry change less. The kernel density distribution of the figure 3 shows the unimodal normal distribution of errors.[9]

4. Conclusion

Employment in the urban manufacturing industry in China has significant influence on the employment in the service industry. When the number of employees in the manufacturing industry changes from 0 to 650,000, the manufacturing industry has less influence on the employment number of the service industry and employees of the service industry may increase or decrease. When the number of the employees in the manufacturing industry changes from 650,000 to 900,000, the employees of the service industry will dramatically increase. At this time, the manufacturing has significant influence on the employees of the service industry and the effect is optimal. It indicates that the urban agglomeration economy can boost the number of employees of the service industry. When the number of the employees in the manufacturing industry is more than 900,000, the employees in the service industry will be prone to stable growth because the urban agglomeration economy will be offset by the urban congestion effect. The space for employment of the urban service industry is limited and will not increase without a limit along with the changes of the manufacturing industry.

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References

[1] Albert, J. Bayesian Computation with R (2nd Ed) Springer[M], New York, 2009.

[2] Gelman, A. Prior distributions for variance parameters in hierarchical models[J]. Bayesian Analysis 2006(6):515-533.

[3] Good, I.J. Probability and the Weighing of Evidence[M]. Charles Griffin, London, 1950.

[4] Hastings W K. Monte Carlo sampling methods using Markov chains and their application[J]. Biometrika,1970: 97-109

[5] Ishwaran H, Zarepour M. Markov chain Monte Carlo in approximate Dirichlet and beta two-parameter process hierarchical models[J]. Biometrika, 2000(2),371-390

[6] Ohlssen D I, Sharples L D, Spiegelhalter D J. Flexible random-effects models using Bayesian semi-parametric models: applications to institutional comparisons[J]. Statistics in Medicine, 2007(9):2088-2112.

[7] Desheng Lai, Man Gao. The Creation of Local Employment: Multiplier Effect of Manufacturing Employment on Service Employment[J]. Chinese Journal of Population Science, 2017(04):28-40. (in Chinese)

[8] Yifei Li, Jing Li, Ming Xu. The Interactive Multiplier and Spatial Spillover between Manufacturing Employment and Service Employment[J]. Finance Trade Economics, 2017(04):115-129. (in Chinese)

[9] Yu Li. Employment multiplier effect of manufacturing sector on local service sector: Empirical research based on the provincial panel data[D].2016. (in Chinese)

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ARTICLE

Defects of Traditional Marketing Model and New Consumer Experience Requirements in the Context of "New Retail"

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ABSTRACT

With the concept of "new retail" and the rapid development of "new retail" format, the defects of traditional marketing models such as advertising marketing, direct marketing and e-commerce marketing are becoming more and more obvious, which has seriously hindered the further development of the consumer retail industry. At the same time, under the background of "new retail", the industry demand based on the improvement of consumer experience is increasingly characterized by consumer entertainment, consumer autonomy, consumer personalization, and consumer socialization, which provides ideas and reference for the construction of new marketing models in the consumer retail industry.

1. Introduction

In recent years, with the in-depth development of China's Internet and e-commerce industries, retail formats and interrelated business models have undergone profound changes. The new formulation of the retail industry has also emerged and led the industry's development ideas and direction of change. At the "2016 Computing Conference" held on October 13, 2016, Ma Yun, Chairman of the Board of Directors of Alibaba Group, a global e-commerce benchmarking company, put forward during the keynote speech that, there will be five new trends in the social development process over the next 30 years – new retail, new manufacturing, new finance, new technologies and new resources. And he believes that in the next ten to twenty years, only online and offline business and logistics can be combined to create a real new retail. The core of Alibaba's "new retail" is that the company relies on the Internet to upgrade and transform the production,

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circulation and sales process of goods through the use of advanced technologies such as big data and artificial intelligence, thereby reshaping the business structure and ecosystem, and integrating online services, offline experience and modern logistics to form a new retail model.[1] In March 2017, Zhang Jindong, Chairman of the Board of Directors of Suning Group, put forward the concept of "smart retail" at the two national conferences. That is to use the Internet and Internet of Things technologies to fully perceive consumer habits, predict consumption trends, guide manufacturing, and provide consumers with diversified and personalized products and services. At the IT Leaders' Summit on April 2, 2017, Ma Yun once again mentioned new retail and believes that e-commerce will continue to grow at a high rate in the future. However, pure e-commerce and offline retailing will encounter development difficulties. Therefore, the new retail industry should integrate the online and offline business as well as the logistics industry, and realize the transition from the traditional retail "promotion" (how to achieve sales) to the new retail "service" (how to improve the consumer experience), so as to promote and promote tremendous changes in the retail industry. In July 2017, Liu Qiangdong, Chairman and CEO of Jingdong Group, presented the "fourth retail revolution" in an interview with Caijing magazine. He believes that the essence of retail is still the improvement or improvement of cost, efficiency, experience, etc., and subsequently proposes and expounds the concept of "unbounded retail" based on the "fourth retail revolution". On November 6, 2017, Ding Lei, Chairman and CEO of NetEase Group, first proposed the concept of "new consumption" in the special speech of "2017 Cross-Strait Entrepreneur Zijinshan Summit". He believes that the middle class has formed an independent consumption concept, technological advancement to improve consumer participation and manufacturing upgrades and other factors have formed the current era of new consumption. On March 20, 2018, the 2018 China Retail Digital Innovation Conference opened in Shenzhen. Lin Xun, Vice President of Tencent, explained the concept and core proposition of Tencent's "Smart Retail" for the first time. He analyzes how smart retailing is driven by retailers to improve overall link operational efficiency, optimize customer experience, and create new business opportunities.

Whether it is Alibaba's "new retail", Suning, Tencent's "smart retail", or Jingdong's "unbounded retail", NetEase's "new consumption", even if there are differences in wording, they are all attempts to reconstruct and upgrade the development concept and business model of the consumer retail industry under the existing economic and technological conditions, compared to traditional retail formats and even pure e-commerce. The "new retailers" will pay more attention to the satisfaction of consumers' individualized needs and the diversified consumption experience. The operational efficiency and social value of the entire retail format will also be greatly improved.[2] Therefore, it is of great practical significance to analyze the existing defects of the traditional retail industry marketing model, to explore the consumption experience demand under the "new retail" perspective and to construct a new marketing model based on the improvement of consumer experience.

2. Types and Defects of Traditional Marketing Models in Consumer Retail Industry under the Background of "New Retail"

2.1 Advertising Marketing

Advertising marketing refers to the activities in which enterprises promote and promote products through advertising, promote consumer purchasing decisions, expand product sales, and enhance corporate visibility, reputation and influence. With the rapid development of economic globalization and market economy, advertising marketing activities, which are an important part of the enterprise marketing mix, play an important role in the corporate marketing strategy. However, with the transformation of business models and the intensification of market competition, the cost performance of advertising marketing behavior is declining. On the one hand, the scarcity of advertising resources makes the financial cost of implementing advertising marketing behavior high, and the high advertising expenses consume a lot of funds of the enterprise, and even seriously affect the normal development of the main business of the enterprise. There has been a situation of "have money to find celebrity to do endorsements but have no money to do product research and development". With the development of the Internet and self-media technology, the presentation and dissemination of product information is increasingly diversified, and the consumption traffic of traditional advertising media is gradually being differentiated and diluted, and the advertising marketing dividend is continuously decreasing. On the other hand, the false advertising of product features, the false endorsement of celebrities, the false hype of marketing, the aesthetic fatigue of advertising content, and the polluting environment of advertising have seriously affected the development prospects of advertising marketing model in the new economic era.

2.2 Direct Marketing

The practical performance of the direct sales model has been highly respected by many domestic companies, especially in the context of the increasingly low cost perfor-

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mance of the simple advertising marketing model. Industry companies, including the health care products industry, have turned to direct marketing models to further expand product sales and enhance their marketing performance. Under the direct selling mode, the producers, manufacturers and importers of the products push the products directly to the end consumers without any intermediate circulation, effectively shortening the circulation links of the products and compressing the intermediate operating expenses of the industrial enterprises, thereby reducing the time cost and economic cost of commodity marketing, and improving the operational efficiency and overall value of the company's marketing activities. In addition, most of the direct sales personnel have the experience of using direct sales products, through the physical store goods marketing and familiar social activities marketing, can deliver real and reliable product information to the surrounding sales objects, which is conducive to fostering long-term stable consumer trust and consumer stickiness at a lower transaction cost, thus contributing to a steady increase in direct sales performance.[3] However, the direct marketing model also has its own insurmountable deficiencies. The direct selling model is vulnerable to the risk of illegal pyramid schemes, the direct management team's own management is loose and the professional quality is not balanced, and the salary incentive mechanism is not scientific, which has led to the instability of the direct sales team and other issues that limit the continued development of the direct sales model in the new retail era.

2.3 E-commerce Marketing

E-commerce marketing is a marketing method that emerges with the continuous development of network communication technology, electronic payment technology and the continuous improvement of social logistics efficiency. It is intuitive, convenient and efficient. It has gradually become an important way and technical support for the strategic transformation and performance improvement of traditional enterprises.[4] The continuous innovation and development of e-commerce has changed the marketing mode of traditional enterprises and the development direction of traditional marketing methods. Specialized division of labor and collaboration have been achieved to varying degrees in all aspects of product introduction, payment settlement, warehousing and distribution involved in trading activities, which has caused the consumer retail industry to undergo subversive changes in terms of transaction time, trading location, transaction rate, and transaction efficiency. The e-commerce marketing model based on technology support has more advantages than the traditional marketing model in terms of credibility and security of transactions, making the e-commerce-based consumption activities an easy and convenient trading experience. However, as Liu Qiangdong said, the network cable will never flow milk.[5] Although the existence of e-commerce has greatly improved the efficiency of daily retail transactions, through the continuous construction and improvement of infrastructure such as the network and logistics, consumers can complete consumer transactions on a global scale without leaving their homes. However, the e-commerce marketing method only changes the appearance of the transaction to a certain extent, and cannot satisfy all the trading needs of consumers. Ma Yun has also repeatedly stated in public that pure e-commerce is outdated, and the online trading method that the e-commerce marketing model focuses on cannot take into account all consumer demand for consumers. Moreover, e-commerce itself is also lacking in the security, integrity and comfort of transactions. The e-commerce marketing method should organically link the online and offline parts of the retail consumer transaction on the basis of fully considering the consumer's personalized experience, thus promoting the innovative development of the retail format under the "new retail" perspective.

3. New Consumer Experience Needs in the Context of "New Retail"

The essence of consumption is that consumers pay a certain amount of price or fee to the supplier of the product or service to obtain the economic utility of the product or the sensory experience of the service. The development concept of "new retail" is based on the breakthrough of the traditional retail industry development model, and the online and offline links involved in the retail exchange are connected to each other, so as to achieve greater efficiency in retail business development (more profitable businesses) and create more value for consumers (better consumer experience).[6] With the continuous improvement of social and economic conditions and the increasing consumption power of the society, the social consumption demand in the context of "new retail" has gradually expanded from the satisfaction of basic life needs such as finding food, clothing, housing and transportation to the higher-level demand areas such as entertainment consumption and social consumption, seeking spiritual satisfaction and self-realization. And even in the process of satisfying basic needs, more attention is paid to the entertainment and sociality of consumer activities. In addition, the entertainment and socialization of consumer activities are often accompanied by the personalization of consumer content and the autonomy of consumption patterns, in order to enable consumers to obtain better subjective feelings and emotional satisfaction in the process of consumption, thereby achieving a high-quality consumer experience.

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3.1 Consumption Entertainment Orientation

The development of the retail industry under the "new retail" perspective is based on the advancement of social technology and the escalation of consumption demand. It has gradually realized the transition from focusing on the satisfaction of material needs to provide a pleasant life experience. Consumption activities are more entertaining, casual and experiential.[7]

Firstly, in the content and field of consumption, the rapid development of "new retail" has given entertainment consumption more imagination and realization scenarios, and the entertainment of consumption has further promoted the expansion and deepening of the "new retail" format. With the development of Internet technology and e-commerce technology, in recent years, domestic entertainment, film, video, live broadcast, games and other entertainment industries have become increasingly prosperous and become new economic growth points.

Secondly, in the form and approach of consumption, the rapid development of "new retail" has given traditional consumption activities more entertainment and experience. The presence of large-scale integrated commercial facilities such as GINZA SIX in Ginza in Japan, and Oriental Plaza in Beijing, China, has made daily shopping activities for the general public often accompanied by recreational activities thus achieving higher consumption efficiency and better consumer experience; At the same time, the infinite extension of entertainment scenes and the fragmentation of entertainment information have also spawned a lot of probabilistic or rigid consumer demand. The current booming network economy, celebrity endorsement, IP marketing, etc. are typical performances of consumer entertainment.

3.2 Consumption Autonomy

The economic utility of the goods provided by the merchant or the content of the service and the consumer demand directly affect the marketing status of the product. Therefore, it is very important to fully absorb and reflect the consumer demand content of the target consumers in the process of product design, production and marketing; For consumers, the independent participation in the design, production and other aspects of product or service content is conducive to better meet their individual consumption needs and enhance their own diverse consumer experience, actually realizing the supply-side demand determines the consumption autonomy logic of production and consumption decisions. The development of the retail industry under the "new retail" perspective focuses on the integration of online and offline business links, and has better resource conditions and technical foundations in consumer demand research and collection and consumer experience feedback response. Haier Electric collects the functional and structural requirements of products through consumers through the network, and even allows consumers to participate in the design of products such as refrigerators, in order to achieve a higher level of consumer demand and product performance, which creates differentiated customer value and a personalized customer experience in the highly homogenous home appliance market. Xiaomi, a mobile Internet company that specializes in the development of intelligent hardware and electronic products, has created a business model that uses the Internet model to develop mobile operating systems and enthusiasts to participate in the development and improvement. It is committed to enabling everyone around the world to enjoy quality technology products from China.[8] In addition, the application of Internet-based big data and artificial intelligence provides a realistic possibility for merchants to collect, analyze and apply consumption preference data, which also provides incentives for goods and services to better meet consumer demand for consumption. With the upgrade and development of business and customer interaction technology, the consumer's demand for independent consumer experience will receive more care and satisfaction.

3.3 Consumer Personalization

Consumer groups and individuals have natural differences. Different family backgrounds, living habits, age levels, economic status, and level of knowledge determine the individualization of consumer demand and are embodied in different consumer experience requirements in the consumption process. From the customization of consumer goods to the DIY of consumer objects, the purpose of consumer activities has not formed a qualitative breakthrough in the satisfaction of the various levels of demand in Maslow's hierarchy of needs. However, the consumption patterns of consumption patterns, consumption scenarios, consumption methods, and consumption content of different consumer entities show increasingly obvious characteristics of subjective differences. In the new economic era, where the problem of food and clothing has long been resolved, although people have great value convergence in pursuing the needs of various levels such as physiology, safety, belonging, respect, and self-realization, however, the instrumental differences reflected in the demand satisfaction process are still significant. On the one hand, consumers' taste preferences are never exactly the same; on the other hand, the improvement of economic ability also enables consumers to afford relatively higher personalized consumption costs. From the supply side point of view, in order to cater to the increasingly large individualized

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consumer demand, the business has begun the organizational reengineering and process innovation of production and management. On the basis of changing the traditional production -consumption marketing concept, gradually formed a new marketing concept based on the consumer experience, "consumer demand collection - product production landing - scene demand satisfaction" Thereby, the front-end consumer experience is improved, the consumption value is increased, the back-end operating cost is reduced, and the operating efficiency is improved. Therefore, whether it is from the production of goods or the sale of goods are carried out around the needs of consumers, especially paying attention to the individualized needs of consumers, driving the supply of products through personalized demand, and thus continuously improving and improving the consumption experience.[9]

3.4 Consumption Socialization

With the iterative development of inter-network technology, the path of interpersonal communication has experienced several stages such as traditional mode, PC-side mode and mobile-end mode. The cost of social interaction is generally reduced, and the efficiency of social interaction is constantly improving. The daily convenience and frequentness of social activities have driven the amount and price of consumer behavior in the social process, and even spawned exclusive social behaviors aimed at meeting specific consumer needs. The socialization trend of social consumption is becoming more and more obvious. Whether social behavior contributes to consumer demand or consumer demand contributes to social behavior, the essence highlights the scene attributes of demand triggering and demand satisfaction. That is, in what kind of environment, what kind of consumer demand is tapped, and the appropriate product positioning is used to meet the specific target needs of consumers, and finally the completion of the consumer transaction is completed.[10]

References

[1] Yingying Liang. Research on the Emergence and Development of China's "New Retail" Based on the "New Retail Wheel" Theory[J]. Contemporary Economic Management, 2017,39(09):6-11. (in Chinese)

[2] Baoyi Wang. The Essence, Causes and Practice Trends of "New Retail"[J]. China's Circulation Economy, 2017, 31(07):3-11. (in Chinese)

[3] Hui Yu, Kaixu Li. Research on the Direct Sales Model of Amway[J]. Chinese and Foreign Entrepreneurs, 2015 (09): 27-28. (in Chinese)

[4] Wei Tao. B2C E-commerce: Innovation in Traditional Marketing Models[J]. Media Review, 2011(08):57-58. (in Chinese)

[5] Qiangdong Liu. Liu Qiangdong's Self-report: My Business Model[M]. Beijing: CITIC Publishing House, 2016:45. (in Chinese)

[6] Ruiyun Du, Kan Jiang. New Retail: Connotation, Development Motivation and Key Issues[J]. Price Theory and Practice, 2017(02):139-141. (in Chinese)

[7] Dongfeng Su. The Connotation, Supporting Theory and Development Trend of "New Retail" from the Perspective of "Three New"[J].China Circulation Economy, 2017,31(09):16-21. (in Chinese)

[8] Philips Lighting. Philips Lighting and Xiaomi Joint Venture in China to Jointly Promote the Development of Smart Connected Home Lighting[EB/OL]. http://caijing.chinadaily.com.cn/2016-11/03/content_27266245.htm,2016-11-03/2018-06-23. (in Chinese)

[9] Enwei Gong. Analysis of the Differences and Effective Integration of Network Marketing and Traditional Marketing Models[J]. E-commerce, 2015(10):51-52. (in Chinese)

[10] Gang Wang. Exploring the Innovation Mode of Network Retail Platform under the Background of "New Retail"[J]. Business Economics Research, 2018(05):58-60. (in Chinese)

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ARTICLE

Analysis of Influencing Factors Tourists' Purchase Decision-making Behavior in Kunming

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ABSTRACT

Based on the theory of consumer behavior, this paper analyzes the current situation of tourism shopping market in Kunming, and analyzes the decision-making behavior of tourists shopping in Kunming with the questionnaire survey, and clarifies the influencing factors of the decision-making behavior of visitors to Kunming. In the future, the influencing factors of Kunming tourists' shopping decision-making behavior are combined with the current situation of Kunming's tourism shopping market. The problems of cheating-induced shopping, the high price of shopping products, the low level of tourism shopping experience and the imperfect after-sales service are analyzed. Finally, the corresponding countermeasures and suggestions are proposed from four aspects: rectifying the tourism shopping market, establishing a sound price supervision mechanism, strengthening the tourism shopping experience, and improving after-sales service.

1. Introduction

Tourism shopping is an important component of tourism development and a major indicator of the degree of tourism development. It has important practical significance for improving the comprehensive benefits of tourism, driving the development of related industries, expanding employment, and increasing fiscal revenue. However, in Yunnan, tourism and shopping has always been a weak link in the tourism industry. The irregular phenomenon of forcing or disguised forced shopping in shopping malls and fraudulent sales in shopping malls has left a lot of negative impact on tourists. To effectively promote the development of tourism shopping, we must understand the level of shopping needs of tourists. Therefore, it is a very meaningful research content to clarify the influencing factors of tourists' shopping decision-making behavior, analyze the shortcomings of the current tourism market, and propose rationalization proposals.

2. Concept Definition

2.1 Tourism Shopping Products

At present, there are differences in the definition of tour-

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ism products and tourism products in the academic world, and no consensus has been reached. Hongyan Wang (2009) believes that tourism shopping is targeted at tourism and shopping, not tourism and tourism products.[1] Tourist shopping products are tangible physical products purchased by tourists during their travels to meet their needs. The core part of tourism shopping products is tourist crafts and souvenirs to meet the aesthetic and pleasure needs of tourists; the extension part is the practical goods to meet other needs of tourists.[2]

2.2 Tourist Shopping Behavior

Tourist shopping behavior refers to "the economic and cultural behavior of tourists purchasing various physical goods for tourism or in tourism activities. It includes not only the special shopping tourism behavior, but also the sum of all shopping-related behaviors in tourism; however, it does not include any kind of shopping activities for tourists for commercial purposes, that is, shopping activities for resale".[3]

3. The Status Quo of Kunming Tourism Shopping Market

3.1 The Overall Scale of the Kunming Tourism Shopping Market

During the "Twelfth Five-Year Plan" period, Kunming's total tourism revenue and total number of tourists in the province reached 24.57% and 22.98%, respectively, focusing on the development of the tourism market in Kunming (Table 1). The various tourism economic indicators in Kunming have shown a rapid development trend. The total domestic tourism revenue increased from 36.725 billion Yuan in 2011 to 72.346 billion in 2015, with a 1.96 times increase, and the annual growth rate remained above 16%; The number of domestic tourists increased from 410.25 million in 2011 to 69.314 million in 2015, with a 1.68 times increase, and the annual growth rate remained above 10%. The growth of total tourist income and the number of tourists in Kunming in recent years indicates that the scale of Kunming's tourism market is expanding and the tourism and shopping market is developing.

In 2015, the average number of visitors staying in Kunming increased to 2.66 days, an increase of 0.17 days compared to 2014. As shown in Table 2, from the point of view of per capita consumption, the per capita consumption of overnight visitors in Kunming in 2015 was 799.36 Yuan, an increase of 16.64% over 2014; among them, shopping accounted for the largest proportion of consumption, 24.87%. The daily per capita consumption of tourists in Kunming is 456.11 Yuan, which is 18.93% lower than that in 2014; the proportion of shopping is 33.96%. Tourists' spending on tourism accounts for a large proportion of total tourism consumption. This shows that Kunming's tourism shopping market has great potential for development, and tourism shopping has become an indispensable part of Kunming's tourism activities.

In 2015, Kunming's star-rated tourist shopping places have reached 39. Among them, the number of five-star to one-star shopping malls is 1, 11, 14, 12, and 1.

Table 1. Statistics on tourism economic development in Kunming from 2011 to 2015

Category	2011	2012	2013	2014	2015
Total tourism revenue (100 million yuan)	367.25	426.68	515.89	614.77	723.46
Year-on-year growth (%)	28.95%	16.18%	20.91%	19.17%	17.68%
Total number of people (10,000 people)	4102.5	4694.24	5602.19	6268.66	6911.4
Year-on-year growth (%)	15.32%	14.42%	19.34%	11.90%	10.25%

Notes: Data Sources, 2011-2015 Kunming Statistical Yearbooks

Table 2. Cost and structure of overnight visitors and one-day visitors

Kunming	2014 Expenses (Yuan/person/day)		2015 Expenses (Yuan/person/day)		Contemporary Comparison (%)		2015 Structure (%)	
	Overnight Tour	One-day Tour	Overnight Tour	One-day Tour	Overnight Tour	One-day Tour	Overnight Tour	One-day Tour
Transportation	74.74	55.63	87.63	49.65	17.2%	-10.7%	10.96%	10.89%
Accommodation	174.08	0	169.01	0.00	-2.91%	0.00%	21.14%	0.00%
Food	119.89	69.14	116.46	70.19	-2.86%	1.52%	14.57%	15.39%
Scenic Tour	85.69	115.21	92.40	85.21	7.83%	-26.0%	11.56%	18.68%
Entertainment	68.64	69.58	97.75	54.02	42.4%	-22.3%	12.23%	11.84%
Shopping	137.2	206.21	198.77	154.91	44.8%	-24.8%	24.87%	33.96%
Others	25.1	46.83	37.34	42.13	48.7%	-10.0%	4.67%	9.24%
Total Cost	685.34	562.58	799.36	456.11	16.6%	-18.9%	100.00%	100.00%

Notes: Data sources, Kunming Tourism Commission "Kunming 2015 Domestic Tourists Spending Sample Survey Report"

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3.2 Kunming Tourism Shopping Structure

According to the classification method of general tourist shopping products, Kunming tourism shopping products can be divided into practical goods and handicrafts. Due to the unique natural conditions of Kunming, Yunnan, and rich and unique biological resources, through the development and processing of these biological resources, food, medicinal materials, flowers and tobacco, wine, tea and other unique local products have been produced. Handicrafts can be broadly divided into five categories: stone jade, metal, textile, wood, and ceramic (see Table 3).

3.3 Tourist Structure of Kunming Tourism Shopping Market

Table 4 reflects the tourist population's attribute information of the Kunming tourism shopping market. Among the sample tourists, males accounted for 46.82%, females accounted for 53.18%, and the gender composition was relatively balanced. Young people aged 25-44 are the majority, accounting for 64.09% of the total sample. The number of people aged 15-24 and 45-64 is small, accounting for 15% and 17.73% of the total sample, respectively. Tourists' educational level is mainly middle and high. Monthly income is concentrated at 2001-8000 Yuan, accounting for 77.73% of the total sample.

Table 5 reflects information about tourist activities in Kunming. Through the statistics and analysis of the questionnaire, it can be seen that the tourism market in Kunming has a high revisit rate. The second visit to Kunming accounted for 44.55%, and the visitors with 3 or more trips to Kunming accounted for 27.27%. Visitors stayed in Kunming for 2-4 days and 4-6 days, accounting for 41.82% and 35.91% of the total sample respectively, while visitors who visited the first day accounted for the least, accounting for 5.91%. In terms of travel methods, self-help travel accounts for a large proportion, accounting

Table 3. Kunming tourism shopping product list

Category	Series	Specific Shopping Products
Real Products	Food Series	Wild edible fungi, fruits, coffee, flower cake, Yiliang roast duck, bridge rice noodle
	Native Products	Blush, Pu'er tea, green tea, pressed tea, flower tea; Yunnan red; cloud smoke
	Medicine and Health Products	Sanqi, Tianma, Angelica, Cordyceps, Yunnan Baiyao
	Flowers and Plants	Rose, Camellia, Magnolia, Cherry Blossom, Rhododendron, Begonia, Rose, Green Velvet, Gentiana, Clove, Osmanthus, etc.
Handicrafts	Stone and Jade	Jade, marble, Yunzi, inkstone
	Metal Products	Gold and silverware, copper crafts, tin crafts, national sword, scissors
	Textile Products	Embroidery, wool textiles, ethnic brocade, national costumes
	Woody Products	Grass weaving, bamboo products, rattan products
	Ceramic Products	Dongchuan glazed pottery

Table 4. Statistics on basic information of visitors to Kunming

Statistical Characteristics and Classification Indicators		Frequency	Percentage
Gender	Male	103	46.82%
	Female	117	53.18%
Age	14 years old and below	2	0.91%
	15-24 years old	33	15.00%
	25-44 years old	141	64.09%
	45-64 years old	39	17.73%
	65 years old and above	5	2.27%
Educational level	Junior high school and below	6	2.73%
	High school, technical secondary school and vocational high school	76	34.55%
	College and undergraduate	119	54.09%
	Graduate and above	19	8.64%
Monthly Income	2,000 Yuan and below	16	7.27%
	2001-4000 Yuan	68	30.91%
	4001-6000 Yuan	60	27.27%
	6001-8000 Yuan	43	19.55%
	8000-10000 Yuan	23	10.45%
	More than 10,000 Yuan	10	4.55%

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Table 5. Statistics on tourist travel situation in Kunming

Statistical Characteristics and Classification Indicators		Frequency	Percentage
How Many Times to Visit Kunming	1 time	62	28.18%
	2 times	98	44.55%
	3 times	37	16.82%
	3 or more times	23	10.45%
The Number of Tour Days	1 day	13	5.91%
	2-4 days	92	41.82%
	4-6 days	79	35.91%
	More than 6 days	36	16.36%
Way of Tour	Travel with group	89	40.45%
	Self-driving tour	24	10.91%
	Take a public transport tour	107	48.63%
Tourism Shopping Expenses	400 Yuan and below	6	2.73%
	401-800 Yuan	14	6.36%
	801-1200 Yuan	33	15.00%
	1201-1600 Yuan	57	25.91%
	1601-2000 Yuan	75	34.09%
	More than 2,000 Yuan	35	15.91%
Tourism Shopping Expenses Account for the Proportion of Total Tourism Consumption	10% or less	6	2.73%
	10%-20%	37	16.82%
	20%-30%	57	25.90%
	30%-40%	92	41.82%
	40% or more	28	12.73%

for 59.54 of the total sample, and 40.45% with group tour. In terms of tourism and shopping consumption, the consumption amount is relatively large in the range of 1201-1600 yuan and 1601-2000 yuan, accounting for 25.91% and 34.09% of the total sample respectively. In addition, 41.82% of tourists' travel and shopping expenses account for 30%-40% of total tourism consumption, and 25.90% of tourists' travel and shopping expenses account for 20%-30% of total tourism consumption.

In summary, the tourists coming to Kunming are mainly young and middle-aged, with high revisiting rate and long stay time. Tourism and shopping consumption is dominated by medium and high consumption. Self-service tourists have become a group that cannot be ignored. The tourism and shopping market has gradually changed to a personalized, individualized and three-dimensional market structure.

3.4 Spatial Characteristics of Kunming Tourism Shopping Places

At present, Kunming tourism shopping places are mainly concentrated in Kunming city. Tourist shopping places outside the urban area are mainly based on scenic spots, mainly distributed in Shilin Scenic Area, Yiliang Yangzonghai Resort and Yiliang Tangchi. Kunming tourism shopping places present the following spatial characteristics:

3.4.1 The Overall Distribution is Uneven, Mainly Concentrated in City Center

The area where Kunming's tourism and shopping places are concentrated is Guandu District. It is radiated by the Chuncheng Road International Convention and Exhibition Center and the Guanshang Town close to Wujiaba Airport, and it is spread over the more prosperous commercial district of Guandu District.

3.4.2 Less in the Northwest, More in the Southeast

Kunming tourism and shopping places, with Guandu District as the center, there are fewer shopping places in Panlong District, Fumin County and Luquan in the northwest. A number of large-scale tourism and shopping places are located in the Kunming Economic and Technological Development Zone, Yiliang and Shilin in the southeast.

3.4.3 Form a Tourism Shopping Product Sales Cluster Area

In the vicinity of some mature and well-known scenic spots and scenic spots, a large number of tourist shopping enterprises have been gathered to form a cluster area for the sales of tourist shopping products. For example, the flower tourism shopping product sales cluster area mainly in Kunming Chenggong District.

4. Factors Influencing the Decision-making Behavior of Visitors to Kunming

The previous article summarizes the supply situation of

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Kunming tourism shopping market, based on the perspective of supply and demand, and analyzes the influencing factors of Kunming tourists' shopping decision-making behavior based on consumer demand, so as to discover the crux of the problem of Kunming tourism shopping market.

4.1 Decision-making Behavior Model of Visitors to Kunming

Based on the previous analysis of consumer behavior theory and marketing theory, through the summary of consumer behavior patterns, the paper analyzes the influencing factors of the decision-making behavior of visitors to Kunming, which is divided into five stages: identification needs, information collection, evaluation plan, purchase decision, and post-purchase evaluation, as shown in Figure 1:

4.2 Indicator Construction and Questionnaire Distribution

4.2.1 Questionnaire Indicator Construction

The questionnaire in this paper is the "Question Questionnaire for the Decision-Making Behavior of Tourists in Lai Kun". The questionnaire design mainly includes three parts: basic information of tourists, basic information of tourism activities and information of shopping behavior of tourists, and the analysis indicators of each part are constructed in turn.

Table 6. Design of basic information analysis indicators for visitors to Kunming

	Indicator Category
Basic Information about Visitors to Kunming	Gender
	Age
	Education Level
	Disposable income

Table 7. Design of information analysis indicators for tourist activities in Kunming

	Indicator Category
Information on Tourist Activities in Kunming	Tour frequency
	Tour time
	Way of tour
	Tourism shopping consumption
	Tourism shopping expenditure ratio

4.2.2 Questionnaire Delivery and Receiving

The survey was conducted in March 2017 in Yunnan Ethnic Village, Huazhi City, Jiamenghua City, Saibo Xinghua City, Yunnan National Folk Crafts Trading Market, etc., and distributed 250 questionnaires and 234 questionnaires. There were 220 valid questionnaires and 14 invalid questionnaires. The effective recovery rate was 88%.

4.3 Analysis of Influencing Factors of Decision-making Behavior of Tourists in Kunming

4.3.1 Analysis of the Influencing Factors in the Identification of Demand Stage

Visitors' demand for travel and shopping products is not the same as that generated by local consumers in Kunming. Through the statistics and analysis of the questionnaire:

In the process of tourism activities, tourists who are willing to purchase tourist shopping products account for 46.82% of the total sample; 35.45% of the tourists who are uncertain and choose to purchase according to their preferences; and only 17.37% expressly indicate that they are unwilling to purchase tourist shopping products. As shown in Figure 2:

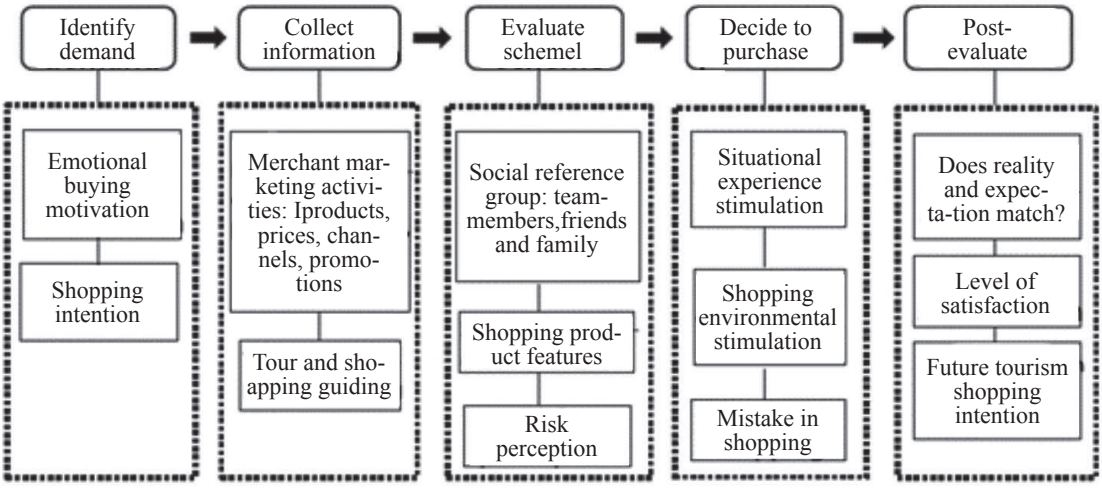

Figure 1. Analysis model of influencing factors of decision-making behavior of tourists in Kunming

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Table 8. Design of information analysis indicators for shopping behaviors of tourists in Kunming

Shopping Decision-making Process	Indicator Category
Phase 1. Identify the demand	Are you willing to buy travel shopping products?
	Reasons for buying tourist shopping products
	Purpose of purchasing travel shopping products
Phase 2. Collect information	Before you go shopping, what channels do you know about shopping?
	Before shopping, focus on which aspects of the shopping product
	Do you believe that guides and shopping venue sales staff explain the shopping products?
Phase 3. Evaluation program	Whether the shopping product matches its status
	Whether the shopping products will be loved by relatives and friends
	Awareness of the importance of shopping packaging
	Awareness of the importance of shopping style styling
	Awareness of the importance of the quality of shopping products
	Awareness of the importance of the function and practicality of shopping products
	Awareness of the importance of the price of shopping products
	Awareness of the importance of the brand and popularity of the shopping product
	Generally choose which kind of shopping venues provide travel shopping products
Phase 4. Purchase decision	a scenario that encourages visitors to make purchasing decisions
	Whether the environmental layout of the shopping venue can prompt tourists to make purchasing decisions
	Worried about buying mistakes
Phase 5. Post-purchase evaluation	Satisfaction with this visit to Kunming
	Will you be willing to buy travel shopping again in the future?
	Will you recommend it to relatives and friends?
	The risk of shopping and after-sales service after this travel shopping

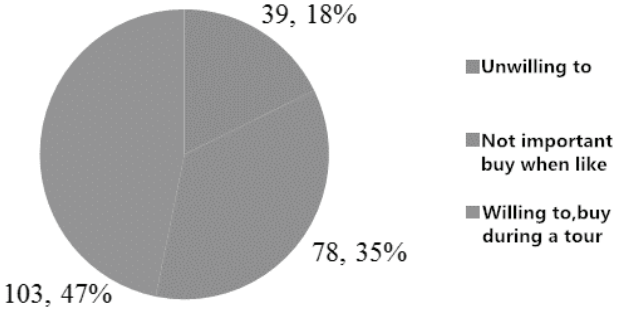

Figure 2. The degree of tourists' willingness to purchase tourist shopping products

As shown in Figure 3, 42.27% of tourists purchase travel shopping products because they like Kunming's special products; 36.82% of the tourists are willing to purchase because of the recommendation of relatives and friends; another 25% of tourists are going to bring their specialties back to their relatives and friends; and there are also 34.55% of tourists who are willing to purchase because of the promotion of tour guides and merchants.

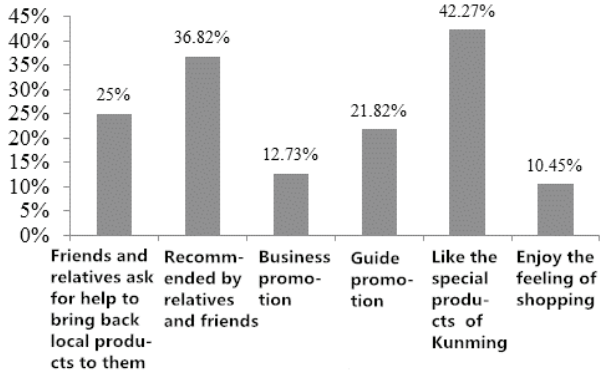

Figure 3. Reasons for tourists to purchase tourism shopping products

As shown in Figure 4, 51.82% of tourists purchase tourist goods for the purpose of giving relatives and friends; 45% of visitors consider themselves to use it; In order to be remembered and collected for viewing, they accounted for 23.18% and 19.55% of the total sample respectively.

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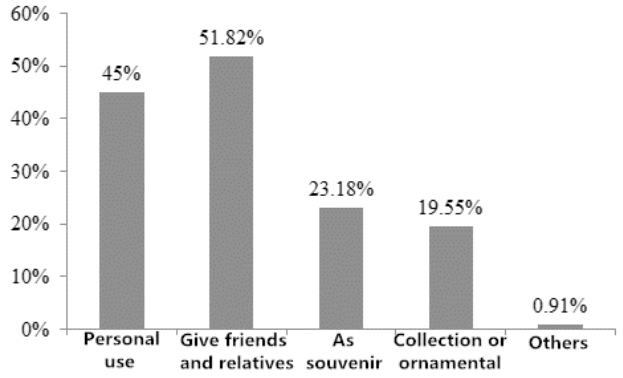

Figure 4. The purpose of the customer to purchase tourism shopping products

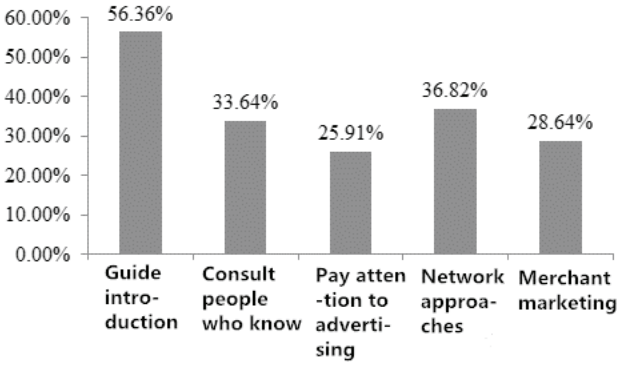

Figure 5. Tourists' information collection channel

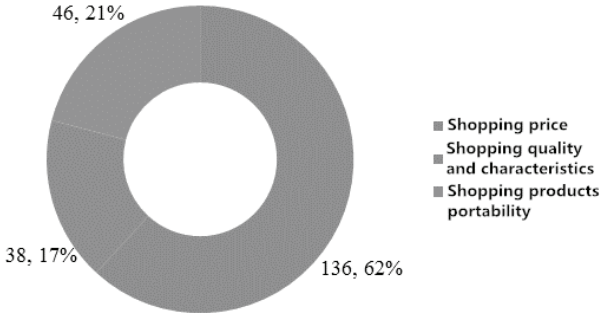

Figure 6. Tourists' attention to the characteristics of shopping products

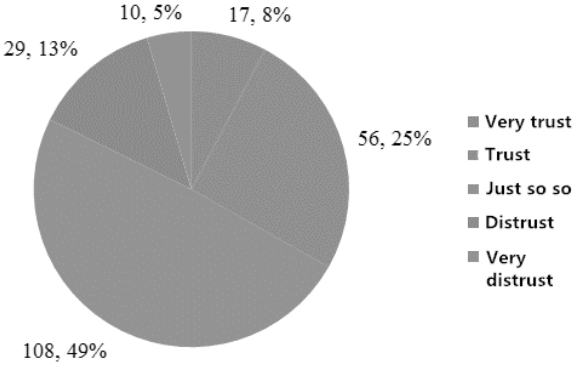

Figure 7. Tourists' trust in sales guides and sales staff

By observing and analyzing the results, it can be found that tourists mainly introduce the relevant shopping information through the tour guide before shopping, but the trust level of the information conveyed by the tour guide and the sales staff is not high, and the influencing factor is defined as the consumer trust factor. The channels for collecting information are also those who are knowledgeable, pay attention to the network, advertising and marketing activities of the merchants, and pay attention to the price of the products before shopping, etc., these variables mainly reflect the tourists' attention to the market of shop-

It can be seen that tourists are special consumer groups. The purpose of purchasing travel shopping products is to give relatives and friends a feeling of affection or to meet their own needs, often based on emotional buying motives. Friends and relatives can help with the return of specialties, the recommendation of relatives and friends, the purchase of travel and shopping gifts to give relatives and friends and other variables can be seen, the influence of relatives and friends on the decision-making behavior of tourists shopping, these are defined as social emotional stimulation factors. like Kunming's special products, the feeling of shopping, the promotion of merchants and tour guides, the tourists' willingness to shop, the purchase of their own products, the collection, and the retention of commemorative variables. It can be seen that tourists can satisfy their needs through shopping, these are defined as a psychological perception factors.

4.3.2 Analysis of Influencing Factors in the Information Collecting Stage

Shopping information can help visitors make the right purchase decisions, but visitors are not allowed to have enough time to gather information due to intense travel arrangements. As shown in Figure 5, 56.36% of the tourists were introduced to the shopping information through the tour guide, which was the largest, followed by the network and consulting people, accounting for 36.82% and 33.64% of the total sample respectively. As shown in Figure 6, the focus on shopping products is the largest before shopping, which indicates that tourists are particularly concerned about the price of shopping products. As shown in Figure 7, for tour guides and shopping venue sales staff to recommend products, tourists that trust and very trust accounted for 33.18% of the total sample; 17.73% of tourists are distrustful and very distrustful; the proportion of visitors with a neutral attitude is the largest, reaching 49.09%.

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ping products, and define this influencing factor as the marketing factors.

4.3.3 Analysis of the Influencing Factors in the Evaluation Scheme Stage

About Table 10, Analysis of the importance degree of the influencing factors in the evaluation scheme stage, rating for each option: very important (5 points), important (4 points), average (3 points), not important (2 points), and very unimportant (1 point). The relationship between the average score and the importance level is shown in Table 9:

Table 9. Relevant provisions on the average score and importance degree

Mean Interval	Importance Degree
4.21-5.00	Very important
3.41-4.20	important
2.61-3.40	Just so so
1.81-2.60	Unimportant
1.00-1.80	Very unimportant

As can be seen from Table 10, in the evaluation program stage, tourists believe that the most important thing is the quality of the shopping products, which is divided into 4.38, which is very important; secondly, the price of the shopping products, the average is 4.17, which is important; Will be loved by relatives and friends is the third, the average is 4.16, that is important; the brand and popularity of shopping products, the appearance of shopping products packaging, the function and practicality of shopping products, whether the shopping products are consistent with their own status, etc. The average score is calculated by tourists, which is considered important by tourists; the average style of shopping products is 3.29, which is just so so.

As shown in Figure 8, 67.73% of the tourists choose the shopping products of the star-rated tourist shopping places that are rated by the government, and 41.82% of the tourists choose the shopping items of the scenic spots and shopping malls. There are fewer tourists who choose comprehensive shopping malls, high-end commercial centers, tourist souvenir shops, and tourist spots. This shows that tourists have a higher degree of trust in guaranteed tourism shopping places.

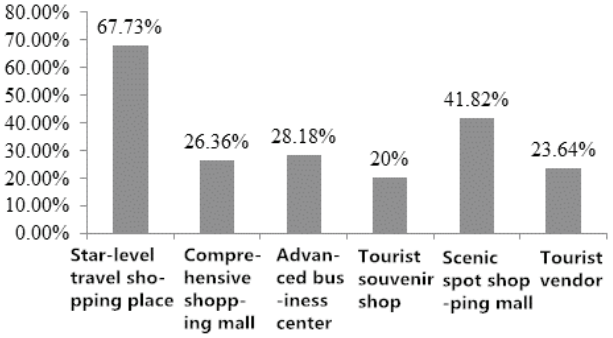

Figure 8. Tourists' shopping purchase places

By observing the importance degree of each factor in the evaluation scheme stage, whether the shopping product is consistent with its own status, and whether the shopping product will be loved by relatives and friends. These two indicator categories are mainly influenced by the reference group when the tourists evaluate the shopping plan, and they are defined as the reference group factor. The four categories of indicators, such as the appearance of the shopping product, the style of the shopping product, the quality of the shopping product, the function of the

Table 10. Analysis of the importance degree of the influencing factors in the evaluation scheme stage

Indicator Categories	Very important	Important	Just so so	Unimportant	Very unimportant	Average Score	Results
Whether the shopping product matches its status	43 19.55%	83 37.73%	53 24.09%	27 12.27%	14 6.36%	3.51	Important
Whether the shopping products will be loved by relatives and friends	91 41.36%	77 35%	48 21.82%	4 1.82%	0 0%	4.16	Important
Shopping product packaging	39 17.73%	73 33.18%	89 40.45%	13 5.91%	6 2.73%	3.57	Important
Shopping style	42 19.09%	47 21.36%	92 41.82%	21 9.55%	8 3.64%	3.29	Just so so
Shopping quality	113 51.36%	82 37.27%	21 9.54%	4 1.82%	0 0%	4.38	Very important
Shopping function and practicality	43 19.55%	88 40%	47 21.36%	33 15%	9 4.09%	3.56	Important
Shopping price	93 42.27%	78 35.45%	43 19.54%	6 2.73%	0 0%	4.17	Important
Shopping brand and popularity	46 20.91%	93 42.27%	72 32.13%	6 2.73%	4 1.82%	3.79	Important

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shopping product, and the practicality, are all evaluation criteria for the characteristics of the shopping product itself, and define it as a characteristic factor of the shopping product. The price of shopping products, the brand and popularity of shopping products, and the choice of shopping places, these three indicator categories are to examine the tourists' perception of the potential risks of shopping, and define it as a shopping-aware risk factor.

4.3.4 Analysis of Influencing Factors in the Stage of Purchase Decision-making

As shown in Figure 9, when the people around them or the same group of tourists are shopping, 35.45% of the tourists will make corresponding purchasing decisions; the enthusiastic explanation and professional attitude of the service staff will cause 25.91% of the tourists to make purchasing decisions; promotions at the shopping venue will prompt the 19.09 tourists to make purchasing decisions. The above variables are mainly the impact of the tourism shopping scenario experience on tourists, which are defined as the market environment experience factors.

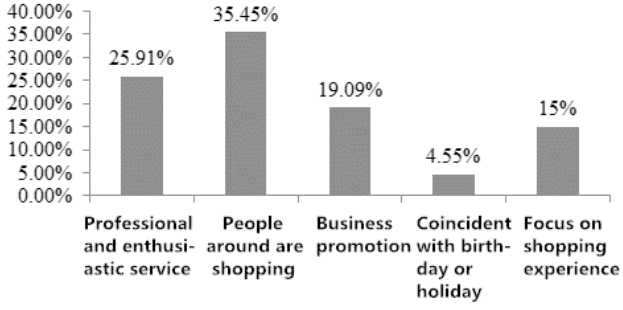

Figure 9. Scenarios that affect visitors making purchasing decisions

As shown in Figure 10, the main measurement is whether the comfortable environment layout of the tourist shopping place can prompt the tourists to make purchasing decisions. According to the calculation, the average is 4.02, which is important; among them, there are 164 visitors who agree and agree, accounting for 74.55% of the total sample. Define this indicator variable as the shopping environment factor.

As shown in Figure 11, 53.64% of tourists are worried about buying fake and shoddy products or fake products; 27.37% of tourists are worried that they will encounter similar products with lower prices or prefer after buying them; another 18.64% of tourists are worried about whether the shopping items are easy to carry or mail. This indicator variable is defined as a misleading perceived risk factor.

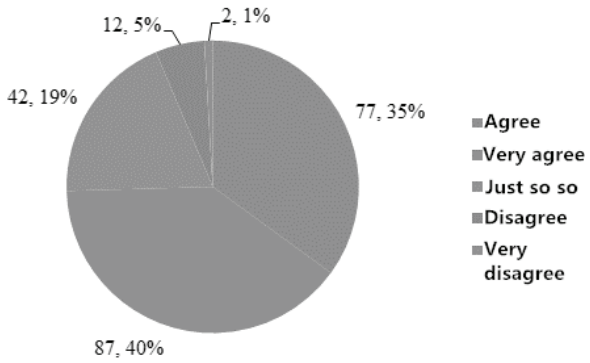

Figure 10. Degree of acceptance of the shopping environment to drive purchase decisions

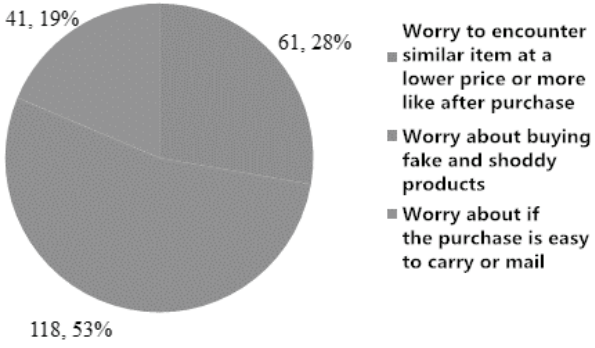

Figure 11. Concerns about tourists purchase decision-making

4.3.5 Analysis of Influencing Factors in the Stage of Post-purchase Evaluation

The evaluation of the shopping products after the purchase of the shopping products, the feedback of the information, the degree of satisfaction determine the future willingness of the tourists to travel, and the influence of the information conveyed on other consumers when this part of the tourists becomes the reference group of others.[5] As shown in Figure 12, 46.36% of the tourists are satisfied with the tourism in Lai Kun, and 9.09% are very satisfied. The average value shows that the average score is 3.49, which is satisfactory. As shown in Figure 13, tourists who are willing to purchase travel shopping products again in Kunming account for 50.45%, which clearly indicates that they are not willing to purchase only 11.82%, and the proportion of tourists who are uncertain is 37.73%. As shown in Figure 14, 40.45% of the tourists will be recommended to relatives and friends. According to the needs of relatives and friends, 46.82% of the tourists are recommended, and only 12.73% are not recommended to relatives and friends. The above three indicator categories mainly reflect the influence of visitors' perceptions on future visitors, and all belong to the tourists' shopping experience, so they are defined as experience reference factors.

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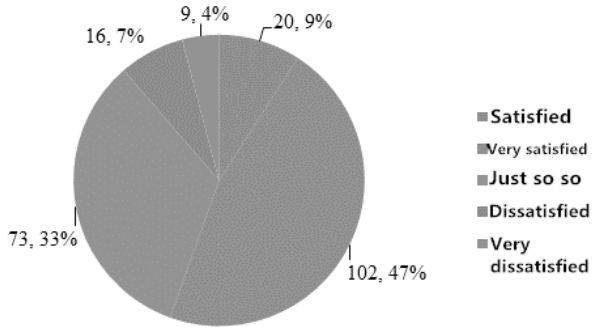

Figure 12. Satisfaction degree of tourism shopping in Kunming

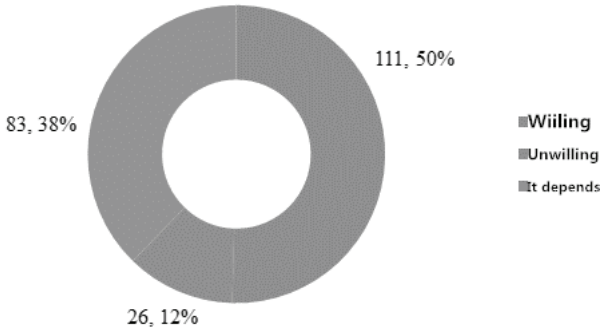

Figure 13. The degree of willingness of tourists to purchase products in Kunming

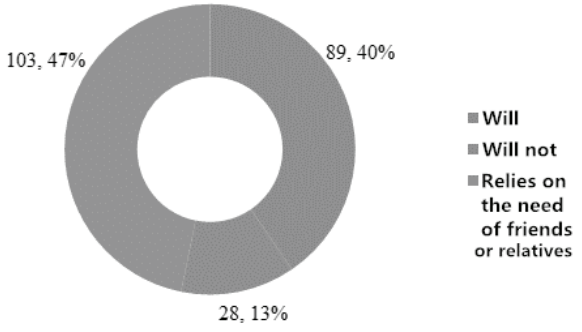

Figure 14. The degree of recommendation of tourists to purchase products in Kunming

As shown in Figure 15, after shopping, tourists feel the risk of shopping products and after-sales service, 44.55% of tourists worry that the price of shopping products is too high, resulting in economic losses; 38.64% of tourists are worried about poor after-sales service, 30.91% of tourists worry about high maintenance costs after shopping problems; 23.64% of tourists are worried that shopping products are easy to damage; 19.55% of tourists are worried that the use of shopping products is not as good as expected. The above variables reflect the concerns of the purchaser and the service after purchasing the purchase, which are defined as the post-purchase risk factors.

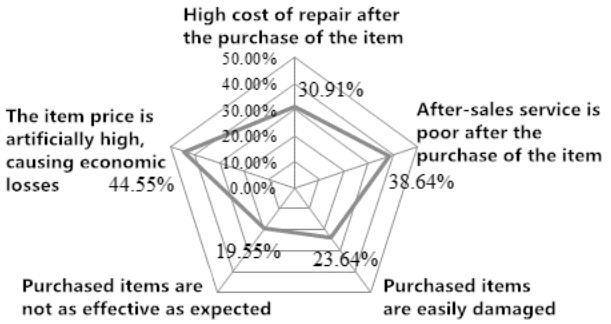

Figure 15. Risks after tourism shopping

4.4 Result Analysis of Factors Influencing the Purchase Decision-making Behavior of Tourists to Kunming

After statistical analysis of the questionnaire data, the various stages of the decision-making behavior of visitors to Kunming will be affected by different factors. The psychological perception of tourists is the main cause of tourists' participation in tourism shopping. At the same time, their purchasing motives are often based on the motivation of emotional purchases, the recommendation of relatives and friends or the giving of special products to relatives and friends to express affection. In the information gathering stage, marketing factors (including: products, prices, channels, promotions) and the degree of trust in tour guides and shopping places have played a leading role. In the evaluation scheme stage, the influence of the reference group, the characteristics of the shopping product itself, and the assessment of the potential risks of the tourism products, these three factors together lead to the choice of the shopping plan. In the purchasing decision stage, the shopping environment, the market environment experience, and concerns about mis-purchase affect the decision of the visitor. In the post-purchase stage, the comprehensive evaluation of the purchase affects the future willingness to purchase and form an experience, and becomes a reference group for other tourists. The information conveyed will have an impact on future visitor shopping. At the same time, it generates a risk perception of after-sales service for shopping companies. As shown in Figure 16:

5. Negative Influencing Factors and Improvement Measures of Tourists' Purchase Decision-making Behavior in Kunming

5.1 Analysis of the Correlation between the Influencing Factors of Tourists' Purchase Decision-making and the Status Quo of Shopping Market

As mentioned above, tourists to Kunming will be affected by many factors in the process of shopping decision-mak-

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ing. According to the status quo of Kunming tourism shopping market, the relationship between various factors and market status is shown in Table 11:

5.2 Negative Factors Affecting the Purchase Decision-making Behavior of Tourists to Kunming

According to the previous analysis, the factors affecting the decision-making behavior of tourists in Kunming in the future will be combined with the current situation of the Kunming tourism shopping market. It can be found that there are four aspects in the tourism and shopping market in Kunming: deceptive induction shopping, high price of jewelry and jade shopping products, low level of tourism shopping experience, and imperfect after-sales service in tourism shopping places.

5.2.1 There is Deceive Shopping in Some Shopping Places

At present, there are some small-scale tourism shopping enterprises in the tourism shopping market in Kunming. The sales and operation methods often adopt the black-box business model such as "isolated-style" sales and "recognition of old-fashioned stores". Sales personnel deceive or disguise and induce tourists to shop.

After shopping, tourists often realize that they are deceived under the influence of the reference group. This move infringed on the legitimate rights and interests of tourists and seriously disturbed the order of Kunming's

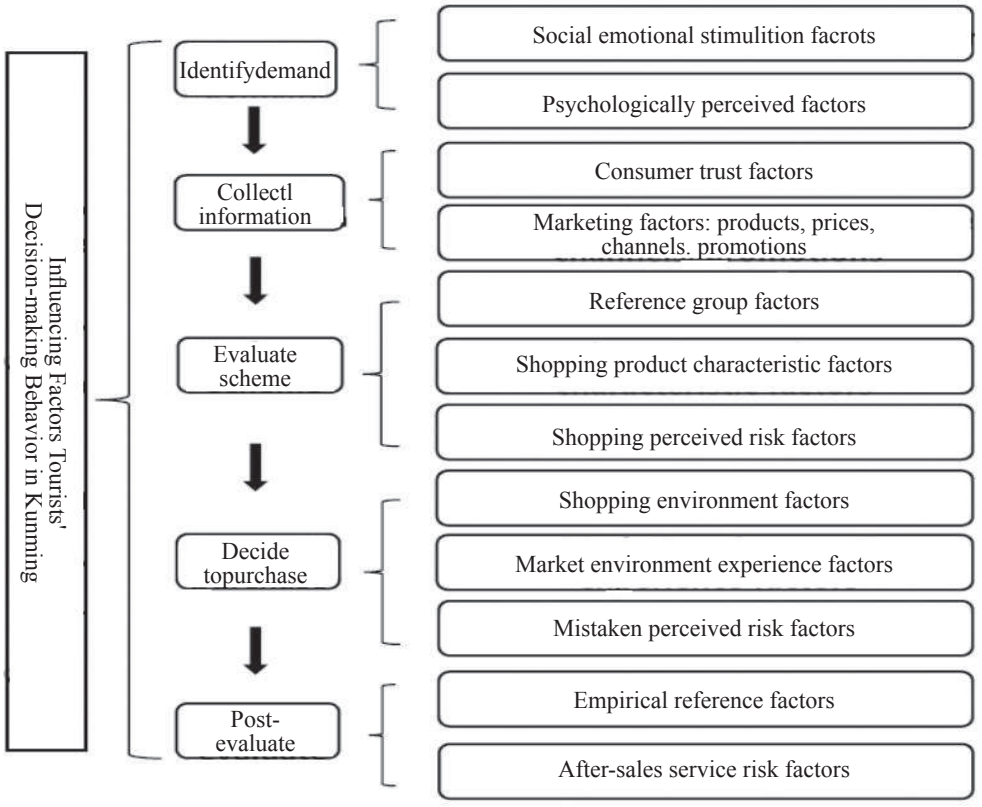

Figure 16. Factors influencing the purchase decision-making behavior of Tourists to Kunming

Table 11. Analysis of influencing factors and market status of tourists' purchase decision-making in Kunming

Influenc-ing factors	Consumer trust factor, shopping perceived risk factor	Marketing factors, shopping perceived risk factors, misleading perceived risk factors	Market environment experience factor	After-sales service risk factors
Market situation	Some enterprises adopt the "black shop" business model and the isolated sales of private rooms.	Under the "unreasonable low price" business model of travel agencies, some tourist shopping places adopt high pricing and high kickback methods to attract travel agencies to arrange team shopping.	Less experience travel shopping places	Highlights of travel shopping complaints
Problem points	Deception induces shopping	Jewelry and jade shopping products are expensive	Low level of travel shopping experience	Shopping service system is not perfect

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tourism market. Therefore, many tourists have low trust in tourism shopping and consumption, which has produced negative perceptions, seriously hurting tourists' shopping enthusiasm and affecting the overall tourism image of Yunnan.

5.2.2 Jewelry and Jade Shopping Product Prices Are Artificially High

Under the unreasonable and low-cost business model, some tourist shopping places adopt high pricing and high rebates to attract travel agencies to arrange tourism team shopping, resulting in inconsistent quality of tourism shopping. For jewelry and jade shopping products, tourists often go to professional institutions for quality and price identification after shopping, and think that they are deceived. Tourists to Kunming are mainly young and highly educated tourists. This part of the tourists has ample shopping and consumption potential, and also has a strong sense of rational shopping and awareness of rights. The high price of tourist shopping products often weakens the desire of tourists to purchase.

5.2.3 The Level of Tourism Shopping Experience Is Low

The experience and feelings in the tourism shopping activities have a great influence on the tourists making shopping decisions. Taking Kunming Flower City, a large-scale comprehensive tourist shopping place, as an example, it integrates Yunnan national culture, flower culture and modern business development, and increases consumption and entertainment such as cultural entertainment and life experience projects. However, most of the tourism and shopping markets in Kunming still belong to the traditional tourism shopping market. The overall scale is small, the functions are imperfect, and the experience-type tourism shopping places are seriously inadequate.

The advent of the era of experiential economics has made the experience of goods and services gradually infiltrated into tourism shopping activities. Experiential tourism shopping is centered on the experience of tourists and the degree of tourism satisfaction, which is different from traditional shopping and shopping with the focus on shopping products.[4] At present, the level of business in the tourism and shopping market in Kunming has largely restricted the development of tourism shopping.

5.2.4 Imperfect Service System of Tourism Shopping Places

The lack of after-sales service concept is a common problem in modern enterprises.[9] Most enterprises have not established a standardized service system and management system. The staff's goal of after-sales service is not clear, and the work attitude is not positive.[5] The after-sales service system of Kunming tourism shopping places is not perfect, and there is no timely and effective reply to the tourists' after-sales appeals, resulting in complaints from tourists. The willingness of tourists in this part of the future will be affected by this. When they become reference groups of other people, the information they convey may lead to a decrease in the willingness of other visitors to Kunming to purchase, and invisibly lose some of their customers, which restricts the development of the Kunming tourism shopping market.

5.3 Development Countermeasures of Kunming Tourism Shopping Places

Aiming at the problems existing in the tourism shopping market in Kunming, this paper improves the negative influence factors of tourists' decision-making behaviors in Kunming from four aspects: rectifying the order of tourism shopping market, establishing a sound price supervision mechanism, strengthening the tourism shopping experience and improving the after-sales service system.

5.3.1 Rectify the Orders of the Tourism Shopping Markets

The market competes fairly and refuses to sell fraud in order to not damage the legitimate rights and interests of tourists. Tourism shopping enterprises should operate under the supervision of the market, establish a brand, pay attention to marketing innovation, seek benefits through legal marketing methods, innovate the sales methods of tourism shopping products, and promote the transformation and upgrading of tourism shopping enterprises.[6] The government should strengthen the supervision of the tourism market, set up a visiting work group, visit major tourist shopping places, and impose severe penalties on fraudulent inducing sales and other irregular behaviors, crack down on unfair business practices, and improve the credibility of tourism shopping enterprises.

5.3.2 Establish and Improve the Price Supervision Mechanism

At present, there is an invisible contract in the tourism shopping market in Kunming. This kind of contract closely links the economic interests of tourists, tourism shopping enterprises, directors and travel agencies, and curbs the high price and high rebate of tourism shopping enterprises.[7] Standardize the channels for the travel agency's profit sources, give the travel agency a reasonable profit margin; reform the unreasonable tour guide compensation system, and give the tour guide reasonable work compensation. In this way, the rebate can be effectively eliminated and the price of the shopping item can be balanced. According to the current situation of tourism shopping, it is necessary to speed up the formulation of anti-profit-making laws and regulations, strengthen supervision and inspection, punish or ban the sale of high-quality shopping products, unreasonable rebates for tour guides, and strengthen industry self-discipline. Establish Kunming Tourism and Shopping Products Integrity Guide Price Su-

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pervision Center, the government gives reasonable guidance pricing.

5.3.3 Strengthen the Tourist Shopping Experience

The typical characteristic of the experience economy is that consumption is a process, the enterprise takes the service as the stage, the commodity is the prop, the consumer is the center, and the activity that enables the consumers to participate and is worthy of the consumers' memories is created. At the end of the process, memory will preserve the "experience" of the process for a long time.[8] Strengthening the experience of tourists in tourism shopping activities can encourage tourists to generate willingness to purchase, and will store the experience process in memory and establish the reputation of tourism shopping products to strengthen the tourism shopping experience in Kunming, it is necessary to transform and upgrade traditional tourist shopping places to improve the quality of experience services. Optimize the tourism shopping environment, the creation of the situational atmosphere gives visitors visual and emotional stimulation, evoking the interest of tourists shopping. Organize some entertainment activities that allow visitors to participate, increase cultural entertainment, life experience projects, introduce a high degree of participation in the layout of tourists, and promote the growth of the tourism shopping market.

5.3.4 Improve After-sales Service System

After-sales service is the last line of defense to protect consumer rights and is an effective measure to maintain consumer satisfaction and loyalty. First of all, enterprises should improve the after-sales service system, return visitors' satisfaction with travel and shopping products, and timely and effectively deal with tourists' after-shopping consultations and appeals, which can effectively reduce corporate complaints, enhance corporate image, and develop potential customers invisibly. Secondly, the tourism authorities should improve the handling efficiency of travel shopping complaints and reduce the risk of tourists purchasing.

6. Conclusion

With the increasing marketization of tourism, tourism shopping has become an important part of the tourism market. Based on the unified perspective of market supply and consumer demand, this paper focuses on the factors influencing the decision-making behavior of visitors to Kunming. Tourists' own psychological perception, consumption trust level, market environment experience, shopping experience reference and other factors have an impact on tourists' shopping decision-making behavior. To effectively promote the development of Kunming tourism shopping, it is necessary to take tourists' demand as the guide, pay attention to the psychological experience and feelings of tourists, strengthen the tourism shopping experience, establish a sound price supervision mechanism, improve after-sales service, and rectify the order of Kunming tourism shopping market to realize the healthy and orderly development of Kunming's tourism shopping market.

References

[1] Hongyan Wang. Analysis on the Concept and Relationship of Tourism Products, Commodities and Shopping Products[J].Journal of Liaoning University of Technology(Social Science Edition),2009,11(6):52-54. (in Chinese)

[2] Chunhua Zi, Xia Teng. Reflections on the relationship between tourism products, tourism products and tourism shopping products[J]. Industry and Technology Forum, 2008,7(11):74-75. (in Chinese)

[3] Meiyu Shi. Theoretical Thinking on Tourism Shopping Research[J]. Tourism Journal, 2004,(1):32. (in Chinese)

[4] Li Huang, Qigeng Li, Guoqing Jia. The Influence of Tourism Shopping Experience Elements on Customer Value, Satisfaction and Purchase Intention[J]. Tourism Journal, 2009,24(2):41-45. (in Chinese)

[5] Shuai Yang, Yue Zhao. On the commercialization of after-sales service[J]. Northern Economy, 2009,(6):92-94. (in Chinese)

[6] Bingwu Li. Development of Tourism Shopping Should Focus on Marketing Innovation[J]. Journal of Hunan Business College, 2002,9(4):48-51. (in Chinese)

[7] Zhifei Li. Research on the Implicit Contractual Marketing Behavior of Tourism Shopping Consumption[J]. Science & Technology Progress and Policy, 2003,(8):121-123. (in Chinese)

[8] Jingjing Guan. On the Characteristic Tourism Shopping System under the Experience Economy——A Discussion with Mr. Yuan Guohong[J].Journal of Beijing International Studies University, 2005,(1):92-95. (in Chinese)

[9] Anderson,L.K.and Littrell,M.A.Souvenir Purchase Behaviour of Women Tourists[J].Annals of Tourism Research,1995,22:328-348.

[10] Cohen,E.Authenticity and Commoditization in Tourism[J]. Annals of Tourism Research,1988,15(3):371-386.

[11] Littrell, M.A., Anderson, L.F.and Brown, P.J. What makes a craft souvenir authentic?[J]. Annals of Tourism Research, 1993,(20):197-215.

[12] Hsieh, S.,O'Leary,J.and Morrison,A.Segmenting the International Travel Market by Activity[J].Tourism Management,1992,13(2):209-223.

[13] Mao-Ying Wu, Geoffiey Wall,Philip L. Pearce.Shopping experiences:Interational tourists in Beijing's Silk Markef[J].Tourism Management,2013,41(04):96-106.

[14] Myung-Ja Kim,Namho Chung,Choong-Ki Lee.The effect of perceived trust on electronic commerce:Shopping online for tourism products and services in South Korea[J]. Tourism Management, 2011, 32(04):256-265.

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RECIEW

The Impact of Auditor Quality on Audit Quality
—— Evidence from China Based on Data from 2014-2016

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ABSTRACT

This paper studies the impact of auditors' own quality on audit quality. Through the test of relevant models, it is necessary to find out whether the conclusions of predecessors have practical significance in improving the quality of auditing as time goes by and other relevant influencing factors of the market. The paper collects relevant data from multiple dimensions such as the age level of the auditors, the accumulation of audit experience, and the level of education by collecting the relevant data of the 2016 A-share listed companies and the top 100 CPA firms in 2014-2016. An empirical test was conducted. According to the results of the empirical test, the discussion and research will be carried out, and further opinions and suggestions on how to improve the quality of the auditor should be put forward. The innovation of the research is that the level of earnings management is used as a measure of audit quality, and non-recurring gains and losses are used as explanatory variables. On the basis of previous studies, time and environmental institutional variables were further introduced for further verification.q

1. Introduction

A stable, orderly, and efficient market requires high-quality auditing services. However, financial fraud has occurred frequently. In 2001, the "Silver-Guangxia" incident, the 2013 Wanfushengke fraudulent listing, etc. occurred from time to time,[1] not only in China. There are also many fraud scandals in the United States. Falmo, a chain pharmacy in Ohio, made false profits through inventory asset fraud, using the accounting firm's sample control to cover up the fact that it was already bankrupt, and other Tyco companies listed on the NYSE, the United States. Accounting frauds such as waste management companies have repeatedly occurred. In this context, the need for auditing is self-evident. As the main body of auditing, the accounting firm's quality directly affects the quality of auditing. Therefore, exploring how to further improve the value of human resources has profound implications for audit quality.

2. Literature Review

Scholars in the academic circles have devoted themselves to the study of how to improve the quality of auditing, and explored through various aspects such as auditing system background, auditor characteristics, civil audit supervision, surrogate indicators of audit quality and quantitative evaluation index system. The reasons for the impact on audit quality, existing problems and corresponding countermeasures have been made, and meaningful research results have been obtained.

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Dye.R.A. (1993), Palmrose.Z (1988)[2] pointed out that human resource factors have a positive correlation with the improvement of audit quality. However, Kim, JR (2003)[3] found in the study that the impact of human resources on audit quality and the legal liability of the firm is easily overlooked, and he believes that the auditor's academic level, work experience and experience, and professional qualifications need to be affected. One of the factors of audit quality. Aleen.AC (2011)[4] discussed the dimension of professional ethics that auditors will reduce audit risk when they do not deceive audited units, investors and the public, and conduct audits in strict accordance with accounting standards and norms, which can improve audit quality.

Dan Liu (2006)[5] emphasizes that the auditors' ability to practice and the judgment of their practice are better, and the firm they serve will provide higher quality audit reports. Bao Xiaotong (2017)[6] found that the auditor's audit report issued by a certified public accountant with a high degree of education, a partner in the firm, and a woman with excellent accounting expertise is of high quality. Yangshuo (2002)[7] believes that if the firm wants to maintain its independence and is not damaged, and does not have major audit errors, the auditors need to have good morality and loyalty to the profession, without being tempted by the outside world. Change the accounting related norms and required beliefs. Song Wei (2014)[8] found that investors and regulators can use the CPA's own quality as a measure of audit quality, and the auditors whose age structure is under 40 years of age are significantly positively correlated.

As early as 1981, De Angelo[9] had proposed two key dimensions to define audit quality, that is, significant accounting errors should be identified in audit activities and this error would be made public. Zimmerman (1983)[10] supplemented this theory. Audit quality is the joint probability of discovering and disclosing corporate financial reporting violations. It depends on the auditor's ability to work and the non-material resources and substances invested in the audit activities. Resources; on the other hand, the objectivity and independence of auditors relative to clients. On the whole, the extent to which the audit work increases the credibility of the audit report is the core issue for determining the quality of the audit. Based on this understanding, this paper believes that this view is helpful to emphasize the role of CPAs in audit activities, and is not limited. To explore the quality of audit quality, pay more attention to the real situation and professional level presented in the audit report. From the relationship between audit fees and audit quality, Copley (1994)[11] puts forward the view that there is a positive correlation between audit fees and audit quality through empirical research. He believes that when accounting firms provide high-quality audit reports or services. At the same time, the corresponding audit fees are higher than the market level. However, Shuang Li (2004)[12] found through the actual investigation of the first disclosure of audit fees of listed companies in China, the first disclosure of audit fees is not reliable, including the existence of clear regulatory requirements and lack of supervision. Therefore, whether the audit fees can accurately replace the audit quality still requires further empirical testing.

From the relationship between the size of the accounting firm and the relationship between brand effectiveness and audit quality, Angelo (1981) [9] believes that the size of the accounting firm can be used as a surrogate indicator because the larger the firm, the more capital and human resources. To undertake more auditing business volume, and in order to maintain long-term cooperation with customers, they are more willing to establish a better reputation and accumulate their own brand benefits by providing high-quality audit services. Xie Bing and Wang Zexia (2010) [13] used the listed companies with fraudulent practices investigated and dealt with by the CSRC within ten years as research samples. The results of empirical research show that there is no existence between the audit opinions issued by accounting firms of different sizes and the management fraud of listed companies. Significant contact, so there is no necessary relationship between firm size and brand effectiveness and audit quality, so it should not be used as a substitute indicator for audit quality.

Judging from the relationship between the types of audit opinions issued by auditors and audit quality, Zhang Yongkui and Liu Feng (2002) [14] found that the "standard unqualified opinions" issued by accounting firms accounted for the greater proportion of all audit opinions. It will be considered less objective and less independent. Those firms that find that listed companies may have fraudulent or irregular accounting practices during the audit process often want to circumvent audit risks and issue "reservation opinions", which provides an effective consideration for the regulatory authorities and will also be Think of a higher audit quality. However, Chen Meihua (2003)[15] used the non-standard audit opinion of domestic listed companies in 1995-1999 as a sample, analyzed the mean of the cumulative abnormal rate of return, and used multiple regression to conduct empirical tests. None of the market has found any non-standard audit opinions. Significant reaction. In addition, there are "recommendations of audit opinions" in the Chinese market. If there is an unqualified opinion, the explanation section is added. Therefore, there are certain obstacles to using the audit opinions to mea-

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sure the audit quality.

From the perspective of earnings management and audit quality, earnings management, as a means of seeking private profits, will choose to account for its more favorable accounting policies in order to achieve profitability expectations, or control accruals to allow audit reports to meet expected standards. Cai Chun (2005) [16] experiment proved the relationship between audit quality and the manipulated accruals of listed companies. Dong Pu (2007)[17] further pointed out that in the financial information of listed companies that have been audited, it can be seen that the degree of earnings management can reflect the quality of auditing and reflects the independence and professional judgment of auditors. The constant changes in the market have broadened the financing channels for enterprise development, but at the same time, the information asymmetry has also been strengthened. The separation of management rights and ownership of enterprises has been intensified, leading to the possibility of earnings management. If the accounting treatment relies on the subjective judgment of the enterprise management or its own privacy, the financial report generated will lose the objective and objective premise, and the accounting violations and fraud will also increase. The essence of the audit activity is to restrict and supervise the enterprise managers, use professional knowledge and professional judgment to find errors in the earnings management of financial statements, and improve the reliability of the report. Therefore, the earnings management level of listed companies' financial reports is inseparable from the quality of auditing and can be directly used to measure the quality of auditing.

In summary, audit quality and its effective surrogate indicators and influencing factors have always been research hotspots in the field of accounting and auditing, and have also achieved quite a lot of meaningful research results. The theoretical research on audit quality abroad mainly focuses on the perspective of independence and professionalism, but there is still a lack of research on the personal qualities of auditors. This article will use the latest data from 2014-2016 to explore the impact of auditor quality on audit quality.

3. Data Descriptive Statistics and Methodology

The data in this paper is derived from Wind Financial Terminal and Guotaian Database, and is calculated and integrated on this basis. Including the 2016 A-share listed companies, and selected the 2014-2016 100-year-old accounting firm as a research sample according to the industry information query published by the China Association of Certified Public Accountants. The following principles should be followed when screening samples: (1) Listed companies that have incomplete data, obvious abnormal values, and abnormal financial status. (2) Only select A-share listed companies, and exclude financial and IPO listed companies. Finally, 2438 samples were selected, and the R language statistical analysis system was used for correlation analysis. In the above discussion, we finalized four indicators, namely: how much accumulated audit experience, whether it is a CPA, the level of education, and whether it is an industry leader for empirical analysis.

3.1 The Hypothesis

3.1.1 Hypothesis One

Audit experience is positively correlated with audit quality on the basis that other conditions are the same and unchanged.

Experience is not the innate knowledge and skills that must be acquired through the efforts and practices of the day after tomorrow. The professional experience further requires people to accumulate professional skills and knowledge after they continue to participate in relevant tasks and activities. Experienced auditors have more sensitive professional awareness, are more likely to find accounting violations and frauds in the audited organization, and have a clear professional thinking mode to provide new ideas and methods for audit work to make more reasonable and effective decisions. So we can assume that hypothesis 1 is true.

3.1.2 Hypothesis Two

On the basis of other conditions being the same and unchanged, professional qualifications are positively related to audit quality.

Auditors who can successfully pass the CPA professional qualification examination must have a complete basic professional knowledge system, and have flexible learning ability, plus the minimum academic qualifications and work experience that have been defined in the registration conditions. Explain its ability to produce high quality audit reports. Therefore, we can think that there is a positive correlation between professional qualifications and audit quality.

3.1.3 Hypothesis Three

On the basis of the same and unchanged other conditions, the academic level is positively correlated with the audit quality.

Different from other industries with manual labor as the main form of labor, audit activities mainly rely on human intelligence. The human brain fully mobilizes its past knowledge reserves and uses them reasonably in the audit process, which is the only way to achieve high-quality audit. Highly educated people have learned and formed their

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own ways of thinking and the ability to continuously integrate new knowledge in the long compulsory education and higher education stage. They have stronger learning ability and absorb new knowledge than those with lower academic qualifications. The process of faster and further use of theoretical knowledge is more efficient. Although it is determined that the professional competence of auditors cannot be based solely on the level of academic qualifications, the level of education can be a convenient and efficient measure. Therefore, we have reason to believe that Hypothesis 3 is established.

3.1.4 Hypothesis Four

On the basis of the same and unchanged other conditions, the leading figures are positively related to the quality of the audit.

Leading talents are elites who can lead the development of the whole industry. They are produced under the high standards and high requirements. In addition to the professional qualities possessed by the general practitioners, they often have more significant professional ethics and are fully committed to the auditing career. Strong desire, active learning of the latest industry knowledge and the ability to innovate and optimize industry standards. We believe that leading talents are acting positively on audit quality.

3.2 The Analysis

The content of the empirical research in this paper is the impact of the quality of auditors on the quality of auditing. Therefore, the quality of auditing is chosen as the explanatory variable of the research, and the quality of auditors is used as the explanatory variable.

Many factors affecting the quality of auditing have been discussed above, in which the earnings management of listed companies is generally considered to be the most effective indicator to replace audit quality. Managers use earnings management to cover up the true surplus level of the company, which will cause losses to investors and the public. High-quality audit reports can identify and point out such behaviors to ensure the orderly operation of the market and the vested interests of all parties. Legal rights. In the earnings management, the impact of non-recurring gains and losses on the surplus level exceeds the control accrued profit. Wei Tao and Lu Zhengfei (2007) [18] found that listed companies generally use non-recurring profit and loss to adjust profits to achieve turnaround. The phenomenon. Therefore, this paper uses the ratio of non-recurring gains and losses of listed companies to total assets at the beginning of the year to measure the indicators of earnings management. When this indicator is high, it indicates that listed companies use offline projects for earnings management, and auditors can audit. Found in the work and truthfully disclosed, it can be seen that the audit quality is higher.

Non-recurring gains and losses mainly refer to various offline projects that are not related to the business operations of the company but whose nature affects the company's true reflection of profitability. For China's listed companies, the main offline projects include net non-operating income (such as fixed assets, profit, asset restructuring income, losses, etc.), investment income obtained by enterprises from equity investment and other equity investments. Subsidy income (such as tax refunds, etc.).

The formula is: non-recurring gains and losses = investment income + tax refund + (non-operating income - non-operating expenses).

According to the previous assumptions, this paper takes the age structure, CPA, and academic structure as the proportion of the total number of employees in the firm and the leading talents as explanatory variables. The age structure is divided into three categories: 40 years old, 40-60 years old, 60 years old and above; the academic structure is divided into three categories: undergraduate and below, master's degree, doctoral degree and above.

Due to the multifaceted impact of audit activities, the following control variables were added to make the experimental results more accurate:

(1) Size of the firm: The scale mainly refers to the strength of the firm in terms of human resources and material resources. This paper uses the total number of employees (NOE), the number of branches (Branch) and the number of partners (PN) as a substitute for scale. According to the previous discussion, large-scale firms tend to use high-quality audit reports to effectively avoid high audit risks in order to establish good reputation and improve brand efficiency.

(2) Customer Size (CS): Logarithm of listed company assets LnTA

(3) Customer Importance (CI): Generally speaking, the stronger the customer's importance, the more the firm is likely to be influenced by the customer's opinions in order to maintain contact with the customer and business stability, and its independence will be affected. . Therefore, this article will account for the proportion of the firm's total business revenue this year to consider the importance of the customer.

(4) Company cash flow (CF)

(5) Corporate Profitability (ROA): The proxy variable of profitability uses the return on capital (ROA) as its proxy variable. The formula is: ROA = operating profit / total assets.

The specific variables are defined in Table 1:

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Table 1. Variable Definitions

Variable	Definitions
APL	Non-recurring gains and losses and the ratio of total assets at the beginning of the year
Level1	Bachelor degree or below
Level2	Master's degree
Level3	PhD and above
Experience1	Proportion under 40 years old
Experience2	Proportion of 40-60 years old
Experience3	Proportion over 60 years old
CPA	Proportion of CPA
Leader	Number of leading talents

This paper performs regression analysis by establishing the following model:

$APL=\alpha+\beta_1$ Level(1,2,3) $+\beta_3$ Experience(1,2,3)$+\beta_4$CPA $+\beta_5$Leader$+\beta_6$ROA$+\beta_7$Size $+\beta_8$LnTA$+\beta_9$CI$+\beta_{10}$CF$+\varepsilon$

In the above model, APL is the interpreted variable, and level, Experience, CPA, and Leader are explanatory variables. α is a constant term, βi (i = 1, 2, 3, 4, 5) is a regression coefficient, and ε is a random variable. Based on the above, we predict that the level 1, 2, 3, Experience 1, 2, 3, CPA, and Leader coefficients are positive; the coefficients of Size (NOE, PN, and Branch) are also positive; the CI and ROA coefficients are positive; LnTA, CF and APL may be positive, may be negative, and may not be significant, so no predictions are made.

After collecting all the collected data, descriptive statistics, variable autocorrelation test and multiple regression analysis were performed using R language statistical software, and the following results were obtained. Descriptive statistics were performed on all samples, and the results are shown in Table 2.

From the above data, the analysis is as follows:

First, undergraduate and below are significant in the academic structure. In the academic structure of the firm, the weighted average of the undergraduate and below auditors is 56%, the maximum is 6.5, and the minimum is 0.1; the weighted average of the master's degree is 7%, and the maximum is 1. The minimum value is 0.02; the weighted average of doctors and above is only 0.16%, the maximum value is 0.03, and the minimum value is 0. This reflects that most of the practitioners in the current auditing industry in China are undergraduate and below, while the number of graduates and doctoral students with higher education is relatively small.

Second, the proportion of certified public accountants is on the rise. According to descriptive statistics, the weighted average of the proportion of certified public accountants is 62%, the maximum is 7.5, and the minimum is 0.12. It shows that more than half of the employees in the auditing industry in China have successfully obtained the title of CPA, and it is expected to further increase this proportion.

Third, the proportion of leading talent is too low. The weighted average of leading talent is only 0.06%. The proportion of the total number of employees is too low, and the number of leading talents in each accounting firm is extremely small. The highly sophisticated talents in such auditing industries are scarce.

Table 2. Descriptive Statistics of Sample Variables

VariableSymbol	Symbol	Min	Max	Average	Standard deviation
Customer importance	CI	0	0.037143558	0.001161932	0.001927147
Company cash flow	CF	-15229140549	2.65179E+11	1037108213	8145253597
Non-recurring gains and losses	APO	-2544990000	34214000000	264141972.3	1322092990
profitability	ROA	-0.185423369	0.319801161	0.006999249	0.018157059
Practitioner	NOE	2	2637	927.7686628	655.4153436
Number of leaders	Leader	0	0.016304318	0.000660664	0.001775195
Number of branches	Branch	3	40	22.62592289	10.35601082
Number of partners	PN	0.032663317	2.5	0.237183457	0.330537379
Bachelor degree or below	Level1	0.107318923	6.5	0.560789423	0.771026372
Master's degree	Level2	0.02085705	1	0.072667057	0.116347216
PhD and above	Level3	0	0.033333333	0.001624182	0.004047733
Proportion under 40 years old	Experience1	0.10419026	1.1	0.331025523	0.220447198
Proportion of 40-60 years old	Experience2	0.016306409	4.5	0.254599484	0.543502382
Proportion over 60 years old	Experince3	0	2	0.0439907612	0.234668272
Customer size	CS	17.77853506	28.50521821	22.39907612	1.278761758
Proportion of CPA	CPA	0.1281755958	7.5	0.629589175	0.88701414

Sources: Guotaian Database, China Institute of Certified Public Accountants

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Fourth, the proportion of 60 years old or above is low. In the age structure, the weighted average of the proportion of auditors under the age of 40, 40-60, and 60 is 33%, 25%, and 4%. Among them, the auditors who are over 60 years old account for a relatively low proportion, which reflects that there are fewer auditors with senior qualifications and long working years in the audit team, while the proportion of people under the age of 40 and 40-60 years old is small, which is an audit. The main working population of the industry.

4. Discussion Results

The variance expansion factor analysis (VIF) was performed for each variable, and the results are shown in Table 3.

Generally, VIF values are non-collinear between 0-10. It can be seen from Table 3 that the multicollinearity problem between the explanatory variables in the model is within an acceptable range, and multiple regression analysis can be performed.

Table 3. Variance Expansion Factor Analysis (VIF)

Variable	VIF Value
Level1	1.5426
Level2	1.3337
Level3	2.7830
Experience1	5.7081
Experience2	3.4798
Experience3	6.4306
CPA	9.2563
Leader	1.4051
Branch	2.9591
NOE	3.1666
PN	3.7583
CI	1.7878
CS	1.2787
ROA	1.0137
CF	1.2327

Further regression analysis is as follows:

First, the academic structure is positively related to non-recurring gains and losses, and the proportion of undergraduate and below is more significant, indicating that the degree of education has an impact on the quality of the audit. Relevance is consistent with expectations, but in terms of significance, the proportion of master's and doctoral degrees with higher academic qualifications is significantly lower than that of undergraduate and below. It can be reflected that the current level of the auditor team in China is higher than that of undergraduate and below. After accepting vocational or undergraduate education, they have chosen direct employment instead of continuing their studies. They have accumulated professional judgment and professionalism in auditing practice. Knowledge skills thus provide a higher quality audit report.

From the multiple regression results in Table 4, the correlation and significance between the explanatory variables and the explained variables are not completely consistent with the expected results:

Table 4. Multiple Regression Results

variable	Estimate value
(Intercept)	0.055574659*** (4.559)
Level1	0.085638982* （2.579）
Level2	0.030154543 （0.498）
Level3	0.256765568 （1.022）
Experience1	3.023355883 （1.448）
Experience2	3.009506396 （1.439）
Experience3	3.019115814 （1.450）
CPA	-3.092353778 （-1.480）
Leader	0.426692653 （1.049）
Branch	6.46623E-05 （0.639）
NOE	2.46029E-06 （1.487）
PN	0.002207897 （0.195）
CI	0.341147346 （0.807）
CS	-0.002188281*** （-4.062）
ROA	0.861213837*** （25.497）
CF	4.4538E-14
Sources: Guotaian Database, China Institute of Certified Public Accountants （0.536）	

Second, there is a positive correlation between age structure and audit quality, but it is not significant and the difference between the three age levels is small, indicating that the auditor's age has limited impact on audit quality. The foregoing assumes that we assume that the audit experience may be related to the quality of the audit. There are two reasons for this regression. On the one hand, the use of age structure as a surrogate indicator of audit experience is flawed, and it is easy to treat older auditors with late entry into the audit experience. On the other hand, older employees with more auditing experience may not be better than young accountants in the ability to adapt to the newly introduced policies and regulations of the au-

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diting industry. Therefore, the quality of auditing will be affected by the quality of auditing, but the scope of impact is small and there is no significant difference between auditors of all ages.

Third, the proportion of CPAs is negatively correlated with non-recurring gains and losses, which is inconsistent with the expected results. This result conflicts with the previous scholars' conclusions. It reflects that the samples collected in this paper and the models used need to be further optimized.

Fourth, the correlation between leading talents and non-recurring gains and losses is positive and consistent with the expected results. Leading talents have an irreplaceable demonstration role for the auditing industry. However, the number of industry leading talents in China is still small at present, and the existing leading talents are basically concentrated in several large accounting firms. The small number of samples makes its impact on non-recurring gains and losses not significant. In the future, the development of human resources in the firm should pay attention to the cultivation of leading talents.

Fifth, among the other control variables in the above model, CS is highly significant and negatively correlated with non-recurring gains and losses, indicating that the larger the size of the client, the higher the probability that the auditor will help cover up the accounting fraud and other irregularities; ROA is significant Strong and positively related to non-recurring gains and losses, indicating that the stronger the profitability of listed companies, the lower the possibility of using earnings management to manipulate profits; other variables are positively correlated, and there is a corresponding correlation for audit quality.

5. Conclusion

According to the descriptive statistics mentioned above, undergraduate and below have the largest proportion of academic qualifications, and the number of master's and doctoral degrees is small; CPAs account for a relatively high proportion of the total number of employees; the number of leading talents is extremely low; age is 60 years old. The above auditors are few, most of the auditors are under the age of 40 and 40-60 years old.

This paper takes the relevant data of listed companies in 2016 and the basic information of the top 100 accounting firms in 2014-2016 as the research sample, and uses non-recurring gains and losses as an effective substitute indicator of audit quality. It is based on age structure, academic level and CPA. The proportion of the total number of people and the leading talents as substitutes for the quality of the auditors empirically examined the impact of auditor quality on audit quality. After pre-controlling the size of the accounting firm, customer importance, customer size, company growth, company cash flow and profitability, the empirical results show that the auditor's age structure, academic structure and the proportion of leading figures form the audit quality. The impact, in which undergraduate and below, is significantly more educated. There is a negative correlation between the proportion of CPAs and audit quality, which is inconsistent with our expectations. This paper believes that it may be caused by the following reasons: The sample is not rigorous in the screening process. Because the premise of our hypothesis is that listed companies generally use non-recurring gains and losses to adjust profits, in the disclosed financial reports, companies with low non-recurring profit and loss indicators are regarded as undiscovered or discovered during the audit. It has not been disclosed, so it is regarded as a low-quality audit. However, some of these companies do not have the behavior of modifying the surplus level through earnings management, so there is no need to disclose the actual audit quality. However, it is currently impossible to accurately distinguish the listed company from the surplus level, so the analysis on the existing data may be biased.

According to the results of empirical research, it provides data support for the investment of human resources in accounting firms, laying a foundation for providing high-quality audit reports.

References

[1] Yueping Liu, Changhong Mu. Analysis on the Risk Prevention of Accounting Firms under the Reform of Registration System[D].China Internal Audit, 2015. (in Chinese)

[2] Palmrose, Z. An analysis of auditor litigation and audit service quality[J]. The Accounting Review, 1988,1,55-73.

[3] Kim, J, R. Chung, and M. Firth. Author conservatism, asymmetric monitoring, and earning management[J].Contemporary Accounting Research, 2005,1,163,167. DOI: 10.1506/J29K-MRUA-0APP -YJ6V

[4] Aleen, A.C. and A.M. Woodland. Education Requirements, Audit Fees, and Audit Quality. Auditing[J]. A Journal of Practice &Theory.2010.2.1-25. DOI: doi.org/10.2308/aud.2010.29.2.1

[5] Guangyong Lei, Dan Liu. International comparison and portability of audit quality law[J].Chinese CPA, 2008,10,65-71. (in Chinese)

[6] Weirong Wu, Jingjing Li, Xiaotong Bao. Research on institutional background, auditor characteristics and audit quality[J]. Scientific Decision, 2017(07):68-84. (in Chinese)

[7] Shuo Yang. Enron Incident Andersen Accounting Company[J]. Times Accounting, 2002,6,39-41. (in Chinese)

[8] Wei Song. An Empirical Study of the Impact of Auditor Quality on Audit Quality[Master's Thesis]. Shanxi: Shanxi

  DOI: https://doi.org/10.26549/jfr.v2i3.1176

University, 2014. (in Chinese)

[9] Linda Elizabeth De Angelo Auditor size and audit quality[J]. Journal of Accounting and Economics, 1981, 1, 113-127.
DOI: doi.org/10.1016/0165-4101 (81) 90002-1

[10] Ross L. Watts and Jerold L. Zimmerman, "Agency Problems, Auditing, and the Theory of the Firm: Some Evidence"[J]. The Journal of Law and Economics 26, no. 3 (Oct., 1983): 613- 633.
DOI: 10.1086/467051

[11] Copley, Paul A., et al. "A Simultaneous Equations Analysis of Quality Control Review Outcomes and Engagement Fees for Audits of Recipients of Federal Financial Assistance."[J]. The Accounting Review, vol. 69, no. 1, 1994, pp. 244–256. JSTOR, JSTOR, www.jstor.org/stable/248270.

[12] Shuang Li, Xi Wu. Guidelines development guideline: principle vs rule[N]. China Financial News, 2004-08-20 (006). (in Chinese)

[13] Zexia Wang, Bing Xie. Who is more effective in the replacement of audit quality: empirical data from listed companies[J].Academic Research, 2010,7,23-29. (in Chinese)

[14] Zhang Yongkui, Liu Feng. Research on Accounting Standards, Internal Control and Corporate Governance Issues——The Dynamics of Accounting Academic Exchanges across the Taiwan Straits[J].Accounting Research,2012(10):87-90. (in Chinese)

[15] Meihua Chen. Two Thoughts on the Revised Draft of China's "Independent Auditing Specific Standard No. 17 - Continuing Management"[J]. Auditing Theory and Practice, 2003(12):17-18. (in Chinese)

[16] Chun Cai, Wenyu Xian. Examination of the correlation between accounting expertise and audit quality[J]. Accounting Research, 2007,6,41-47. (in Chinese)

[17] Pu Dong, Gaoliang Tian, Yan Wei. An Empirical Study on the Relationship between Non-audit Services and Audit Quality[J]. Audit Research, 2007. (in Chinese)

[18] Tao Wei, Zhengfei Lu, Shan Hongwei. Research on Motivation, Means and Role of Non-recurring Profit and Loss Earnings Management——Evidence from Chinese Listed Companies[J].Management World, 2007(01):113-121+172.
DOI: 10.16511/j.cnki.qhdxxb.2005.09.029. (in Chinese)

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RECIEW

Report of Informal Housing Policy in India

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ABSTRACT

Informal housing can be broadly defined into two types: first, those in which occupants illegally occupy a certain area of a residential location and build a dwelling on the land; second, housing or residential areas which do not meet the master plan or building regulations. This report describes and evaluates the informal housing policies in India, introducing the improvement of the living standards brought on by these policies to the low-income residents of Chennai, while the case of Kannagi Nagar will be used to analyse the adverse effects of said policies.

1. The Problem

After India gained independence in 1947, it began on a distinctive path to modern development. However, in the process of rapid industrialization and urbanization, scarcity of urban housing land, an increase in real estate prices, and a widening gap between the rich and the poor led to many social problems. The most prominent among these issues is the housing shortage for the impoverished population and the resultant emergence of a large number of slums. According to the report of the National Sample Survey Office (NSO), urban poverty accounts for 50% of India's poverty, and 70% to 80% of the urban poor live in low-income families[1]. The increasingly severe housing problem of the poor and the continuous increase of slums have made India one of the most housing-stressed countries in the world. This has both severely constrained the development of Indian cities and received widespread attention from all walks of life.

Chennai, the capital and administrative hub city of the Tamil Nadu region has been particularly prominent in the rapid development of the nation. The south-eastern city is the country's fifth largest with the fourth largest metropolitan area, with an urban agglomeration of a population of nine million, which ranks it number 34 in the world. How-

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ever, the city is representative of the nation's overall housing problems, with over 1,400 slums, 25% of the city's total population is comprised of those who dwell within, living mainly in small, informal housing. [2] To address this issue, the Indian national government, the Tamil Nadu regional government, and the local Chennai government proposed policies on the status quo of informal housing in the city, which can be assessed to judge their impact upon the residents of these informal housing.

2. The Background

2.1 Social Background – Urban Development and Population Growth

Many cities in India have comparative advantages due to their long history and economic development, and thus they became important socio-economic and cultural centres in the region, such as Chennai. After becoming core cities in a region, such cities will gain further advantages, such as the potential of economic development diversification, a prospering urban economy, the advancement of industrialization, and the abundance of industries, making them central cities for the development of commerce, finance, and industry. However, in the example of Chennai the population of the city and the region in which it is located has increased dramatically. This is shown in Table 1 below, which compares the population data of Chennai from the 14th Indian census (2001) and the 15th (2011), while table 2 makes the same comparison for all of Tamil Nadu.

Table 1. Chennai Population Table

Description	2001	2011
Actual Population	4,343,645	4,646,732
Male	2,219,539	2,335,844
Female	2,124,106	2,310,888
Population Growth in 10 Years	6.98%	13.07%

Sources: Population Census 2001. Population Census 2011.

Table 2. Tamil Nadu Population Table

Description	2001	2011
Approximate Population	62,400,000	72,100,000
Actual Population	62,405,679	72,147,030
Male	31,400,909	36,137,975
Female	31,004,770	36,009,055
Population Growth in 10 Years	15.61%	11.19%

Sources: Population Census 2001. Population Census 2011.

The two tables demonstrate Chennai's population growth has occupied a central place in the population growth of the entire Tamil Nadu region. The population growth rate in Chennai increased from 6% to 13%, while the population growth rate in the Tamil Nadu region dropped from 15% to 11%. This shows that Chennai's population growth rate is higher than the overall region. A likely result of economic push and pull as people are attracted to moving to the big city by the job opportunities available and put off from living in the comparatively less developed rural areas where there are mostly labour-intensive roles. These internal immigrants provide a good source of cheap labourers the rapid development of the city has an urgent need for in the era of large-scale machine production. To support this, only 7% of Chennai citizens living in informal housing, mostly comprised of slums, were born in Chennai.[3] Because of the vast numbers of such individuals, the labour market is oversaturated meaning there is a lack of suitable jobs for everyone and the quality of their lives are thus often very low. Despite this, the inflow continues, causing a rapid expansion of the population, a major cause of the urban housing shortage

2.2 Economic Background – The Gap between Rich and Poor & Poverty

With the development of the economy in India, the per capita national income has increased greatly; however, this is not even across income levels. In Chennai, the gap between rich and poor is large, with the 10% of the population with the highest income in the city accounting for more than 50% of the total national income and for two-thirds of the total increase in personal income.[4] This that the current Indian wealth is increasingly concentrated in the hands of a small number of people and thus the gap between rich and poor has become a serious social problem.

This is the result of both historical and contemporary factors. Historically speaking, the 3000-year-old caste system entrenched in the country has locked a relatively large number of people into poverty, and thus provides a certain legitimacy for the separation between rich and poor within social customs.[5] Moreover, the malformed development of the colonial economy under British power and the later unbalanced economic development following independence resulted in inequality of economic development.[6]

2.3 Political Background

In India, all the political parties follow policies which promote their own power,[7] attracting votes by distributing national products and services to a wide range of people. This guiding ideology has led to national policy on slums being adopted to win the support of key groups in slum dwellers. The state government's policy is to make strategic changes to the usefulness of its local political interests in accordance with national government directives. For example, in Tamil Nadu, the operation of the first few

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years of the Tamil Nadu Slum Clearance Board (TNSCB), established in 1970, was dominated by the priorities of Dravida Munnetra Kazhagam (DMK), the national party which created it. Thus, the TNSCB's policy formulation will likely give priority to increasing the votes from the slums for the DMK, and is therefore not necessarily a policy which is truly beneficial to residents in informal housing.[8]

3. The Policy

3.1 Policy Approaches

The informal housing policy of the Indian national government has been varied greatly across different periods. However, since the 21st century, the policies of the Central Government have tended towards improving existing housing and the resettlement of individuals. One such example of this is the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), implemented at the end of 2005 to integrate the redevelopment plans of 65 cities through subsidies for the urban poor and slum improvement. A second would be Rajiv Awas Yojana (RAY) which plans to build 12 million affordable houses in 2009 and makes efforts to achieve a "slum-free India" by 2020.[9] These policies reflect the two different guiding ideologies of the central government, respectively looking to improve the existing informal housing through the redevelopment of slums and, through the construction of affordable housing, to achieve resettlement and comprehensive development in other places.

In Chennai specifically, the policies of both the local and regional governments are more oriented towards resettlement[10], operating alongside the national government's aforementioned TNSCB. Moreover, in the late 1970s, the World Bank and other international financial institutions started to become major sponsors of urban development projects in India, and, due to the market-friendly orientation of the nation, policies led to the relocation of residents to development sites. A typical example of this was the comprehensive rehabilitation program enacted in Okkiyum Thuraipakkam in 2009, on the edges of Chennai, which had the intention of relocating 10,000 families along the Chennai waterway, thereby freeing up land to build a Mass Rapid Transit System[11]. To 2016, the state government has placed more than 15,600 families in Okkiyum Thuraipakkam, push the poor more from the city to the periphery[12]. Furthermore, due to the TNSCB's resettlement policy, from the late 1990s to the end of 2010, more than 100,000 people from the slums of Chennai were forced to settle in relocation sites built by Kannagi Nagar, Emmencherry, and Thilagar Nagar.[13] Despite the repeated resistance to such forced relocation, the government did not change its policy and continued to expel people from their homes.

3.2 Policy Evaluation

The Indian national government's policy on the housing issues of the nation is, in general, a macro-guided policy, aiming to increase financial subsidies to address the crisis and reduce the cost of building houses to meet the low-income residents' ability to afford housing. This ability to focus on the larger picture is an advantage of national policy. However, the adoption of the national rehabilitation and resettlement process by urban communities has led to serious human rights violations, including those of adequate housing, food, water, education, health, work/living, and personal and family security.[14]

Despite this, the state and municipal government resettlement policy in Chennai has received much praise. For example, the United Nations suggests the Okkiyum Thuraipakkam relocation led to a substantial increase in the living standards of Chennai's low-income residents, due to its provision of permanent housing and removal of many problems caused by the inadequate sanitation common in informal housing groups. However, due to the growth of the Chennai population, the existence of a gap between the rich and the poor and the starting point of government policy formulation not being in the interests of low-income residents, but rather those of the government itself, low-income residents could be more disadvantaged.

This can be shown by using the resettlement of low-once residents to Kannagi Nagar of Chennai as an example. Prime amongst the issues raised by this was the distance between the old location and the new. Commutes of more than 25 kilometres led to low-income residents losing stable income, with 79.3% of the respondents immediately losing their jobs after relocation because of the distance between the place of their new residence and their place of work. This affected those without means to afford transport more than those who could, and thus increased the gap between the rich and the poor and greatened social instability. Moreover, after the resettlement, the school drop-out rate for school-age children increased by 30% for similar reasons.

Furthermore, issues arose from the combining of different people from varied slums. This was because each slum in the city are usually bonded by a single source, be it a common case or language. The TNSCB's resettlement policy did not take this or the differences in daily life of those from different slums into account and thus a poor community consciousness was created in the new settlements.[15]

Finally, the migration of people does not just simply demand housing. A lack of physical infrastructure, such as

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hospitals and schools, often makes newly formed settlements, both in Chennai and other cities, a gathering place for poverty and crime, having a large negative impact on the low-income residents who are forced into these locations. [16]

4. Conclusion

In general, all levels of government in India have proposed policies which have the potential to bring improved living standards to low-income residents of Chennai in the face of severe socio-economic and political challenges, and in some instances, have done so. However, these policies bring with them a negative potential to exacerbate current social problems and even bring about new social and economic problems themselves. As a result, these policies urgently need further revision and improvement to properly address the housing issues faced by the nation of India.

References

[1] Selvaraj, S. and Karan, A.K., 2009. Deepening health insecurity in India: evidence from national sample surveys since 1980s. Economic and Political Weekly, pp.55-60.

[2] Ooi, G.L. and Phua, K.H., 2007. Urbanization and slum formation. Journal of Urban Health, 84(1), pp.27-34.

[3] Vera-Sanso, P., 2017. Dominant daughters-in-law and submissive mothers-in-law? Cooperation and conflict in South India. Journal of the Royal Anthropological Institute, pp.577-593.

[4] Badami, M., Tiwari, G. and Mohan, D., 2004, June. Access and mobility for the urban poor in India: bridging the gap between policy and needs. In Forum on Urban Infrastructure and Public Service Delivery for the Urban Poor (pp. 1-20). National Institute of Urban Affairs Delhi, India.

[5] Rao, R.N., 1990. Social Organisation in an Indian Slum: Study of a Caste Slum. Mittal Publications.

[6] Sankhe, S., Vittal, I., Dobbs, R., Mohan, A. and Gulati, A., 2010. India's urban awakening: Building inclusive cities sustaining economic growth.

[7] Subramanian, N., 2018. Ethnicity and Populist Mobilization: Political parties, citizens and democracy in South India.

[8] Arabindoo, P., 2011. The spatial (il) logic of slum resettlement sites in Chennai. Draft paper.

[9] Ellis, R., 2012. "A World Class City of Your Own!": Civic Governmentality in Chennai, India. Antipode, 44(4), pp.1143-1160.

[10] Gopakumar, G., 2015. Intrusiveness of urban renewal in India: JNNURM as a development fix. Canadian Journal of Development Studies/Revue canadienne d'études du développement, 36(1), pp.89-106.

[11] Parameswari, K., Mudgal, B.V. and Padmini, T.K., 2016. Awareness on usage of contaminated groundwater around Perungudi dumpsite, Tamil Nadu, India. Environment, development and sustainability, 18(3), pp.657-668.

[12] Diwakar G, D. and Peter, V., 2016. Resettlement of Urban Poor in Chennai, Tamil Nadu: Concerns in R&R Policy and Urban Housing Programme. Journal of Land and Rural Studies, 4(1), pp.97-110.

[13] Weinstein, L., Sami, N. and Shatkin, G., 2014. Contested developments. Contesting the Indian city: Global visions and the politics of the local, pp.39-64.

[14] Raman, N., 2011. The board and the bank: Changing policies towards slums in Chennai. Economic and Political Weekly, pp.74-80.

[15] Coelho, K., Venkat, T. and Chandrika, R., 2012. The spatial reproduction of urban poverty: Labour and livelihoods in a slum resettlement colony. Economic and Political Weekly, pp.53-63.

[16] Wyatt, A., 2013. Combining clientelist and programmatic politics in Tamil Nadu, South India. Commonwealth & Comparative Politics, 51(1), pp.27-55.

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Conflict of interests: Researcher A is an employee of XXX. Researcher B has received grants from XXX.

Informed consent: Written informed consent was obtained from all subjects prior to the study.

Ethical approval: The ethics committee of XXXX has approved this study (REC number: XXXX).

Trial registration: Name of trial registry (Trial Registration Number)

Contribution: Researchers A and B researched literature and conceived the study. Researcher A was involved in protocol development, gaining ethical approval, patient recruitment and data analysis. Researcher B wrote the first draft of the manuscript. All authors reviewed and edited the manuscript, and approved the final version of the manuscript.

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