Research on the Influencing Factors of Urban Residents' Information Consumption Power

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Abstract

Due to regional differences, the information consumption levels in the eastern coastal areas, the central regions, and the western regions are quite different. In Chongqing in the western region, the level of information consumption is constrained due to many factors. Therefore, this paper explores the influencing factors of the information consumption power of urban residents in Chongqing. Through the principal component factor analysis method, the regression model method, and the method of dimensionality reduction, the main influencing factors are found out, and the information consumption power of Chongqing urban residents is obtained. The influencing factors are mainly the disposable income, education and age of the information consumer.

Keywords

Information consumption influencing factors, information consumption definition, principal component factor analysis, regression analysis model.

1. Introduction

Information consumption has become a hotspot of consumption in China and the world. It is an irreversible trend of consumption, but it is closely related to the economic level of a region, and it is generally positively related. However, China has always had an imbalance in economic development. The economic development in the eastern region is far ahead, and the economic development in the central and western regions is relatively lagging behind.

The economic development level of a region is quantified by GDP, in which consumption occupies a relatively important position, and consumption is almost all information consumption, and information products or information services are directly or indirectly used. Therefore, it is extremely important to study the influencing factors of information consumption. .

2. Literature review

Kellerman[1] (2007) believes that information consumption is like the use of electricity in the power age. Information consumption will slowly penetrate into every link of commodity production, circulation, exchange, distribution and consumption. He pointed out that the level of information consumption of society is determined by information. The level of industrial development and the level of informationization of society. Rouson[2] (2008) pointed out that the rapid development of culture and information technology, improving the quality of information consumption, and enhancing the reliability of information consumption have a decisive influence on consumers' information consumption behavior. Peter[3] (2013) pointed out that modern consumption is inseparable from information, and the cost of information dissemination is extremely low. Therefore, e-commerce must be considered in the development of consumption theory, and online stores can be oriented to all groups, which changes the traditional business model.

Professor He Xiu ming defines information consumption from the perspective of information science, pointing out that information consumption is a continuation of the general consumption activity process, including the acquisition, organization and utilization of information[4]. Wang Jinan conducted an in-depth study on the residents' consumption behavior in 11 provinces in eastern China,

and found that economic income, that is, disposable income of residents, is the main factor affecting residents' consumption behavior[5]. Wang Min pointed out that towns can enhance the information consumption of urban residents through the agglomeration effect, and have a positive impact on information consumption through spatial spillover effects[6]. Zhang Hongli proposed that information consumption has significant spatial agglomeration and heterogeneity, and there is no absolute convergence, but there are conditional convergence of gradients in eastern, central and western gradients[7].

3. Information consumption impacts due to principal component analytics

Communication information consumption, education and culture information consumption, entertainment and entertainment information consumption, and medical care information consumption are the four elements of information consumption. Principal component analysis is carried out on the composition of information consumption, and principal component analysis is also carried out on the influencing factors of information consumption.

3.1 Information consumption principal component analysis

Information consumption includes communication information consumption, education and culture information consumption, cultural and entertainment information consumption, and medical and health information consumption. These four kinds of information consumption affect all aspects of residents' life. Which kind of information consumption plays a major role in total information consumption, which affects the research on the influencing factors of urban residents' information consumption, so studying the main components of information consumption is of great significance. Using the principal component factor analysis method, the main information consumption is selected in the four types of information consumption: communication information consumption, education and cultural information consumption, entertainment information consumption, and medical care information consumption.

The consumption of communication information is set to variable X1, the consumption of educational culture information is set to variable X2, the consumption of entertainment information is set to variable X3, and the consumption of medical care information is set to variable X4, and the data collected by the National Bureau of Statistics is integrated. SPSS software, the results are shown in table 1.

Table 1 Information consumption principal component interpretation total variance

	Initial eigenvalue			extract square sum loading		
ingredient	total	variance %	accumulation %	total	variance %	accumulation %
1	3.440	86.003	86.003	3.440	86.003	86.003
2	.540	13.511	99.513	-	-	-
3	.015	.372	99.885	-	-	-
4	.005	.115	100.000	-	-	-

It can be seen from the table that the cumulative contribution rate of component 1 representing the consumption of communication information has reached 86%, so communication information consumption is the main component of information consumption; the other three variables are education and cultural information consumption, entertainment and entertainment information consumption. The cumulative contribution rate of information consumption with health care is only 14%, so these three variables are secondary components of the four components of information consumption.

3.2 Principal component analysis of factors affecting information consumption

Principal component analysis of information consumption, analysis results show that communication information consumption is the main component, accounting for the largest proportion of information consumption, the other three information consumption is a secondary component, and the cumulative contribution rate is small, so it can be compared with communication Information consumption is

negligible. Therefore, the analysis of the influencing factors of information consumption can also be simplified into the analysis of the influencing factors of communication information consumption. The communication information consumption mainly involves the two factors of consumer subject and consumption environment, which can specifically select disposable income, education, age, internet use. The four indicators of the number of people, through the principal component factor analysis method, selected the main influencing factors from the four factors of disposable income, education, age and Internet users.

The disposable income is set to variable X1, the age is set to variable X2, the education is set to variable X3, the number of Internet users is set to variable X4, and the data collected by the National Bureau of Statistics is entered into the SPSS software, as shown in table 2.

Table 2 Total variance of principal component interpretation of information consumption influencing factors

	Initial eigenvalue			extract square sum loading		
ingredient	total	variance %	accumulation %	total	variance %	accumulation %
1	2.043	51.086	51.086	2.043	51.086	51.086
2	1.911	47.764	98.850	1.911	47.764	98.850
3	.046	1.149	99.999	-	-	-
4	3.278E-5	.001	100.000	-	-	-

It can be seen from the figure that the cumulative contribution rate of the three influencing factors of income, age, and education of component 1, component 2, and component 3 reaches 99.999%, which contains almost all information, and component 4 is the factor of Internet usage. The contribution rate to information consumption is only 0.001%, which is almost negligible. Therefore, the influencing factors of information consumption can be summarized into three factors: disposable income, education, and age. These three factors are analyzed by principal component factor. The main component of the resulting influencing factors, the number of Internet users is a secondary component.

4. Empirical Analysis on the Influencing Factors of Chongqing Urban Residents' Information Consumption

Through the exploratory questionnaire and the questionnaire survey method of the formal questionnaire, the relevant items are collected, and the importance of each influencing factor is obtained through regression analysis.

4.1 Questionnaire design

The questionnaire consists of two parts, the first is a tentative questionnaire, and the second stage is a more formal questionnaire for collecting valid data. The exploratory questionnaire is suitable for small-area distribution, and it is intended to find the unreasonable content of the questionnaire through the small-scale actual investigation. The formal questionnaire is a more scientific and reasonable questionnaire for collecting valid data and performing data analysis.

4.2 Sample collection and description statistics

A total of 120 questionnaires were distributed and a total of 109 valid questionnaires were collected. The effective rate of the questionnaire was 91%. Since the age-level sampling method was used and the survey was conducted by using the online questionnaire survey and the paper questionnaire survey method, 15 questionnaires were distributed for each age group, so the effective data gap obtained by each age group is not Big. However, in the data of disposable income and education obtained, it is found that the data distribution of these two factors accords with the positive distribution of "intermediate high, low head", which is in line with the true state of our society and also conforms to the overall sample. The general law, so the data obtained from the questionnaire can be regarded as effective data to carry out the model analysis of the paper. The sample information is distributed as shown below:

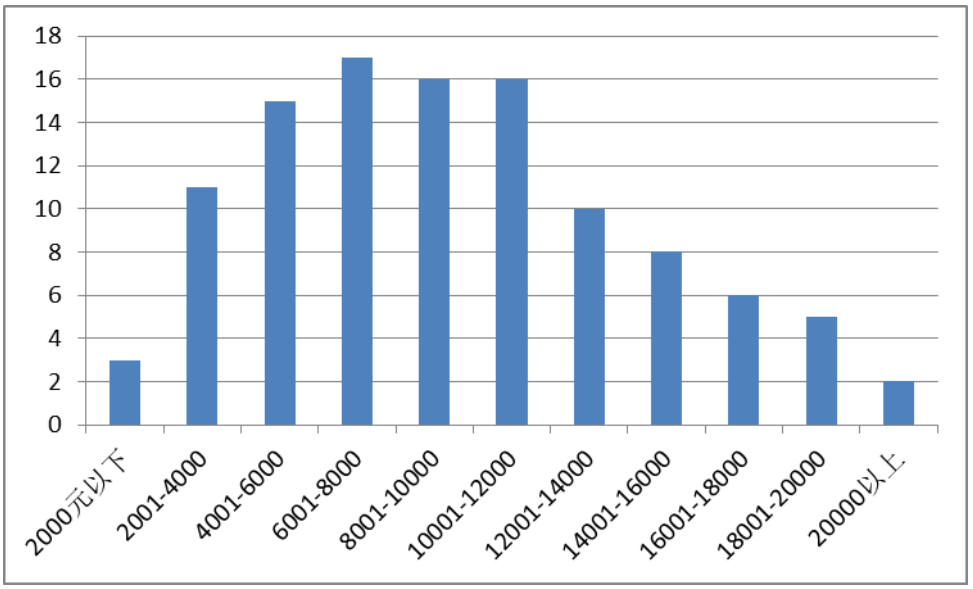

Figure 1 Distribution characteristics of disposable income samples

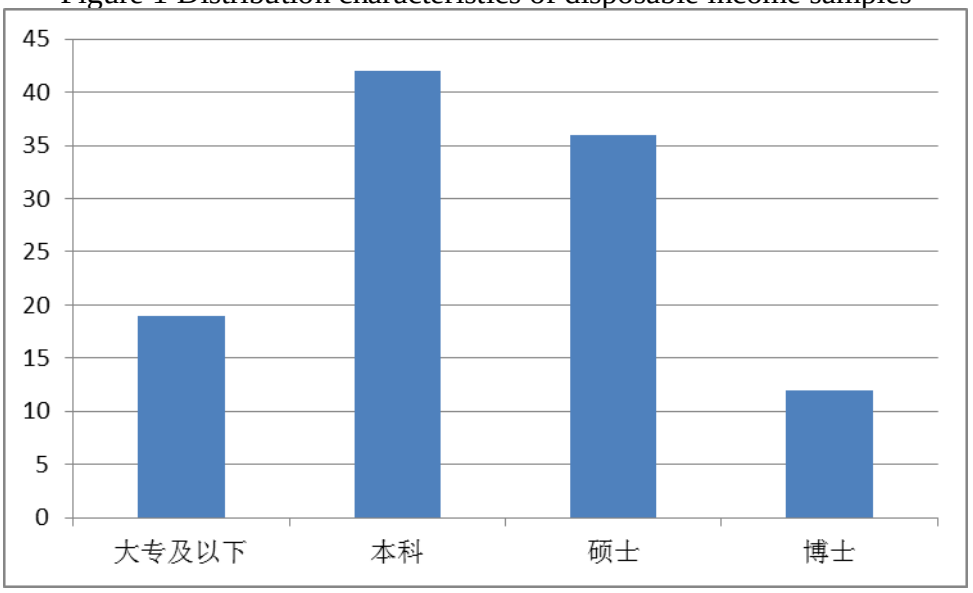

Figure 2 Educational sample distribution characteristics

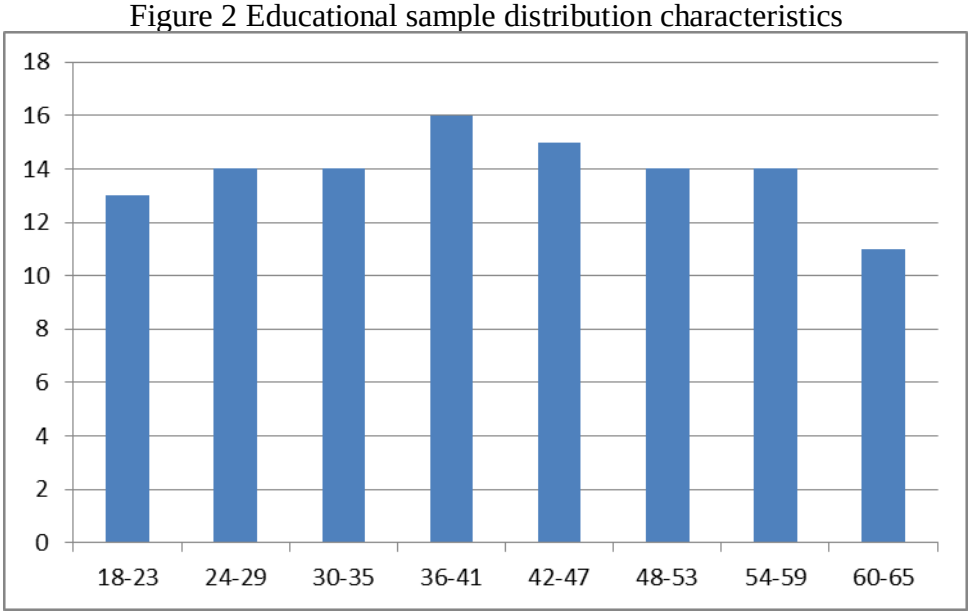

Figure 3 Distribution characteristics of age samples

4.3 Analysis of the correlation of influencing factors

Based on past research results, the following assumptions are made:

H1: The relationship between urban residents' information consumption coefficient and disposable income is positively correlated

H2: The relationship between urban residents' information consumption coefficient and academic qualifications is positively correlated

H3: Urban residents' information consumption coefficient is positively correlated with age

The Pearson correlation coefficient method is used to measure the degree of correlation between two variables. If the correlation between a factor and the information consumption coefficient is not significant, then the factor is not an important factor, it will be eliminated, and other factors will be tested to see if there is still a more suitable factor to establish the regression. The equation, if the correlation between the factor and the information consumption coefficient is significant after the test, will be included in the independent variable of the regression equation.

Table 3 Analysis of the correlation between information consumption coefficient and disposable income, education and age

		Disposable income	Education	age
Information consumption coefficient	Pearson correlation	.841**	.357**	.643**
	Significant (bilateral)	0.001	0.007	0.002
	N	109	109	109

From the above result, in the case of the sample number of 109, using SPSS software analysis, the three significant factors of disposable income, education, and age are less than 0.01, indicating the three influencing factors and The correlation of information consumption factors is significant. The Pearson numbers are all greater than 0, so they are all positive correlations.

4.4 Regression analysis

First establish a linear regression model:

$$Y = aX_1 + bX_2 + cX_3 + d$$

Among them, Y represents the information consumption coefficient of Chongqing urban residents, X1 represents the disposable income of Chongqing urban residents, X2 represents the education of Chongqing urban residents, X3 represents the age of Chongqing urban residents, and a represents the disposable income of Chongqing urban residents. The weight of influence, b represents the weight of the influence of the education of Chongqing urban residents on the information consumption coefficient, c represents the weight of the influence of the age of Chongqing urban residents on the information consumption coefficient, and d represents the other various factors that influence the information consumption coefficient listed.

Table 4 Regression analysis results 1

model	R	R2	adjustR2	Standard estimated error	D.W statistics
1	.867	.752	.746	.03436412	1.856

Table 5 Regression analysis results 2

model	sum of square	df	mean square	F	Sig
1 regress	.121	2	.061	32.156	.000
residual	.043	107	.001	-	-
total	.164	109		-	-

Table 6 Regression analysis results 3

model	non-standardized coefficient		standard coefficient		
	B	standard error	trial version	t	Sig
1 (constant)	.126	.015	-	7.698	.000
disposable income	.017	.004	.680	5.998	.001
education	.008	.007	.112	1.302	.003
age	.006	.004	.171	1.497	.002

As can be seen from table 4, the regression equation has a fit of 74.6%, indicating that these three influencing factors can account for 74.6% of the information consumption coefficient, and the other 25.4% are affected by unlisted influencing factors.

According to the results of table 5 and table 6, the independent test of the independent variables and constants of the whole model are less than 0.05, which indicates that the interpretation of the regression equation is very persuasive.

From the results of the SPSS data software, we can observe the linear regression equation of the factors affecting the information consumption of urban residents in Chongqing:

$$Y = 0.126 + 0.017X_1 + 0.008X_2 + 0.006X_3$$

From the above equations, the following conclusions can be drawn:

(1) The disposable income factors, the academic factors and the age factors of urban residents in Chongqing are positively correlated with the information consumption coefficient.

(2) When other influencing factors remain unchanged, if the resident's disposable income increases by one unit, the information consumption coefficient will also increase by 0.017.

(3) When other influencing factors remain unchanged, if the resident's education level rises by one unit, the information consumption coefficient will increase by 0.008 units.

(4) When other influencing factors remain unchanged, the age of Chongqing urban residents will increase by one unit, and the information consumption coefficient will increase by 0.006 units.

5. Conclusions and policy recommendations

(1) The information consumption coefficient of each consumer is quite different. The more disposable income, the higher the education, the older the age, the more consumers tend to consume information, and among the three influencing factors of income, education and age. The income factor is the most important factor.

(2) The higher the income of consumers, the greater the proportion of information consumption in total consumption. When consumers meet their own basic needs, the higher the income, the more they will meet their needs. And the needs of the service will become stronger and stronger.

(3) The higher the education of consumers, the greater the proportion of information consumption in total consumption. The higher the education, the higher the cognitive ability of consumers, and the more they have the ability to use information products and services. Information products and services will generate more added value under their control, give more value to products, and better improve consumers' living standards and quality of life.

(4) The older the consumer, the greater the proportion of information consumption in total consumption. This is because with the increase of age, the living standard of consumers will increase with their own experience and accumulation. The higher the rate, and the more and more information consumption for health care, due to the advancement of the life cycle, and the increase in spiritual realm with age, no longer only focus on material satisfaction, but more attention will be paid to each Professional counseling and learning to improve your life's happiness.

6. Policy recommendations

(1) Improve the information consumption ability of information consumers. First, improve the income level of residents. Only when the income level of consumers increases, will part of the income be spent on the improvement of their spiritual realm, and only increase the income. The level of information consumption will rise. Second, enhance the information quality of consumers. Information consumption is a high-level consumer behavior with personal characteristics. However, the information quality of consumers is formed over time, so it is necessary to solve this problem fundamentally.

(2) Improve the quality of information products and services in information consumption. The demand for information consumer products and services by information consumers also depends on the quality of information products and services. Therefore, information products must improve their own quality, so as to attract consumers.

(3) Improve the information consumption environment. First of all, to speed up information legislation, the perfection of the law can protect the legitimate rights and interests of consumers, and in a safe consumer environment, consumers will be assured of bold consumption. Only a sound legal system will guarantee the safety of consumers' personal privacy, financial and electronic consumption. Second, to regulate the order of the information market, the government should properly intervene in the enterprise to make the information transparency of the enterprise higher, so that the game between buyers and sellers will be relatively fair.

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