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Research on Influencing Factors of College Students' Consumption Behavior Based on Cluster and Regression Analysis

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Abstract. With the continuous upgrading of China's consumption structure, college students, as an important young consumer group, have attracted increasing attention to their consumption behavior characteristics and influence mechanisms. This study selected college students as the research object and obtained 105 valid sample data through questionnaire surveys. Reliability and validity tests, K-means cluster analysis and multiple linear regression analysis methods were adopted to explore the characteristics of college students' consumption structure and its influence mechanism on consumption satisfaction. The research results show that college students' consumption behavior has obvious grouping characteristics and can be divided into two categories: "low consumption/thrifty type" and "higher consumption/active type". The consumption patterns between various categories have great differences at different consumption levels, especially the consumption differences in entertainment and social aspects are more obvious. Consumption categories also greatly affect consumers' satisfaction, and the satisfaction of high-consumption students is much higher than that of low-consumption students. In addition, budget planning is beneficial to improve satisfaction, but factors such as the awareness of rational consumption, the influence of the surrounding environment and the pursuit of quality of life do not show a particularly significant effect. This research is conducive to deepening the understanding of the differences in college students' consumption behavior and providing some references for colleges and universities to carry out rational consumption education.

Keywords: consumption behavior, cluster analysis, regression analysis, consumption satisfaction, consumption type

1. Introduction

China's economy is developing continuously, residents' income level is gradually improving, and the consumption structure is constantly upgrading. The consumption mode is slowly transforming from "subsistence consumption" to "developmental consumption" and "enjoyment consumption". The youth group is full of vitality and potential in the consumer market, and its consumption behavior has obvious characteristics of the times. College students are a special group transitioning from "family-supported consumption" to "relatively independent consumption". Their consumption

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behavior not only reflects personal economic conditions and values, but also shows social consumption culture and economic development trends to a certain extent. Relevant consumption behavior theories show that individual consumption decisions are often affected by the combined effects of psychological factors, social environment, reference groups and many other factors [1]. This theory provides a key basis for analyzing the differences in college students' consumption behavior.

In the digital economy environment, mobile payment, e-commerce platforms and Internet financial tools have been fully adopted, making college students' consumption methods more convenient and diverse. New consumption forms such as online shopping, social platform recommendations and installment consumption are constantly being promoted, which speeds up consumers' decision-making, but this may increase the risk of impulsive consumption and advanced consumption [2-4]. Consumption has gradually expanded from meeting basic living needs to many aspects such as social interaction, interest development and quality improvement [5]. Studies have shown that in the information and social media environment, the consumption behavior of young groups is more susceptible to social factors and peers [6]. Therefore, it is of great practical significance to systematically analyze the consumption structure of college students and its influence mechanism.

At present, some studies have carried out discussions from many angles. Social networks influence college students' consumption decisions through peer interaction [7]. Internet financial tools may aggravate advanced consumption behavior [3]. Empirical research on urban samples shows that economic sources and consumption motives have a great impact on consumption behavior [4, 8]. The survey on the consumption structure of "post-95s" college students shows that consumption presents multi-faceted characteristics [5]. In terms of satisfaction research, relevant theories indicate that consumer satisfaction comes from the comparative evaluation process between actual experience and expected level [9], and factors such as service quality have an important impact on satisfaction [10]. However, most of the current studies focus on the analysis of a single consumption field or a single variable, and lack a comprehensive analysis of the differences in college students' consumption types and their satisfaction influence mechanisms.

To address these challenges, this paper identifies the various consumption types of college students through cluster analysis, and then explores how consumption concepts and consumption types affect satisfaction through regression analysis.

2. Data and methods

This study was carried out by means of a questionnaire survey, and a total of 105 valid samples were collected. These samples include students of different grades and professional categories, among which females account for 58.1% and males account for 41.9%. Most of the living expenses are in the range of 1000-2000 yuan, and the overall sample has certain representativeness.

In the aspect of consumption structure indicators, the questions in the part 2 of the questionnaire is used to measure the relative levels of four types of consumption: catering, study, entertainment and social interaction. It adopts a five-point scale, where 1 represents "very little" and 5 represents "very much". A larger value indicates a higher consumption level in this field, but before performing the clustering operation, the four variables must be standardized.

For consumption concept, the four items of budget planning, rational consumption tendency, environmental influence and quality of life preference all adopt a five-point Likert scale (1 means strongly disagree, 5 means strongly agree), and a larger value indicates a stronger tendency of the concept.

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Besides, the consumption satisfaction with the current overall consumption situation is measured by a five-point scale, where 1 represents "very dissatisfied" and 5 represents "very satisfied".

K-means clustering is performed according to the four indicators of consumption structure, the samples can be divided into two categories: "low consumption/thrifty type" and "higher consumption/active type". In the subsequent regression analysis, the consumption type is put into the model as a categorical variable (the low consumption type is set as the control group).

3. Results

3.1. Cluster analysis of consumption types

The K-means method achieves sample segmentation by reducing the within-group variance, which is suitable for analyzing continuous variables. To avoid the influence of different dimensions, the variables are standardized. For the testing, Cronbach's $\alpha = 0.785$, indicating good internal consistency of the scale. KMO = 0.77, and the Bartlett test is significant ($p < 0.001$), which means the data is suitable for further analysis.

The clustering results show that the classification effect is the clearest when K=2. The first category is "low consumption/thrifty type", with 20 people accounting for 19%, and the second category is "higher consumption/active type", with 85 people accounting for 81%.

The results of analysis of variance show that there are significant differences between the two types of people in the dimensions of entertainment consumption and social consumption ($p < 0.001$), which indicates that consumption differences are more reflected in non-essential expenditures. In terms of behavioral characteristics, thrifty students' consumption focuses more on basic living expenditures, while active students invest more in entertainment and social aspects, and their consumption structure is more abundant and diverse.

3.2. Regression analysis

A multiple linear regression model is constructed with satisfaction as the dependent variable (Table 1). The overall performance of the model is good ($F = 31.46$, $p < 0.001$), and its coefficient of determination R^2 is 0.6137, which shows that the model has a strong explanatory power for satisfaction. The results show that the consumption type variable has a prominent positive impact on satisfaction ($\beta = 1.999$, $p < 0.001$), which indicates that the group with a high consumption level has a higher satisfaction. The budget planning variable has a positive impact and is close to significant at the 10% level; rational consumption tendency, environmental influence and quality of life preference do not reach a significant level. This result shows that satisfaction is more affected by the actual consumption level and consumption structure, and the direct impact of consumption concept variables is relatively small.

Table 1. Regression analysis results of consumption satisfaction influencing factors

Variable	Coefficient	Standard error	t value	p value
Constant term	1.553	0.348	4.470	<0.001
Budget planning	0.157	0.082	1.924	0.057
Rational consumption tendency	-0.132	0.080	-1.650	0.102
Environmental influence	0.129	0.092	1.399	0.165
Quality of life preference	-0.068	0.087	-0.787	0.433

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Table 1. (continued)

Consumption type (high consumption=1)	1.999	0.451	4.432	<0.001
	F=31.46 (p<0.001), R^2=0.6137			

4. Discussion

College students' consumption behavior has prominent type differences. After performing K-means cluster analysis on the four consumption indicators of catering, study, entertainment and social interaction, the samples can be divided into two groups: "low consumption/thrifty type" and "higher consumption/active type". Most students belong to the higher consumption type, showing a developmental and enjoyment consumption trend, which indicates that there are quite obvious consumption heterogeneity characteristics within the college student group.

Consumption differences mainly exist in the fields of entertainment consumption and social consumption. The results of analysis of variance show that there are significant differences between the two groups in non-essential expenditures, but small differences in basic living consumption, which indicates that the upgrading of college students' consumption structure is more reflected in experiential and social consumption.

Consumption type has a prominent positive impact on consumption satisfaction. Regression analysis results show that the satisfaction of the high consumption/active group is significantly better than that of the low consumption group, which indicates that the actual consumption level and consumption structure are of great significance to satisfaction.

The direct impact of consumption concept variables on satisfaction is relatively limited. Budget planning is close to the significant level at about 10%, but rational consumption tendency, environmental influence and quality of life preference have not reached statistical significance, which reflects that consumption satisfaction depends more on actual consumption experience rather than just conceptual factors.

These findings suggest that, to strengthen budget planning education and improve the awareness of rational consumption, pay attention to the differentiated needs of students with different consumption types, optimize the campus consumption environment and improve the overall consumption experience.

For potential limitations, on the one hand, the sample size is relatively small; on the other hand, the variable dimension needs to be expanded. In future studies, the sample scope can be expanded, and more psychological variables can be introduced.

5. Conclusion

This study collected college students' consumption behavior via questionnaire and performed a K-means clustering analysis with linear regression. The results confirm the high heterogeneity among different types. These findings also provide practical insights for universities aiming to implement differentiated, experience-oriented rational consumption education.

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Appendix

Questionnaire on College Students' Consumption Behavior and Concepts

Part 1: Basic Information

1. Gender
□ Male
□ Female
2. Grade
□Freshman
□ Sophomore
□ Junior
□ Senior
□ Postgraduate
3. Major Category
□ Literature and History
□ Science and Engineering
□ Economics and Management
□ Art/Physical Education
□ Others
4. Monthly Disposable Living Expenses
□ Below 1000 CNY
□ 1000–1500 CNY
□ 1500–2000 CNY
□ 2000–3000 CNY
□ Above 3000 CNY
5. Main Sources of Living Expenses (Multiple choices allowed)
□ Family support
□ Part-time income
□ Scholarships and grants
□ Others
6. Do you have a fixed part-time income?

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□ Yes
□ No
7. Do you overspend in daily consumption?
□ Frequently
□ Occasionally
□ Rarely
□ Never

Part 2: Consumption Structure (1=Very Little, 5=Very Much)

Please choose according to your actual consumption situation.

Consumption Type	1	2	3	4	5
Catering Consumption	□	□	□	□	□
Study-related Consumption	□	□	□	□	□
Entertainment Consumption	□	□	□	□	□
Social Consumption	□	□	□	□	□
Other Consumption	□	□	□	□	□

Part 3: Consumption Concepts and Psychology (1=Strongly Disagree, 5=Strongly Agree)

Please choose according to your actual thoughts.

Statement	1	2	3	4	5
I make a budget before consumption	□	□	□	□	□
I tend to consume rationally rather than impulsively	□	□	□	□	□
My consumption is easily influenced by classmates or the surrounding environment	□	□	□	□	□
I value improving quality of life through consumption more than saving money	□	□	□	□	□

Part 4: Consumption Satisfaction and Self-evaluation

10. Satisfaction with your current overall consumption situation (1=Very Dissatisfied, 5=Very Satisfied)

□1 Very Dissatisfied
□ 2 Dissatisfied
□ 3 Neutral
□ 4 Satisfied
□ 5 Very Satisfied

11. Self-evaluation of the rationality of your consumption behavior (1=Very Irrational, 5=Very Rational)

□1 Very Irrational
□ 2 Irrational
□ 3 Neutral
□ 4 Rational
□ 5 Very Rational