

Structure of Mental Accounting and its Influence on College Students' Economic Behaviors

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Abstract

In recent years, online shopping has gradually become the mainstream shopping method for college students. In the “Double Eleven” event, nearly 30% of college students are incarcerated as “hands-chopping people,” which means they buy things on impulse and wish to chop their hands off after buying too much. The theory was based on mental accounts from behaviorism economics, using factor analysis, principal component analysis, analysis of variance and nonparametric test to study the implicit factors of college students' mental account structure and the different mental account structure have different effects on college students' online shopping. The research results show that college students will be affected by mental accounts when they shop online. The hierarchical structure of mental accounts of college students' online shopping mainly includes income accounts, online consumer psychology accounts, and savings accounts. There are specific stable secondary structures under the three accounts. Funds of different amounts and different income sources will make a significant difference in college students' online shopping behavior.

Keywords

Mental Accounting; Online Shopping; Factor Analysis; Economic Behaviors.

1. Introduction

A survey conducted by the Chinese Youth Public Opinion Monitoring Office of 840 college students in 2019 showed that 75.48% of respondents participated in online shopping during the “Double Eleven” event. Among the students who participated in online shopping, 54.42% of the respondents did not spend more than CNY 500, 76.81% of the respondents thought that the goods they purchased were needed at the time, and 27.6% of the respondents thought their consumption exceeded expectation during the “Double Eleven” period. It can be seen that college students have irrational shopping behavior when shopping online.

This paper ascribed the irrational online shopping behavior of college students to the mental account proposed in behavioral economics. The online shopping behavior of college students is affected by different mental account structures. Academically, a mental account refers to a cognitive operating system in which individuals, families or organizations pay attention to, encode and evaluate economic activities. And the theory refuted the hypothesis of “rational people”, this is a further development of the “limited rationality” model. This paper studied the influence of college students' mental accounts on college students' online shopping behaviors and proposed reasonable and feasible suggestions for college students' irrational online shopping behaviors from the perspectives of college students, families and schools, which would help college students to understand their mental accounts and perception of money

more when they shop online, thus effectively avoiding irrational online shopping or decision making.

2. Theoretical Basis and Research Hypothesis

2.1. Theoretical Basis

Mental Accounting is a cognitive operating system that focuses, codes, and evaluates economic activity by individuals, families, or organizations. Mental accounting is a process in which people psychologically classify, encode, evaluate, and budget results, especially economic outcomes (Kahneman & Tversky, 1984). The existence of mental accounting allows people to better manage and control their own resources and behaviors. The process generally includes three stages: evaluation and judgment of decision-making behavior, coding analysis, and final selection. Consumers tend to set different psychological budgets for different consummation behavior (Barberis & Huang, 2001; Li et al., 2019). At the same time, mental accounting regulated people's consumption behavior through psychological budgets, which is expressed in: people will set budgets for different consumption, but the budget price of buying a particular commodity would be underestimated or overestimated, which will result that in consumption misunderstandings of under-consumption and over-consumption (Chip & Soll, 1996; Grinblatt & Han, 2005; Li et al., 2019).

According to the traditional microeconomic theory, the money will not be labeled, and it has substitution. Some empirical studies show that people would not put all the wealth into a whole account for management, and every dollar can be replaced and transferred well. (Montgomery A, Olivola C Y, Pretnar N. A Structural Model of Mental Accounting[J]. Available at SSRN) On the contrary, people are divided into different sub-accounts according to their wealth and source expenditure. Each sub-account has its own budget and control rules. Money cannot be easily transferred from one account to another. Thaler called this kind of money "non-substitutability" because it cannot be transferred and replaced completely (Some ideas are from the website: <https://psychology.wikia.org>). Non-substitutability of money can be presented as the following three aspects; the psychological accounts set up by different sources of wealth have known substitutability; different sources of wealth have different consumption structures and capital control direction. The psychological accounts set up by different consumption items are non-substitutable. Finally, different storage methods lead to the non-substitutability of psychological accounts (Antonides & Ranyard, 2018; Kresnawati et al., 2019). What are the features of mental accountings? According to Thaler, when people are doing a mental calculation of each account, they are evaluating the loss income of various choices, which is called "the framework of gains and losses." In the process of mental calculation, people are not pursuing the maximization of rational cognitive utility, but the maximization of emotional satisfaction. Emotional experience plays a vital role in people's real decision-making. Thaler called this rule of operation "hedonic editing". (Thaler R H. Anomalies: The winner's curse[J]. Journal of Economic Perspectives, 1988, 2(1): 191-202.) The hypothesis of value function professor Kahneman put forward the concept of "value function" in "prospect theory." The value function has three essential characteristics: first, the value function is a detailed description of the relative gain and loss of a reference point when people make decisions, and people's "gain and loss" is a relative concept rather than an absolute concept of expected utility, then, both gain and loss show a law of decreasing sensitivity, third, loss avoidance of the same amount of loss has a more significant impact on people than benefit, so people try to avoid losses when making decisions (Heath & Soll, 1996). Based on these three characteristics, the same decision result expressed as loss or benefit will change people's risk decision preference, design different reference points will change people's cognition of the decision result, and the same price difference has different effects under different original prices.

Mental accounting has a strict implicit structure (Thaler & Johnson, 1990). The research on the structure of the implicit structure of mental accounting plays an essential role in order to know more about mental accounting. Through the irrational algorithm between different accounts, individual decision-making is more rational and scientific. Generally speaking, the psychological account will combine the funds with high relevance into one account, and the funds with low relevance will be allocated to different sub-accounts (Shafir, 2006). Chinese researchers have found that the structure of the mental accounting of Chinese people has a structure of 3-4-2(Li, 2007).

At the same time, irrational network consumption is the consumer's consumption based on the emotional impact of the Internet shopping platform. The rapid development of e-commerce, the continuous expansion of online payment merchants and the implementation of various marketing strategies to open social relationship chains have promoted the further development of irrational consumption of networks. As a particular consumer group, college students' consumption motives are both common to ordinary consumers and also have their uniqueness. Previous studies have shown that college students' consumption motives are the motives for purchasing the primary purpose of the use of goods, which is the underlying motivation of college students' consumption psychology. College students' convergence motivation and individualized self-expression motives are more significant. A survey conducted by the Chinese Public Opinion Monitoring Office on college students across the country shows that college students' consumption behavior mainly presents the following characteristics: the pursuit of new things and famous brand, attention to interpersonal relationships, instant enjoyment, lack of planning, strong secularity and irrational consumption.

Therefore, there are specific practical significance and reference value to use the theory of mental account as a tool to study the irrational consumption behavior of college students, and further analyze the necessary psychological activities of shopping decision-making and the connection between them.

2.2. Research Hypothesis

For different things, the basis of classification is different, the corresponding results are also different, and the same rules apply to mental accounts. The turning of money includes obtaining money and then consumption or storage. Based on the above theory, mental accounting can be divided into three accounts: income account, consumption account and expenditure account (Thaler, 1999; Li et al. 2007; Kong, 2014). Thus, hypotheses could be as follow:

Hypothesis 1: College students' online shopping behavior will be affected by mental accounts.

When dividing the mental account, income, consumption, and expenditure accounts are only a rough classification. The more theoretical and practical value is the implicit and refined structure mental account under those three basic accounts, so hypothesis 2 is presented as follows:

Hypothesis 2: There are still stable and specific secondary dimensions under the three basic accounts of the implicit structure of college students' mental accounts. The mental income accounts include unpaid accounts, borrowing income accounts, non-labor income and labor income. The network expenditure of the mental account includes the daily network expenditure account, the network-specific relationship account, and the savings mental account includes the security protection account and the investment value-added account, as shown in Figure 1.

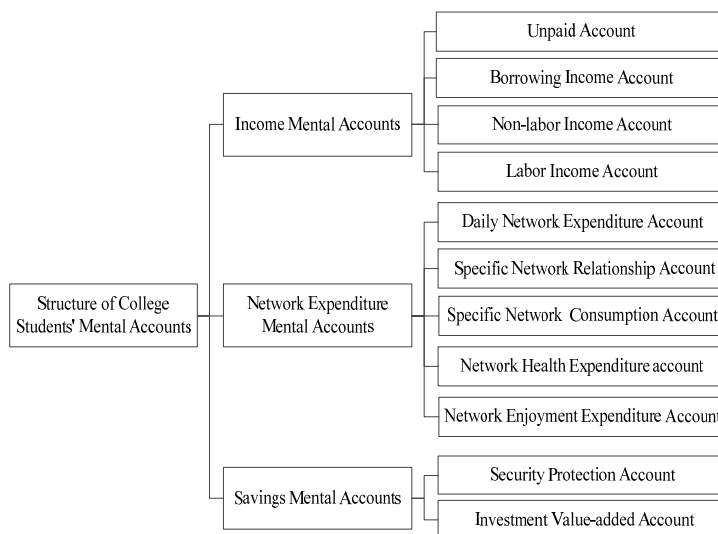


Figure 1. Implicit Structure of College Students' Mental Accounts

According to the principle of diminishing sensitivity in the characteristics of "hedonic editing," there is a direct relationship between the amount of money and the perception of college students' consumption. Based on this research, while studying the impact of different income sources on college students' online shopping, we consider different amounts spending. As for the impact of college students' online shopping behavior, hypothesis 3 is as follows:

Hypothesis 3: Different income sources and different amounts of funds will affect college students' online shopping behavior.

The most important and critical step in getting money into the mental accounting system depends on how it is perceived and marked by an individual, so the first step of getting money into the mental account is to get "cognitively labels," and then enter different mental accounts to generate different economic behavior (Amelie, 2016). Different "cognitive labels" can lead to different attitudes and usages of money. The label can be internal or external. The private label is mainly expressed in a budget form. The essence of budget establishment is the establishment of psychological expenditure account when individuals conduct commercial behavior in real life, while the external label is the external limit on the use of funds, so the hypothesis 4 is as follows:

Hypothesis 4: Differences in expenditure items and the presence or absence of external labels can affect college students' online shopping behavior.

3. Research Design, Methods and Ideas

3.1. Questionnaire Design and Distribution

In order to obtain the possible mental accounting factors of college students, and the unstructured questionnaire survey and focused group discussion of college students in Beijing were conducted based on randomness and voluntary. After sorting out the items collected by the first two methods, the structure of the questionnaire was adjusted, and 37 related scale topics (37 implicit structural factors) were designed. Through the method of expert evaluation, combining with semantic relevance, the interactions were excluded. The topics remove some cumbersome options and revise the questions and options. After the preliminary preparation of the questionnaire, 50 students from Central University of Finance and Economics were randomly selected for pre-test. According to the data of the recovery results and the feedback of the subjects, the questionnaire was further deleted and revised. Finally, the questionnaire

designed 37 questions to study the mental accounting structure of college students and their impact on online shopping.

The questionnaire was conducted both online and offline and is distributed to college students according to the principle of randomness and voluntarism. (The website of our online questionnaire: <https://www.wjx.cn/jq/20290381.aspx>).

3.2. Data Collection and Processing

In this study, 388 questionnaires were collected online, and 350 valid questionnaires were used. The recovery rate was 90.21%. According to the data collected by the useful questionnaire, the Cronbach's Alpha coefficients of the implicit factors of income, network consumption and savings are finally 0.813, 0.880 and 0.736, and the standardized reliability coefficient is more significant than 0.7, indicating that the degree of internal consistency is high. Through principal component analysis and analysis by correlation matrix, the maximum variance method rotates the factors. The KMO values of the implicit factors of the three mental accounts are 0.800, 0.867, and 0.744 respectively, indicating that the questionnaire has high validity and is suitable for the factor analysis method. The results are shown in the table1.

Table 1. Reliability and Validity Test

Reliability Statistics & Bartlett's Test			
	Income Mental	Network Expenditure	Savings
Cronbach's Alpha	0.813	0.880	0.736
N of Items	14	17	6
KMO	0.800	0.876	0.744

3.3. Research Methods

In this paper, we extract a few comprehensive variables from many variables, use the factor analysis method to reduce the dimensionality of the data, and get the corresponding hidden structure of the mental account of college students. When exploring the impact of income mental account and expenditure mental account on college students' online shopping, this paper mainly chooses nonparametric test and analysis of variance. Among them, analysis of variance includes interaction effects between factors, covariance analysis, and the interaction effect between factor variables and covariance.

3.4. Research Ideas

First, through the offline scenario experiment simulation, the "concert experiment" designed by Kahneman and Tversky was adapted to study whether the mental account of college students will influence their purchasing decisions when they are spending money.

Secondly, the questionnaire design was conducted through unstructured questionnaires and focus group discussions. The questionnaires were distributed simultaneously online and offline. The valid questionnaires were retrieved, and data were filtered and processed. The data was explored by factor analysis to explore college students' mental accounting structures when they were shopping online.

Then, through analysis of variance and non-parametric tests, the impact of different mental accounts on college students' online shopping behavior is analyzed. Whether different income sources and different amount of funds will make a significant difference in college students' online shopping, and whether different external labels are different. It will cause college students to make different decisions when doing online shopping.

Finally, according to the influence of college students' mental accounts on college students' online shopping behavior, this paper proposes reasonable and feasible suggestions for college students' irrational online shopping behaviors from college students, families, and schools.

4. Empirical Analysis

4.1. The Existence of College Students' Mental Accounts

In order to verify whether there is a mental account for college students, by adapting the classic mental account experiment designed by Kahneman and Tversky--"Concert Experiment", college students from 12 Universities in Beijing were used to conduct scenario simulation experiments. The conclusion is that college students have mental accounts, and online shopping behaviors are significantly affected by mental accounts.

4.2. College Students' Mental Account Structure

4.2.1. College Students' Income Mental Account Structure

From the validity test, the KMO value of the income data of college students' income mental account is 0.800, the level of significance $p < 0.01$. The factor analysis method is suitable for analyzing relevant data and obtaining the factor matrix as shown in Table 2:

Table 2. Income Mental Account Structure

Expenditure Items	Factor Load			
	Factor1	Factor2	Factor3	Factor4
Elder given	0.676			
Friends loan		0.753		
Ant flower, Baitiao		0.744		
Bank loan		0.728		
Relationship revenue		0.713		
Red packet income			0.841	
Resale of goods			0.618	
Consumption rebate			0.576	
Reimbursement			0.488	
Scholarship				0.696
Competition bonus				0.679
Investment income				0.676
Difficulties subsidy				0.644
Part-time income				0.482
Interpretation rate	7.957	13.113	13.882	16.361
Coefficient α	0.747	0.762	0.729	0.796

After factor analysis and observation of the macadam map of mental income accounts, the sample data is clearly taken out of four common factors.

The common factor 1 contains only the single factor from elders giving. The questionnaire shows that 74.4% of the students would sort the elder-given money to a separate mental account. The unpaid grants of relatives and elders can be regarded as a disguised income of college students. University students do not need to pay any price for this income. Therefore, this mental account is named "Family-Given Income Account." The common factor 2 includes

four factors: friend borrowing, relationship income, bank borrowing, Alipay Lending, and Jingdong White Strip. The essence of these four factors is the borrowing income that needs to be paid back, so it is named as "Lending Income Account." The common factor 3 includes four factors: network red envelope income, reimbursement expenses, selling second-hand goods, and consumer rebate. These kinds of income are mostly extra income unrelated to labor, so they are named as "Non-Labor Income Account". The common factor 4 includes five factors: bonus from the competition, scholarship, difficulty subsidy, part-time job income, and investment income. College students obtain most of the income here through their labor, so it is called "Labor Income Account."

In summary, the mental income account of college students is divided into the following four categories, namely "family-given income account," "borrowing income account," "non-labor income account," and "labor income account."

4.2.2. College Students' Online Consume Mental Account Structure

According to the validity test, the KMO value of the data related to the online shopping psychology account of college students is 0.867, the level of significance $p < 0.01$. The factor analysis method is suitable for analyzing relevant data and obtaining the factor matrix, as shown in Table 3:

Table 3. Online Consume Mental Account Structure

Expenditure Items	Factor Load				
	Factor1	Factor2	Factor3	Factor4	Factor5
Learning and Train	0.676				
Clothing	0.583				
Broadband	0.528				
Daily life	0.580				
Fruit snacks	0.507				
Promotion goods		0.694			
Star products		0.693			
Voucher spend		0.545			
Shopping on sale		0.578			
Luxury goods			0.759		
Entertainment			0.726		
Skincare			0.686		
Electronics			0.668		
Sports fitness				0.621	
Medical care				0.569	
Relationship spending					0.599
Subsidize others					0.548
Interpretation rate	13.021	13.001	12.487	10.213	10.012
Coefficient α	0.786	0.773	0.781	0.694	0.635

The common factor 1 contains five factors: learning, clothing and shoes, broadband communication, daily necessities, fruit, and snacks. These five factors are inseparable from daily activities, so they are named "Daily Online Shopping Expenditure" account. The common

factor 2 contains four items which are on-sale products, representative products, shopping on vouchers and shopping on promotional events. As the factor expenditures are labeled, and the load is very different from other commodities, so the author named it "Network-Specific Consumption" account. The common factor 3 contains valuable luxury goods, beauty skincare, digital products, and game entertainment. These four factors have little to do with the necessary life of college students, so they are named "Network Enjoyment Expenses" account. The common factor 4 contains two factors, exercise fitness and health care, which are strictly related to health, so it is called a "Network Health Expenditure" account. The common factor 5 contains two factors, which are called "Network-Specific Relationship" accounts because they are for particular purposes.

In summary, the online consumer psychology accounts of college students are divided into the following five categories, namely "Daily Online Shopping Expenditure Account," "Network-Specific Consumption Account," "Network Enjoyment Expense Account," "Network Health Expenditure Account" and "Network-Specific Accounts."

4.2.3. Structure of College Students' Savings Mental Account

From the validity test, the KMO value of the data related to the online shopping mental account is 0.744, the level of significance, and the factor analysis method is applicable to analyze the relevant data and obtain the factor matrix as shown in Table 4:

Table 4. The factor matrix

Expenditure Items	Factor Load	
	Factor1	Facotr2
Fixed asset	0.736	
Money in hand	0.706	
Parental custody	0.646	
Financial manage		0.708
Bank deposit		0.669
Alipay		0.507
Interpretation rate	10.653	8.479
Coefficient α	0.796	0.693

The common factor 1 includes fixed assets, money on hand, and parental management. These three factors do not add value, but they can be realized in time and are easy to use. Therefore, they are called "safety protection savings accounts." The common factor 2 includes three factors: financial management, bank deposits, and Alipay. All three factors are investment savings made by college students in order to obtain hedged income. Therefore, they are called "investment appreciation savings accounts".

4.3. The Impact of Income Mental Account Structure on Online Shopping Behavior

The sensitivity principle in the "hedonic editing" features of the mental account shows that the amount of money has a direct relationship with the individual's perception. At the same time, different individuals have different attitudes towards different amounts, and the source of funds is divided into two as independent variables. In part, the minimum amount of CNY 100 and the maximum amount of CNY 2100 for online shopping, the results of the questionnaire were analyzed by SPSS for nonparametric test and analysis of variance to obtain the following conclusions:

Table 5. Allocation of CNY 2100 for online shopping with different income sources

Source of funds	Allocation of funds(2100)					χ^2
	Daily online shopping expenses	Network specific consumption	Network enjoyment expenditure	Network health expenditure	Network specific human feelings	
Gratuitous income	782.5	318.6	297.7	553.2	148	50.13**
Non service income	415.3	803.5	489.5	121.1	270.6	107.67**
Service income	589.4	450.9	642.1	200.4	217.2	121.09**
F(2, 161)	30.211**	34.069**	45.661**	32.319**	16.423**	

Note: * indicates significant at the level of 0.05, and ** indicates significant at the level of 0.01.

From the Table 5, we can get that on the dimension of the expenditure account, there is a significant difference between expenditure.

On the daily online shopping expenditure, the source of the unpaid income is the most, followed by the labor income as well as non-labor income ($F(2,161)=30.211$ $\rho<0.01$), the difference among the three is significant, indicating that the money given by parents of college students are mainly used for daily expenses, and the proportion of expenditure is rather small.

In terms of network-specific consumption, the source of non-labor income is the most, followed by labor income and unpaid income ($F(2,161)=34.069$ $\rho<0.01$). The difference between the three is significant. When college students are making network-specific consumption, the primary source is non-labor income.

In terms of network enjoyment expenditure, labor income accounted for the most significant proportion, followed by unpaid income and non-labor income ($F(2,161)=45.661$ $\rho<0.01$). The difference among the three is significant, and college students would habitually use part-time job income for this consumption category, "Family Given Income" accounts for a small proportion of network enjoyment expenditure, and finally the network health expenditure and network-specific relationship expenditure. The proportion of the last two expenditures is relatively small when shopping online. The F values were 32.319 and 16.423 respectively, indicating a significant difference.

Table 6. Allocation of CNY 100 for online shopping with different income sources

Source of funds	Allocation of funds(100)					χ^2
	Daily online shopping expenses	Network specific consumption	Network enjoyment expenditure	Network health expenditure	Network specific human feelings	
Gratuitous income	48.2	18.6	13.5	16.6	3.1	71.30**
Non service income	26.8	31.4	17.4	9.7	14.7	82.94**
Service income	27.2	18.5	33.3	14.5	6.5	77.57**
F(2, 161)	8.913*	5.351*	5.917*	0.413	0.899	

Note: * indicates significant at the level of 0.05, and ** indicates significant at the level of 0.01.

The above conclusions are analyzed, and the relevant conclusions are as follows: When the online shopping amount is CNY 100, the expenditure F values of the "Network Health Expenditure" and the "Network-Specific Relative Expenditure" are 0.413 and 0.899 respectively, indicating that there is no significant difference between the two, it is due to the amount of CNY 100 is small, and the distribution of online shopping expenses is mainly concentrated in daily online shopping expenditure items($F(2,161)=8.913$ $\rho<0.05$), network-specific consumption items($F(2,161)=5.315$ $\rho<0.05$), and network enjoyment expenditures ($F(2,161)=5.917$ $\rho<0.05$). In order to compare the differences between the different initial amounts, the data assigned by the college students on different items are analyzed according to the percentages of consumption as shown in Table 7:

In the case of different amounts (CNY 100 and CNY 2100), the same type of capital income and capital expenditures have significant differences in online shopping. There are significant differences in the distribution of "Network Health Expenditures Account" and "Network-Specific Relationship Expenditure Account" when the total amount is CNY 2100, but the difference is not significant when the total amount is CNY 100. For the other three online shopping expenditure accounts, college students prefer to spend family-given income on daily expenditures. Non-labor income is consumed mostly for specific network consumption, while labor income is used for network enjoyment.

Table 7. Different funding sources and total allocation ratios

Source of funds	Total funds	Proportion of capital distribution in total				
		Daily online shopping expenses	Network specific consumption	Network enjoyment expenditure	Network health expenditure	Network specific human feelings
Gratuitous income	2100	0.373	0.152	0.142	0.263	0.070
	100	0.482	0.186	0.135	0.166	0.031
Non service income	2100	0.198	0.383	0.233	0.058	0.129
	100	0.268	0.314	0.174	0.097	0.147
Service income	2100	0.281	0.215	0.306	0.095	0.103
	100	0.272	0.185	0.333	0.145	0.065

4.4. Impact of Expenditure Accounts and External Labels on College Students' Online Shopping Behavior

When an amount of money belongs to an individual, the individual’s inner heart has already decided how to spend the money, i.e., the fund is marked with “cognitive label”. Then the fund enters into different mental accounts to produce different economic behaviors. When entering the online expenditure mental account, it will be divided into various secondary accounts, which will generate different consumption behaviors in online shopping. Different “cognitive label” can lead to different attitudes and ways of use. Such labels include not only private labels but also external labels. Internal labels represent a form of the budget in terms of expenditure on mental accounts. The essence of budget establishment is the establishment of individual psychological expenditure account in real life, while the external account is the limitation of the use of funds in the mental account of expenditure. Therefore, the essence of the economic behavior of expenditure is "label implementation" action. ANOVA analyzes the collected data through SPSS and the results are as follows:

As shown in the chart, there is a significant interaction between the label and the different types of network expenditures in the experiment. Further simple principal effect analysis shows that in the dimension of labeled or not, different network expenditure items appeared significant difference. When there is a label, "Network Health Expenditure" > "Network Enjoyment Expenditure" > "Daily Online Shopping Expenditure" > "Network-Specific Consumption" > "Network-Specific Relationship Expenditure"; When there is no label, "Daily Network Shopping Expenditure" > "Network-Specific Consumption" > "Network Enjoyment Expenditure" > "Network-Specific Relationship Expenditure" > "Network Health Expenditure." In the different expenditure item dimensions, there is a significant difference in the capital network expenditure of college students between whether there are external labels, i.e., the expenditure of labeled items is significantly higher than the non-labeled ones.

Table 8. Network Expenditure labeled under Different Conditions (Unit: yuan)

External label	Expenditure items	M	SD	N
Label	Daily online shopping	464.3	110.6	151
	Network specific consumption	356.2	150.7	151
	Network enjoyment expenditure	578.6	170.2	151
	Network health expenditure	612.7	128.4	151
	Network specific human feelings	256.5	86.4	151
No label	Daily online shopping	384.6	99.8	150
	Network specific consumption	299.6	54.7	150
	Network enjoyment expenditure	263.4	135.4	150
	Network health expenditure	125.3	78.2	150
	Network-specific human feelings	205.6	77.1	150

5. Research Conclusions and Recommendations

5.1. Research Conclusions

First of all, college students will be affected by the mental account system when conducting online shopping. The first-tier structure of the mental account mainly includes income account, online consumer psychology account and savings accounts. There are specific and stable secondary-tier structures under each of the three accounts mentioned above. Secondly, funds of different amounts and different income sources will make a significant difference in college students' online shopping behavior. Specifically, when college students are shopping online, if the funds are small, the college students will not have a clear cognitive assessment, and the funds from different sources will not be differentiated when used for online shopping. If the amount of funds is large, college students will have different perceptions and assessments, which will result in significant differences in online shopping consumption caused by different sources of income and funding. The unpaid income source of college students is mainly used for daily online shopping expenses. The non-labor income is mainly used for specific online shopping expenses, and the labor income is mainly used for network enjoyment expenses. Finally, different external labels have significant differences in the expenditures of college students when doing online shopping. Different online shopping expenditure accounts will also cause college students to make different decisions. College students are more inclined to distribute their money according to mental account.

5.2. Countermeasures

From the perspective of college students, they should cultivate the habit of bookkeeping. According to the classification in the mental account, set up a fixed account and make a good shopping plan and demand distribution on this basis. Secondly, they should think critically at any high-consumption advertisement and consider whether it is really needed and whether the value of the goods matches the price. In the end, we should establish a healthy concept of consumption and abandon unhealthy ones like follow-up and comparison.

According to the common factor which influences on college students' irrational online shopping behavior. We give recommendation as follows: From the family point of view, first of all, parents should lead by example, reasonably assess consumption power, and set a good example for children. Secondly, in daily life, parents should add the correct consumption concepts as guidance for financial education. Finally, when children have the ability of self-consumption, let the children know the financial status of the family appropriately. From the perspective of the school, first of all, the school should strengthen the education and guidance of the rational consumption for college students, help college students to establish correct financial concepts. Secondly, not to distribute various scholarships at once but several times to help them avoid consumption on impulse.

References

- [1] Antonides G, Ranyard R. Mental accounting and economic behaviour[J]. *Economic psychology*, 2018: 123-138.
- [2] Barberis N, Huang M. Mental accounting, loss aversion, and individual stock returns[J]. *the Journal of Finance*, 2001, 56(4): 1247-1292.
- [3] Chip.H. Jack S. Mental budgeting and consumer decisions. *Journal of Consumer Research*, 1996, 23: 40 -51.
- [4] Chambers V, Spencer M. Does changing the timing of a yearly individual tax refund change the amount spent vs. saved?[J]. *Journal of Economic Psychology*, 2008, 29(6): 856-862.
- [5] Davies S, Easaw J, Ghoshray A. Mental accounting and remittances: A study of rural Malawian households[J]. *Journal of Economic Psychology*, 2009, 30(3): 321-334.
- [6] Grinblatt M, Han B. Prospect theory, mental accounting, and momentum[J]. *Journal of financial economics*, 2005, 78(2): 311-339.
- [7] Gable A, Euro illusion or the reverse? Effects of currency and income on evaluations of prices of consumer products[J]. *Journal of Economic Psychology*, 2006, 27(4):531-542.
- [8] Heath C, Soll J B. Metal budgeting and consumer decisions [J]. *Journal of Consumer Research*, 1996, 26(1): 40-52.
- [9] Kresnawati E, Wahib A B, Pertiwi R R. Mental Accounting Experiment: Mode of Payment Effect on Treating Money[J]. *Journal of Accounting and Investment*, 2019, 20(3): 339-353.
- [10] Li Q, Long R, Chen H, et al. Chinese urban resident willingness to pay for green housing based on double-entry mental accounting theory[J]. *Natural Hazards*, 2019, 95(1-2): 129-153.
- [11] Soman D, Lam V M W. The effects of prior spending on future spending decisions: The role of acquisition liabilities and payments[J]. *Marketing Letters*, 2002, 13(4): 359-372.
- [12] Thaler R. Towards a positive theory of consumer choice, *Journal of Economic Behaviour and Organization*, 1980(1):39-60.
- [13] Thaler R. Mental Accounting and Consumer Choice. *Marketing Sciences*, 1985,4,(3):199-214.
- [14] Thaler, R.H. Mental accounting matters[J]. *Journal of Behavioral Decision Making*, 1999, 12(3);183-206.
- [15] Tversky A, Kahenman D. The framing of decisions and the psychology of choice[M]. *New York: Behavior decision making. Springer US*, 1985:25-41.