

# Research on College Students' Online Consumption Demand and Influencing Factors Based on ELES Model

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**Abstract:** College students are an important group of online consumption. The data of College Students' online consumption are obtained through the questionnaire. The ELES model is used to analyze the structural characteristics of College Students' online consumption from the perspective of region and gender. Through summarizing the actual performance of College Students' online consumption, and analyzing the existing problems of College Students' online consumption, put forward the measures to help college students' reasonable online consumption from the angles of the society, school and individuals.

**Keywords:** Digital economy; ELES; College student; Online consumption

## 1. Problem Posing

The new round of industrial revolution combining digital technology with the real economy is becoming an important opportunity to accelerate the transformation of new business formats and unleash the potential of economic development. As a factor of production, digital is constantly improving the process of industrial digitization and digital industrialization. Cloud computing has gradually changed people's consumption patterns while changing business models. Network consumption can satisfy people's value judgment and consumption preferences for commodities to the greatest extent with the help of network information technology. Force into the field of vision of college students. The 46th Statistical Report on China's Internet Development in 2020 points out that the proportion of student Netizens is much higher than that of other groups. As a huge group of online consumers, online consumption has been integrated into every aspect of their daily life, providing convenience to their life and gradually changing the consumption concept of college students.

Digital economy with the help of digital technology, consumer value is always accurately mined, and "accurately consumed" has become a feature of the current era of digital economy. Internet consumer credit products such as Ant Credit Pay are gradually accepted and used by college students, and also deeply affect the current consumption concept and behavior of college students. Different from other consumer groups, college students still rely heavily on their families for their source of economic income. Their social experience is relatively infrequent, and a mature consumption concept has not yet been formed. Consumption alienation such as excessive consumption, excessive consumption, and blind consumption is not uncommon. In the face of the new round of industrial transformation triggered by digital technology, it is very important to conform to the historical development trend and train college students to establish a correct view of online consumption.

## 2. A Review of the Research Status at Home and Abroad

The Internet originated in western countries. Foreign scholars have paid attention to the Internet economy earlier and analyzed the consumption characteristics and behaviors of online consumers. Forsythe S & Shi B (2003) described the online shopping characteristics of Internet shoppers, and believed that college students are the most active group of online consumption, and online consumption is largely affected by network communication tools, financial risks, product performance risks, psychological Risk and risk of loss of time vary between different groups of people. Yen-ting et al. (2012) conducted a survey and research on 226 B2C users and found that satisfaction plays a crucial role in online shopping. If consumers are not satisfied with a purchase once, they will refuse to buy again.

Due to the rapid development of the Internet in China, domestic scholars' research on online consumption rises. While focusing on the Internet consumption mode and entity consumption business mode, there also appears a subdivision of Internet consumer groups. College students' online consumption group has attracted attention for its uniqueness. In recent years, the research results of college students' online consumption behavior mainly focus on the characteristics of college students' online consumption, the analysis of the influencing factors of college students' online consumption, and the research on countermeasures for the problems existing in college students' online consumption. Liu Zhixiong (2012) believes that "college students are the most frequent online consumers at present, which is caused by their abundant spare time. At the same time, due to their knowledge reserve, college students are willing to try and dare to use new payment methods". The group identification and group integration of college students usually comes from the consistency of group behavior. Consuming popular products and mainstream products is an effective way. To a certain extent, this will increase the sense of security of college students' group integration (Zhang Yuchen et al., 2019). In the era of digital economy, college students' online consumption is more cost-effective, not limited by space and time, and can better balance the consumption level and demand of this special group (Liang Xiqiang et al., 2020). Accurate consumption in the digital economy can easily breed irrational consumption that does not meet actual needs (Zuo Xiuping and Zhang Lu, 2021). Immature consumption psychology and lack of consumption concept cultivation can easily lead to symbolic consumption, advanced consumption, etc. phenomenon (He Wei, 2021), it has become very urgent to guide college students to establish correct consumption outlook and values.

Generally speaking, foreign scholars pay more attention to the subjectivity of consumption when it comes to college students' online consumption. But domestic scholars' research on the current situation of college students' online consumption is mainly focused on the field of ideological and political education and sociology. However, the consumption of college students is also an economic behavior. Applying the theory of demand elasticity to the behavior analysis of college students' online consumption demand is an effective way to study the economic behavior of college students and an effective way to actively explore the ideological and political education of college students.

### 3. Empirical Analysis of College Students' Online Consumption Based on ELES Model

#### 3.1. Model setting

ELES model is an extended demand function model proposed by economist Lurch on the basis of linear expenditure model (LES). This model constructs the demand of goods as a function of consumer income and product price, and is widely used in the study of consumption structure and marginal propensity to consume. ELES model assumes that people's consumption demand in a certain period depends on two factors, one is income and the other is commodity price, and consumer demand is divided into basic demand and non-basic demand. After income meets basic demand, non-basic consumption expenditure is distributed according to marginal consumption tendency. On the basis of this assumption, the basic form of the ELES model to set the online consumption demand of college students can be constructed as formula (1):

$$P_i Q_i = P_i Q_i^0 + \lambda_i (M - \sum_{i=1}^n P_i Q_i^0) \quad (1)$$

In formula (1),  $P_i$  is the price of college students' network consumption goods,  $Q_i$  is the actual demand of college students' network consumption goods,  $Q_i^0$  is the basic demand of college students' network consumption,  $\lambda_i$  is the marginal consumption tendency of network consumption goods,  $M$  is the monthly disposable living expenses of college students, and  $M - \sum_{i=1}^n P_i Q_i^0$  is the amount of non-network consumption, that is, the balance of the monthly disposable living expenses excluding network consumption.

After basic deformation, the available formula (2):

$$V = P_i Q_i - \lambda_i \sum_{i=1}^n P_i Q_i^0 + \lambda_i M + \varepsilon_i \quad (2)$$

Let  $\delta_i = P_i Q_i^0 - \lambda_i \sum_{i=1}^n P_i Q_i^0$ , formula (2) can be further transformed into formula (3),

$$V = \delta_i + \lambda_i M + \varepsilon_i \quad (3)$$

By estimating the parameters in Formula (3),  $\lambda_i$  is the marginal propensity to consume online goods. By further using the demand income elasticity  $\varepsilon_i = (\Delta Q_i / Q_i) / (\Delta M_i / M_i)$ , we can get that the demand income elasticity of college students' online consumption is

$$E_i = \lambda_i M / V_i \quad (4)$$

### 3.2. Data Sources and Empirical Research

#### 3.2.1. Data Sources and Description

The data of this study mainly come from surveys and interviews with universities in Guangdong, Shaanxi, Henan, and Jiangsu provinces. A total of 700 questionnaires were distributed, of which 572 were validly recovered, accounting for 81.7% of the total questionnaires distributed. In addition, the questionnaire is analyzed deeply with the help of the interview method, and the interviewees are coded in the way of interview sequence-gender (S-M or S-W). For example, 003-W and 018-M represent the third woman interviewed and the 18th male interviewed. Through the statistical analysis of the questionnaire, it is found that the female respondents are more than male respondents, accounting for 76% of the total number of respondents; The proportions of urban and rural students were 51.22% and 49.78, respectively. In terms of academic background, 54.02% of students majored in science and engineering, and 45.98% of students majored in literature and history. What's more, about 85% of college students in the total respondents are non-only children. On this basis, preliminary statistics are made on the disposable living expenses of college students, the number of online consumption, and the online consumption expenditure.

Table 1: Descriptive Analysis of Students' Internet Consumption

Statistical Item	Category	Number of People	Proportion	Online Shopping Tendency (Number and Percentage)
Only child	Yes	87	15.21%	Food (223, 38.99%); Skin Care Products (219,38.29%); Clothing, Footwear (75, 13.11%);
	No	485	84.79%	
Times of Online Shopping (month)	1~3 times	277	48.43%	
	4~6 times	174	30.42%	
	7~10 times	63	11.01%	
	10~20 times	47	8.22%	
	≥20 times	11	1.92%	
Disposable Living Expenses (YUAN)	<500	21	3.67%	
	501-1000	206	36.01%	
	1001-1500	210	36.71%	
	1501-2500	109	19.06%	
Online Consumption Expenditure (YUAN)	>2500	26	4.55%	
	<100	128	22.38%	
	100-300	266	46.50%	
	301-500	99	17.31%	
	501-1000	56	9.79%	
Consumption Structure (Online and Non-Online Shopping as a Share of Total Disposable Income)	>1000	23	4.02%	
	Online Shopping	/	22.97%	
	Non-Online Shopping	/	77.03%	

Source: calculated by SPSS 23.0.

It can be seen from Table 1 that the disposable income of college students is between 500-1500 yuan, accounting for 72.72% of the total number of students, and the proportion of the total number of students

with disposable income greater than 2,500 yuan is about 5%. According to the number of online shopping per month, about 48.43% of college students make online shopping 1-3 times per month, 30.42% of college students do online shopping 4-6 times, and 11.01% of college students do online shopping 7-10 times. Online shopping has become the norm of college students' consumption. In terms of monthly online shopping amount, college students' monthly online shopping accounts for 22.97% of their disposable income. When asked about the types and priorities of goods purchased online, 38.99%, 38.29% and 13.11% students prefer to buy food, skin care products and clothing online. In the interview, it is found that in the online group of college students, website word-of-mouth and reputation, after-sales service and goods distribution are important factors that affect their willingness to spend online, which is consistent with the conclusions of relevant scholars (Huang Wenyan, Wen Shisong, 2012).

### 3.2.2. ELES Empirical Analysis of College Students' Internet Consumption

By analyzing the formula (3) in the ELES model, it can be seen that the characteristics and consumption data of college students' online consumption are obtained through surveys and interviews. Using the ELES model and regression analysis, the correlation coefficient  $\lambda_i$  and the value of  $\lambda_i$  can be obtained, which are the marginal consumption propensity of college students' online consumption. In addition, the formula (3) is estimated by using SPSS23.0 and ordinary least square method (OLS) and the estimated values of  $\lambda_i$  and  $\delta_i$  are obtained. After t test and F test on the estimated values of  $\lambda_i$  and  $\delta_i$  parameters, the rationality of the parameter estimation is determined through the analysis of the fitting degree, and the demand income elasticity of college students' online consumption is obtained by using Equation (4). After sorting out the results of each parameter, it is shown in Table (2):

Table 2: Descriptive Analysis of Students' Internet Consumption

Items		$\delta_i$	$t_{\delta}$ TESTING VALUE	$\lambda_i$	$t_{\lambda}$ TESTING VALUE	$R^2$	F VALUE	$P_i Q_i$	Income Elasticity of Demand $E_i$
Gender	Male	0.780	0.021	0.186	8.015	0.316	64.237	259.78	1.74
	Female	57.642	3.351	0.19	16.000	0.372	255.989	290.90	1.3
Area	East	45.051	2.357	0.185	14.821	0.351	219.667	285.43	1.49
	Guangdong	26.835	1.401	0.200	15.611	0.381	243.712	282.28	1.61
	Middle	41.986	1.228	0.189	6.798	0.269	46.207	254.44	1.22
	West	94.774	1.627	0.186	5.154	0.378	26.565	347.67	0.92
Total		47.817	3.042	0.186	17.493	0.911	5836.892	283.40	1.39

Note:  $t_{\delta}$  sum in the table represents the significance level of the intercept term  $t_{\delta}$  and the marginal propensity to consume  $t_{\delta}$ .

Source: calculated by SPSS 23.0.

It can be seen from Table 2 that the overall fitting degree of the model is good, and it can be believed that college students' online consumption expenditure can be largely explained by the change of college students' disposable income. Even when the overall sample is divided by region and gender, all models still pass the significance test.

#### 3.2.2.1 Analysis of Marginal Propensity to Consume

The marginal propensity to consume reflects the sensitivity of the increase of online consumption to the increase of income, and the decreasing trend of marginal consumption determines that the marginal propensity of college students' online consumption is between 0 and 1. It can be seen from Table 2 that the marginal propensity to consume in the model is all within a reasonable range. In general, the marginal tendency value of college students' online consumption is 0.186. There is little difference between the marginal tendency value of college students' online consumption in the east, central and western regions. The marginal tendency value of college students' online consumption in the central region is 0.189, which is slightly higher than that in the east and western regions, 0.185 and 0.186. This means that college students in the region are more likely to increase online consumption when their disposable income increases.

In addition, according to the structure of college students' online consumption in Table 1, the current online consumption of college students is still dominated by basic living consumption, accounting for 38.99%, 38.29%, and 13.11% of college students, respectively. Footwear, etc. Besides this, there are

gender differences in college students' marginal propensity to consume online. The marginal tendency of online consumption of men is 0.186, which is slightly lower than that of women. And from the survey data, in addition to buying basic consumer goods, men are also more inclined to electronic devices, games and other consumer goods.

### ***3.2.2.2 Analysis of Income Elasticity of Demand***

The demand income elasticity of online consumption reflects the degree to which the change of college students' disposable income affects the change of online consumption demand. From Table 2, the demand income elasticity of college students' network consumption is 1.49, 1.22 and 0.92 respectively in the eastern, central and western regions, except that the income elasticity of college students' network demand in the western region is less than 1. The elasticity of demand income in other areas is greater than 1, and the elasticity of college students' network consumption demand in Guangdong Province is 1.61, which means that college students' network consumption is flexible. From the perspective of gender, the price elasticity of consumer demand for men is 1.74, and the elasticity of online consumer demand for women is 1.3. There are obvious gender differences in the online consumption demand of college students. The survey data shows that men are more inclined to buy computer equipment, electronic products, etc. online. There is a relatively high price to pay for this type of product.

## **4. The Realistic Expression of College Students' Internet Consumption**

Unstructured interview is used to analyze the actual performance of college students' online consumption, which is characterized by structural alienation and consumption alienation.

### ***4.1. Structural Alienation: The Proportion of Learning Consumption is Relatively Low***

According to the research results of some scholars, cultural consumption of college students accounts for 6.62% of the total cost of living per capita, and the proportion of learning-oriented cultural consumption is lower than that of entertainment consumption (Wang Zhibiao, Yang Panpan, 2018), which is also in line with the characteristics of online consumption of college students. With the rise of knowledge paid products, it has become popular to buy knowledge through the Internet, and college students should be the main group of learning consumption. However, the survey results show that the proportion of learning consumption in college students' online consumption is on the low side. Online consumption needs are also in line with Maslow's consumption hierarchy theory. The consideration of deep spiritual needs needs to be established on the basis of satisfying basic physiological needs. As a special group of consumption, college students' disposable income will greatly restrict their consumption needs. Whether to pay for knowledge through the Internet depends to a large extent on their disposable living expenses. According to the survey questionnaire, when asked, "If you have enough financial ability, how will you consume?" Some students indicated that they would invest more money in learning and improve their self-worth through learning. By analyzing the constraints of college students' online consumption income on expenditure, some scholars found that 85% of college students will choose to buy online paid entertainment projects when their disposable income is higher than 3000 yuan (Wu Jiaxin et al., 2021). The rate used to buy online learning resources is generally lower than that of online video (Wang Zhibiao, Yang Panpan, 2018).

### ***4.2. Consumption Alienation: Comparison, Impulse and Conspicuous Consumption View***

Network based on Marx's alienation theories of consumption alienation, scholars combine the social status of consumption phenomenon make depth profiling system theory, network consumption alienation is one of the prominent characteristics of current college students' network consumption, symbol consumption, impulsive, comparing the consumption problem is outstanding problems existing in the current college students' network consumption. The survey data shows that although college students generally believe that online consumption is a convenient and fast way of shopping, they need to maintain rational consumption when consuming online. However, judging from the feedback of the respondents, the current online consumption of college students has the phenomenon of over-consumption and blind purchase. Consumption phenomena such as herd consumption and conspicuous consumption are relatively common. Among the college students, the proportion of online consumption through consumer finance, Ant Credit Pay, etc. accounts for more than 60%, and advanced consumption has become a common phenomenon in the consumption behavior of college students. However, as the main body of group consumption, college students are easy to produce comparison due to the herd psychology and

form consumer demand divorced from reality. Baudrillard believes that people simply think that the consumption system is based on physical and psychological needs, which is biased, and consumption is more based on people's cognition and distinction of symbols. To a large extent, this can explain the prevailing trend of consumption, symbol consumption and brand consumption in college students' consumption. It is undeniable that brands, symbols and trends contain the brand value and connotation of commodities to a certain extent, and they are the interpretation and annotation of brand culture. They tend to fall into the vicious circle of simply pursuing pleasure and comparison. When the family and their own sources of income cannot support excessive consumption, college students will use loans and other forms to satisfy their consumer psychology. The wrong concept of consumption distorts the values of college students and brings a series of social problems.

#### ***4.3. Digitization: Precise Consumption and Precise Consumption***

According to consumer psychology, people's consumption behavior is often dominated by consumption motivation, and consumers choose one kind of commodity rather than other commodities, because this commodity can bring greater value to consumers, and this kind of consumption behavior is likely to form a habit in the consumption process, and once formed, it is difficult to change. If it is said that it takes a higher capture cost to accurately capture consumers' consumption habits in the past, it becomes relatively easy under the condition of digital technology. In the digital age, the consumption behavior of a certain person or a certain consumer group is accurately recorded, and each consumption behavior will be formed into a consumer portrait under the conditions of digital technology, so as to carry out precise marketing push. Precise consumption and precise consumption are accompanied by each other. In the era of digital economy, when people no longer suffer from searching for the products they need, they will also suffer from the trouble of precise push, which is also the case for online consumption. In the face of the products they like are constantly being pushed, precision consumption becomes easier, which is an important reason for the formation of consumption alienation behaviors such as impulsive consumption and advanced consumption.

### **5. Policy Advice**

#### ***5.1. The Society Should Make Great Efforts to Create a Healthy Network Consumption Environment***

Marx believed that consumption has never stopped since the birth of human beings. The emergence of the Internet makes the consumption behavior become faster and more convenient. As a rational person, college students' online consumption behavior is not unique. However, as a special consumer group, the correct consumption concept of college students has not yet been fully established. The characteristics of being impulsive and liking new things make them more susceptible to the interference of external information. It will be created and stimulated unlimited consumption desire. Ant Cash Now, Ant Credit Pay, Jingdong Baitiao, etc. are the boosters to promote the alienation of college students' online consumption.

#### ***5.2. Schools should Strengthen the Guidance of College Students' Correct Consumption Concept***

The correct guidance of college students' online consumption values is a systematic project. Consumerists believe that consumption is a way to enjoy life. In the absence of consumer education, colleges and universities need to provide reasonable guidance to college students' online consumer education, and instill a scientific concept of consumption in the process of ideological and political education. In addition, schools can carry out public elective courses related to consumption to inculcate consumption theories such as political economy and Marxist alienation in the existing courses, so as to cultivate college students' consumption awareness of rationality, health and environmental protection.

#### ***5.3. Individuals should Establish a Correct Concept of Consumption***

Consumer behavior is highly subjective and independent behavior, but the alienation behavior of online consumption is not born, to a large extent, it will be affected by the surrounding people, especially families. A healthy consumption concept requires more family participation. Consumption is a lifelong behavior of social people, and the cultivation of a healthy consumption concept is an indispensable and important part of family education. In the process of family education, parents should set an example and imperceptively cultivate college students' healthy consumption concept, understand their real

consumption needs, know how to make choices and recognize the world with more correct values.

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