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## Factors Impacting Consumers' Sharing Behavior under Sharing Economy: A UTAUT-Based Model

(Full Paper)

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### ABSTRACT

Sharing economy is emerging gradually in China, which is a field worth studying, especially the use behavior of participants in e-commerce background. Based on the UTAUT model, this research considers the characteristics of sharing economy and establishes the basic framework of influencing factors of sharing behaviors. It takes P2P sharing riding as an example to do some empirical analysis through Smart PLS and SPSS PROCESS. It explores the influencing factors of participation behavior, the mediation effect of sharing intention. The study finds that performance expectancy, effort expectancy, social influence have significant positive influence on the sharing intention. The facility condition, social entertainment motivation and sustainable motivation have significant positive influence on the sharing behavior through the mediation of sharing intention.

*Keywords:* Sharing economy, sharing behavior, UTAUT model, e-business.

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### INTRODUCTION

In February 2018, the "China's Sharing Economy Development Annual Report (2018)" published by the National Information Center showed that the total value of China's shared economic market in the previous year was 492.05 billion yuan, a growth rate of 47.2%. The term "sharing economy" was originally proposed by Felson, which is "the act of consuming an economic product or service by one or more people in a joint activity with others"(Felson, 1978). It is deeply reshaping China's economic structure and transforming traditional industries with its revolutionary and subversive forces. In China, the application of the sharing economy is very broad. There are "OFO" and "Didi" in the field of transportation, Airbnb and "Xiaozhu" for short-term rent of houses. There are also shared charging and shared umbrellas in our daily life. Due to late emergence of the sharing economy in China, the development process is not completed, and the sharing concept is not yet mature. It affects the public's willingness to participate in the sharing economy. In addition, the sharing economy relies on the Internet platform. Compared with the traditional economic model, the characteristics of online trading in the sharing economy cause its anonymity, difficulty in control, and opportunism, which brings uncertainty and certain risks. For example, Airbnb is too much involved in user privacy, "Didi" has a bad reputation of the passenger mechanism which shows the information that is not related to the passengers. These factors make the current user's willingness to use is still insufficient. While the sharing economy advocates everyone's participation and leaves the "human" element, the development prospects of the sharing economy will be threatened. How to motivate consumers to participate and expand the foundation of shared groups is a key issue that needs to be solved urgently.

Scholars have pointed out the related factors of user sharing behavior from different perspectives and identified the motivation of users to participate in sharing economy. Some scholars have verified the sharing behavior factors model through empirical methods. The motivations for participation proposed in the existing research are mainly as following. The study of scholars proposed environmental motivation (Hamari, Sjöklint, & Ukkonen, 2016) and social motivation. Many empirical research based on sharing behavior has also emerged. Bucher (2016) validates the significant impact of economic efficiency as an antecedent on participation behavior, and Hellwig et al. (2015) also derives positive from the perspective of utility. In addition, Buhe et al. concluded that there are three main motives for consumers to actively participate in sharing behaviors: instrumental motivation, normative motivation, and social entertainment motivation. Benoit suggested that users' motivation to participate in sharing economic behavior includes more aspects, in addition to the widely studied economic motivation, social motivation and hedonic value, innovative consideration of risk avoidance and motivation for both responsibility and environmental benefits. There are also some users whose motivation is more complicated than the above-mentioned "basic motivation". For example, Benoit's entrepreneurial freedom means that participants can feel the joy of starting a business in the process of freely selling idle items. In the verification of the model of sharing behavior influencing factors, the theories adopted by scholars are: rational behavior theory, planned behavior theory, technology acceptance model, integrated technology acceptance model and trust theory. For example, Schaeffers (2013) based on the methodological chain of ideas and the economic activities of American consumers participating in car sharing, identifying the motivations for participation in value search, convenience, lifestyle and environmental motivation. Liu et al. (2014) took expectation theory as the research basis, compared the costs, benefits and risks of "car possession" and "car use", and drew the conclusion that expected performance and cost affect consumer behavior.

There are also scholars in China who conduct experimental surveys on the car sharing behavior of consumers in first-tier cities. For example, Shaheen (2010) and Zhang Yujie (2015) are all based on Beijing users, but the research perspective is different. The high-educated young people in the car have a high degree of participation in car sharing, who believes that interest is the most critical factor affecting the willingness to use. Based on the consumer selection model, there were scholars analyzed the difference in utility between car purchase and car sharing services. He gave weight to each influencing factor, of which price factor is the most important. In addition, some of the current literatures are based on trust theory. They study the formation of trust mechanisms in shared scenarios and the impact of trust on users' shared behavior. For example, Xie Xuemei (2016) and other scholars build the basic formation mechanism of trust under the shared economic model by sharing the personal characteristics of the subject. Other scholars concluded that by studying the trust and reputation of the sharing economy, in the shared accommodation mode, product characteristics and landlord characteristics determine the user experience. It means that the user shows the characteristics from the landlord. Determine the degree of trust, which in turn affects the user experience. In summary, the existing research in this field has the following shortcomings: Existing research focuses on the direct impact of certain types of influencing factors on sharing intention or sharing behavior, and rarely pays attention to the mediation role of sharing intention.

Based on this, this paper takes the use of P2P shared car as an example and based on the UTAUT model and motivation theory. We construct an expansion UTAUT model of consumer participation motivation in the shared context. In addition to verifying the direct effect of the influencing factors of participatory behavior under the sharing economy in the expansion model, this study also verifies the mediating effect of the sharing intention. The incremental contributions of this paper include the following points: (1) In theory, this study helps to strengthen the application depth of the UTAUT model and motivation theory in the shared economy. On the other hand, it helps consumers form a deeper and clearer cognition; (2) in practice, the conclusions of this study will provide strategic inspiration for the sharing of economic platforms to encourage consumers to participate in sharing and expand the group foundation, and help the benign development of the sharing platform.

## BACKGROUND AND RESEARCH MODEL

### UTAUT model

The Integrated Technology Receiving and Using Model (UTAUT) was proposed by Venkatesh & Davis (2003), who combined eight theories from different fields as following, the theory of planned behavior, the model of technical adaptation, the theory of innovation diffusion, the theory of rational behavior and social cognitive theory et al. The UTAUT model comprehensively uses the independent variables of the eight theories. It finally selects and summarizes four variables: Performance Expectancy, Effort Expectancy, Social Effect, and Facility Condition. The influence of the former three variables to the intention is more significant, while the facility condition has a greater impact on the use behavior. The UTAUT model appeared later, so the current application range is not as wide as the technology acceptance model. However, UTAUT has obtained multiple empirical verifications since it was proposed. In the research field of user intention (behavior), its interpretation ability is as high as 70% and has gradually attracted the attention of scholars at home and abroad. The UTAUT model has been widely accepted by many scholars and implemented in testing. In the fields of e-commerce, economic management, and information systems, scholars have studied UTAUT as a model.

### Research model

In the basic structure of the UTAUT model, the facility conditions have an important influence on the usage behavior. At the same time, there are other domestic and foreign literatures showing that the facility conditions also have an influence on the intention to use. Based on the integration of UTAUT model and motivation theory in shared context, this paper constructs performance expectancy, effort expectancy, social influence, facility condition, social entertainment motivation and sustainable motivation as independent variables, and sharing intention as mediator. In the end of the model, sharing behavior is the outcome variable (Figure 1 Shown).

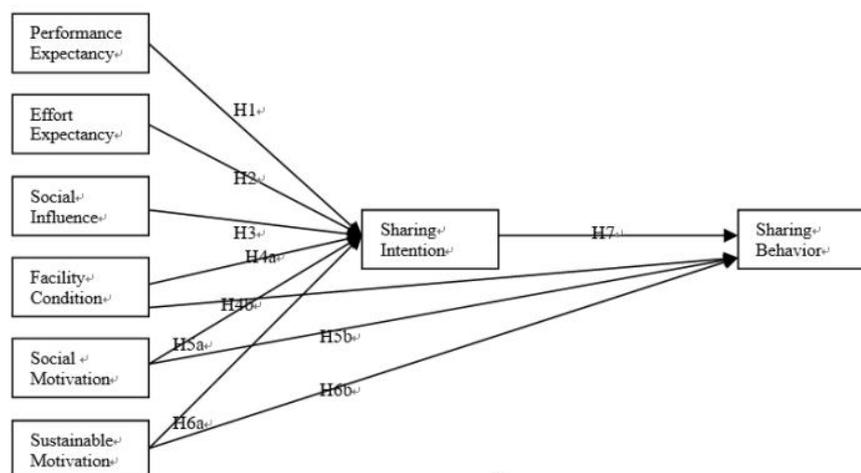


Figure 1: Research Model.

## HYPOTHESIS

### **The impact of performance expectancy on sharing intention**

Performance expectancy is defined as the degree to which a user believes in improving the performance of a job when applying a system or technology. The UTAUT model is based on the development of the TAM model. The performance expectancy of the former is similar to the perceived usefulness of the latter. It means whether the user can feel "useful". In the context of this article, participants can initiate sharing behaviors anytime and anywhere to meet their needs and provide great convenience for participants. This study understands performance expectancy from an individual perspective and defines them as participants who believe that sharing economic behavior can improve the efficiency of their access to services and thus benefit themselves. In addition, Anderson & Schwager found that performance expectancy has a significant impact on users' intention to use a kind of technology (Anderson & Schwager, 2004). Based on this, the study proposes the following hypothesis:

*H1: Performance expectation positively affects sharing intention.*

### **The impact of effort expectancy on sharing intention**

Effort expectancy refers to the degree of difficulty perceived by participants when they use information technology. That is, the degree of effort users use to use the technology or service. The operation of the sharing economic model generally involves many factors. For example, the use of the car-sharing includes the use of the mobile terminal APP, the communication between the two parties, the payment problem, the evaluation mechanism, etc. When the participants feel a complicated process and high learning cost, they will resist the use of this technical service. On the contrary, they are willing to use. In the related field of research, Knutsen (2002) researched the mobile service business and verified that the impact of efforts on the willingness to use is significant. Based on this, this study proposes the hypothesis:

*H2: Efforts expectancy positively affects sharing intention.*

### **The impact of social influence on sharing intention**

Venkatash proposed in his study that social influence refers to the degree to which users perceive the perception of a technology or product by people around them (Venkatash, 2003). The various forms of the sharing economy are a relatively new type of technology generated under the "Internet +" environment. They are still in the development stage. It is possible that some people do not fully understand it. The propaganda and introduction of various media will affect the individual's choice. In addition, as a part of society, users are vulnerable to environmental influences, such as friends, family, colleagues, etc. When their group tends to recommend sharing economic behavior, the individual's acceptance of it will be strengthened. Based on this, this study proposes the hypothesis:

*H3: Social influence positively affects sharing intention.*

### **The impact of facility condition on sharing intention and sharing behavior**

In the empirical study of Venkatash, the facility condition refers to the individual's perception of the extent to which existing organizations and equipment support the use of information technology (Venkatash, 2003). It has been proven that the facility conditions affect the use of information technology. For example, the rider only needs to make a reservation on the mobile phone terminal to ensure the travel time and route. Obviously, it is more convenient than the traditional travel mode. At the same time, referring to the research of Venkatash, the facility conditions require the convenience of objective conditions and the consistency of cognition. It affects the willingness of participants to use and directly promotes the use of behavior. Based on this, this paper proposes the hypothesis:

*H4a: Facility condition positively affects sharing intention.*

*H4b: Facility condition positively affects sharing behavior.*

### **The impact of social entertainment motivation on sharing intention and sharing behavior**

The motivation for social entertainment comes from the user's desire to establish social connections in shared economic activities, and to get a sense of belonging and fun (Shaheen, 2010). The ability to establish social relationships during the sharing process will also positively promote existing social relationships (John, 2013). Karlsson pointed out that users in the sharing desire to get in touch with new friends (Karlsson & Dolnicar, 2016). There is a tendency to share their personal thoughts with others. Based on this, this study proposes the hypothesis:

*H5a: Social entertainment motivation positively affects sharing intention.*

*H5b: Social entertainment motivation positively affects sharing behavior.*

### **The impact of sustainable motivation on sharing intention and sharing behavior**

Sustainable motivation describes a psychological process inherent in the user. Users expect resource consumption to be minimal. So they choose sharing behavior. Those who have environmental consciousness always have stronger sustainable motivations. They are more willing to participate in environmentally friendly activities (Gleim & Lawson, 2014). The sharing economy is to realize wealth of idle resources and reuse them. It is environmentally friendly. Therefore, the sustainable

motivation of consumers is an important factor affecting their participation in sharing economic intentions. Based on this, the study proposes the following hypothesis:

*H6a: Sustainable motivation positively affects sharing intention.*

*H6b: Sustainable motivation positively affects sharing behavior*

### Mediating role of sharing intention

In the theory of rational behavior, it suggested that the behavioral intentions of individuals directly affect their behavior for a certain individual behavior. This article defines the using intention as a willing to start or continue to use the ride. The behavior is the specific usage behavior that the user has developed for the technology and service of the ride. Based on this, this paper proposes the hypothesis:

*H7: Sharing intention have a mediating effect between (H7a: Facility condition; H7b: Social entertainment motivation; H7c: Sustainable motivation) and sharing behavior.*

## RESEARCH METHODOLOGY AND DATA ANALYSIS

### Research sample and data collection

There are 8 variables involved in this research model. In order to ensure the reliability and validity of the scale, all the measurement items refer to the mature existing scale. They are modified according to the settings in the sharing context of this paper. The questionnaire uses the Likert five-level scale. The score indicates the accuracy of the description of the item for the respondent. From 1 to 5, it means "Strongly inaccurate", "not very accurate", "general", "accurate" and "Very accurate".

Firstly, In order to make the study more scientific, 53 questionnaires were distributed and collected in a small group randomly for pre-study. According to the results, the initial scale was revised. In the formal research process, users who have used car-sharing service are randomly selected as the survey objects, through WeChat, QQ, BBS and other channels. In the end, a total of 272 questionnaires were collected. After eliminating the invalid questionnaires which are with too short response time and too many repeated answers, 260 valid questionnaires were obtained. It exceeds the theoretical effective sample size with the effective rate of 95.59%. The sample characteristics were as follows: Among those who use P2P car-sharing services, there were 147 men, accounting for 45 percent while 143 were women, accounting for 55%. The age of users is mostly between 21 and 30, accounting for 80.06%. In terms of academic degree, the majority of students are undergraduates and master's students, accounting for 68.67% and 21.52% respectively. The frequency of using car-sharing service was mostly concentrated in 1-2 times per month, accounting for 53.11%.

### Reliability and validity

Firstly, through the sample basis test, it can be seen that this model can be factor analysis. So the Smart PLS is used to perform confirmatory factor analysis on the variables. The model basis of this paper is the existing theoretical model. But in order to make the data have both good reliability and internal consistency, we test the reliability and validity of the sample. The Cronbach's  $\alpha$  coefficient and the combined reliability CR of all variables in this study were all above 0.7. It proves the scale had good internal consistency. It can be seen from Table 1 and Table 2. And the factor loadings of the item are more than 0.7. All the AVE are larger than 0.6. The scale of this research has high convergence validity. And the correlation coefficient between variables is less than 0.9. The square root of the AVE value of all variables is greater than the correlation coefficient of the variable with other variables. So the scale has a good discriminant validity.

Table 1: The Results of Reliability and validity

Variable	Loading		CR	Cronbach's $\alpha$	Resource	Variable	Loading		CR	Cronbach's $\alpha$	Resource
Performance expectancy	PE1	0.845	0.845	0.786	Venkatesh et al.	Social entertainment motivation	SEM1	0.873	0.918	0.867	Bucher; Mohlmann et al.
	PE2	0.791					SEM2	0.908			
	PE3	0.872					SEM3	0.884			
Effort expectancy	EE1	0.921	0.972	0.965	Venkatesh et al.	Sustainable motivation	SUS1	0.877	0.924	0.876	Hamari et al. Barnes et al.
	EE2	0.918					SUS2	0.938			
	EE3	0.976					SUS3	0.871			
	EE4	0.973									
Social influence	SE1	0.757	0.868	0.798	Venkatesh et al.	Sharing intention	SP1	0.878	0.916	0.862	Venkatesh et al.
	SE2	0.813					SP2	0.886			
	SE3	0.782					SP3	0.892			

	SE4	0.804									
Facility condition	FC1	0.870	0.878	0.814	Venkatesh et al.	Sharing behavior	SB1	0.850	0.888	0.811	Kankanhalli
	FC2	0.826					SB2	0.824			
	FC3	0.737					SB3	0.882			
	FC4	0.771									

Table 2: The Correlation Coefficient

Variable	AVE	1	2	3	4	5	6	7	8
1.Performance expectancy	0.700	0.837							
2.Effort expectancy	0.898	0.015	0.948						
3.Social influence	0.623	0.627	-0.017	0.789					
4.Facility condition	0.644	0.676	0.033	0.716	0.802				
5.Social entertainment motivation	0.790	0.472	0.059	0.468	0.600	0.889			
6.Sustainable motivation	0.802	0.558	0.019	0.548	0.646	0.690	0.896		
7.Sharing intention	0.784	0.744	0.062	0.725	0.790	0.658	0.720	0.885	
8.Sharing behavior	0.726	0.635	0.054	0.703	0.793	0.635	0.711	0.850	0.852

### Direct effect

This study used Bootstrap to test the hypothesis of the model. Model 1 shows performance expectancy ( $\beta = 0.135$ ,  $p < 0.01$ ), effort expectancy ( $\beta = 0.020$ ,  $p < 0.05$ ), social influence ( $\beta = 0.210$ ,  $p < 0.001$ ), facility condition ( $\beta = 0.386$ ,  $p < 0.001$ ), social entertainment motivation ( $\beta = 0.122$ ,  $p < 0.01$ ) and sustainable motivation ( $\beta = 0.216$ ,  $p < 0.001$ ) are positively correlated with sharing intentions. So hypothesis 1, 2, 3, 4a, 5a and 6a are supported. Model 2 shows that facility condition ( $\beta=0.508$ ,  $p<0.001$ ), social entertainment motivation ( $\beta=0.277$ ,  $p<0.01$ ), and sustainable motivation ( $\beta=0.146$ ,  $p<0.001$ ) are positively correlated with sharing behavior. So hypothesis 4b, 5b and 6b are supported.

Table 3: The Results of Direct effect

variable	Sharing intention	Sharing behavior
	Model 1 ( $R^2=0.773$ )	Model 2 ( $R^2=0.699$ )
constant	-0.354	0.309
Performance expectancy	0.135**	
Effort expectancy	0.020*	
Social influence	0.210***	
Facility condition	0.386***	0.508***
Social entertainment motivation	0.133**	0.277**
Sustainable motivation	0.216***	0.146***

### Mediation effect

Referring to Zhao Xin's research, the procedure for testing the mediating effect is verified by the Bootstrapping analysis method and SPSS PROCESS(Zhao et al., 2010). We select PROCESS model 4, the independent variables are facility conditions, social entertainment motivation and sustainable motivation, while dependent variable is sharing behavior and mediator is sharing intention. So model 3, 4 and 5 are formed respectively according to different independent variables. Model

3 shows that the confidence interval of the mediating effect of sharing intention does not contain 0 (LLCI=0.277, LCI=0.423). It indicates that the mediating effect of sharing intention is significant between facility condition and sharing behavior, and the mediating effect is 0.345. Moreover, after controlling the influence of sharing intention, the facility condition has a significant influence on the sharing behavior ( $\beta=0.163$ ,  $p<0.001$ ). It indicates that sharing intention is not the only mediator variable between the facility condition and sharing behavior. It means sharing intention plays a partial mediator role. Hypothesis 7a is supported. The results of Model 4 show that the mediating effect is significant between the social entertainment motivation and the sharing behavior (LLCI=0.030, LCI=0.130). After controlling the influence of sharing intention, the influence of the independent social entertainment motivation on the sharing behavior is not significant. And the interval(LLCI=-0.047, ULCI=0.099) contains 0. It can be seen that sharing intention plays a mediating role in the influence of social entertainment motivation on the choice of sharing behavior. Moreover, it is the only mediator variable. So hypothesis 7b is supported. According to the results of Model 5, the mediating effect of sharing intention does not contain 0 (LLCI=0.100, LCI=0.229), indicating that the mediating effect of sharing intention is significant between sustainable motivation and the sharing behavior. The mediating effect is 0.160. After controlling the influence of sharing intention, the sustainable motivation has a significant impact on the sharing intention ( $\beta = 0.116$ ,  $p < 0.01$ ), indicating that sharing intention is not the only mediator between sustainable motivation and sharing behavior. So hypothesis 7c is supported.

Table 4: The Results of mediation effect

Variable		Sharing intention			Sharing behavior		
		coefficient	LLCI	ULCI	coefficient	LLCI	ULCI
Constant		0.032	-0.234	0.299	0.290	0.078	0.502
Sharing intention->Sharing behavior					0.592***	0.4939	0.6900
Model 3	Facility condition	0.584***	0.4956	0.6714	0.163***	0.0723	0.2531
	Mediation effect	coefficient	LLCI	ULCI			
		0.345	0.277	0.423			
Model 4	Social entertainment motivation	0.136**	0.047	0.226	0.037	-0.047	0.099
	Mediation effect	coefficient	LLCI	ULCI			
		0.081	0.030	0.130			
Model 5	Sustainable motivation	0.271***	0.171	0.371	0.116**	0.032	0.201
	Mediation effect	coefficient	LLCI	ULCI			
		0.160	0.100	0.229			

## CONCLUSION AND DIRECTIONS FOR FUTURE RESEARCH

### Conclusion

Based on UTAUT, this study explores the impact of users' performance expectancy, effort expectancy, and social influence on sharing intention in a sharing economy context. This paper extends the research on the mediating effect of sharing intention between facility condition, social entertainment motivation, and sustainable motivation and sharing behavior. The hypothesis are proven.

First, the study found that performance expectancy, effort expectancy, and social influence have a significant positive impact on sharing intention. This is consistent with previous studies by Lan Jing and Huang Guoqing (Lan, 2016; Huang, 2017). Among the independent variables of the UTAUT model, performance expectancy has an impact on sharing intention. It indicates that users pay attention to the utility of sharing products and services. The more utility, the more users are willing to participate in the sharing economy. Second, if it doesn't need complicated processes to participate in an economic activity, users will also have a sharing tendency. Third, social influence has a positive impact on sharing intention. Social influence of sharing economic behavior has increased. More users are willing to start participating in the sharing economy.

Second, facility condition, social entertainment motivations and sustainable motivation have a significant positive impact on shared intention and sharing behavior. In the traditional UTAUT model, scholars only verified the impact of facility conditions on behavior. From the analysis results of this study, it can be seen that in the sharing economic context, they will not only directly choose to participate, but also increase their intention to participate if it is convenient to participate in the sharing economy. That is the path of "facility conditions → sharing behavior" in the original UTAUT model. But we prove that the intention plays a mediator role. That is, "facility conditions → sharing intention → sharing behavior".

Third, sharing intention plays a partial mediator role between facility condition, sustainable motivation and sharing behavior. This study found that facility condition and sustainable motivation have a direct impact on sharing behavior. Acceptance from intention is also a key factor as linkage. In addition, this study also found that sharing intention is not the only path to link

facility condition(sustainable motivation) and sharing behavior. There may be other mediating paths. So the further research is needed.

Fourth, social entertainment motivation completely affects sharing behavior through sharing intention. It means sharing intention plays a mediator role between these two variables. For domestic users, the social motivation and the entertainment feeling it brings from sharing economy model will not directly lead to the sharing behavior. It has to be through sharing intention. This may be because the domestic development of sharing economy is not fully mature. The users will not be directly involved in a sharing economic activity because of social motivation.

### **Management practice significance**

Based on the analysis of the above research conclusions, this study can provide the following suggestions for suppliers and platform managers of the sharing economy to promote the efficient operation.

First, improve the efficiency of the sharing economy. The platform needs to start from the user's performance expectancy, effort expectancy, facility conditions, etc., to improve operational efficiency. It allows users to feel profitable, saving time and saving effort. So that they can easily and quickly participate in sharing economic activities.

Second, expand the social influence of the sharing economy. Social influence is one of the most important factors for users to accept and use the sharing economy. According to the conclusion of this study, social influence can positively affect sharing intention. When consumers face a new economic model, they often judge whether they want to use it according to the usage of people around them. Therefore, word-of-mouth proliferation plays a vital role in the promotion of the sharing economy. Suppliers or platforms can attract costumers' attention through online and offline and the method of targeted multi-channel marketing. So that there will be more participation of potential users, further spreading this influence among many groups and integrating the sharing economy mode into people's lives.

Third, properly control the user's perception of the sharing economy. In real life, most users are generating the first cognition of emerging things to participate in the sharing economy. Therefore, the promoter of the sharing economy such as platform should grasp the characteristics of users and the psychology of consumption. If the appropriate information is given to the consumer to adjust the user's intention to use, for the new market entry mode, the user can generate sharing behavior with great probability after generating sharing intention.

### **Limitations and prospects**

This paper is based on UTAUT model, adding a path of facility condition to sharing intention. In addition, there also add two more variables, social entertainment motivation and sustainable motivation. Finally the model of this study is formed. However, the research in this field shows that there are many factors influencing users' acceptance and participation in the sharing economy. Based on the characteristics of the sharing economy and the mature UTAUT model, this paper verifies the limited influencing factors. Therefore, if we want to explore the factors influencing the participation behavior of the sharing economy more comprehensively, more theories should be involved and other important factors should be considered.

The research of influencing factors of sharing behavior under the sharing context has practical significance. It can guide corporate strategy. This paper mainly figured out the factors that may affect the behavior of users from the perspective of users. However, many studies have shown that the sustainable development of the sharing economy needs to aggregate supply parties and platforms, such as the security of platforms, preference degree and so on. At the same time, how platforms and users can use these factors to promote the more harmonious development of the sharing economy is also a subject worth further research.

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