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PSYCHOLOGICAL ATTRIBUTION AND POLICY INTERVENTION PATHWAY ANALYSIS OF LOW CARBON CONSUMPTION BEHAVIOR OF CONSUMERS

Miao HAN

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Psychological Attribution and Policy Intervention Pathway Analysis of Low Carbon Consumption Behavior of Consumers

Miao HAN[1]

Abstract

Currently, research in the field of shared consumption mainly focuses on analyzing the factors influencing consumer behavior. Although some studies involve individual psychological factors, most of these studies focus on some variables and lack completeness, and few scholars attempt to explain the gap between willingness and behavior. In previous studies on government regulation and governance of the sharing economy, scholars often overlooked the connection between policy intervention factors and individual behavior attribution, resulting in a lack of effectiveness and persistence in the policy intervention path and strategic effects of sharing consumption behavior. This article explores the psychological attribution of low-carbon consumer behavior and analyzes the path of policy intervention. Through literature review and empirical research, this article finds that consumer low-carbon consumption behavior is influenced by various psychological factors, such as environmental awareness, social responsibility, moral concepts, etc. Meanwhile, policy intervention plays an important role in promoting low-carbon consumer behavior. This article proposes specific paths for policy intervention, including raising public environmental awareness, guiding enterprises to assume social responsibility, and strengthening policy supervision.

Keywords: managerial pro-social rule breaking; trust in leadership; institutional trust; behavior intervention; Chinese context.

[1] Business Administration, Sejong University, Gwangjin-gu, Seoul, 05006, KOREA. E-mail: miohan1234567@163.com (Corresponding Author)

Introduction

Chinese consumers exhibit high barriers and low sense of security during the purchasing process. From the perspective of green product certification mechanism, currently there is no unified green inspection standard and certification mechanism for green products in China, resulting in uneven quality of green products in the market. Many products with the "green product" logo do not have green effects, increasing consumer purchasing risks (Guo *et al.,* 2020; Adedoyin *et al.,* 2020). From the perspective of green product research and development costs, the production and research and development costs of green products are relatively high. Many enterprises, driven by interests, produce and operate a large number of non green products. Faced with the contradiction between high costs and low prices, consumer questioning of green products has become inevitable (Hsu *et al.,* 2021; Duehnen *et al.,* 2020). Under the influence of multiple factors, the purchasing characteristics of Chinese consumers with low sense of security are more pronounced in the purchase of green products, which also greatly hinders consumer green consumption behavior, resulting in a situation where green products are ignored. From the perspective of consumers' emphasis on their own economic interests, currently, Chinese consumers have strong price sensitivity in the purchasing process (Khan *et al.,* 2020; Awan *et al.,* 2021). Due to the high research and development costs of green products, the prices of green products are generally higher than ordinary commodities, making prices an important factor hindering the purchase of green products. The same applies to the disposal of waste household appliances, and Chinese consumers still show a concern for their own interests (Wei *et al.,* 2020). For example, Chinese consumers generally sell discarded household appliances to second-hand home appliance recycling points to earn some income. At present, vendors who recycle second-hand household appliances do not have professional product disposal techniques, often in order to recycle valuable components, resulting in environmental pollution from waste household appliances. Consumers' emphasis on their own economic interests in the process of purchasing green products and recycling waste household appliances can easily lead to consumer behavior ignoring environmental protection and exacerbating environmental pollution (Wang *et al.,* 2021).

In real life, many consumers have a biased understanding of green consumption, equating "green consumption" with "green consumption", thinking that green consumption refers to eating green food, wearing natural clothing, decorating rooms with natural materials, traveling to primitive forests, and so on. The above behaviors are "green consumption" rather than "green consumption". This approach that only considers our own interests and neglects environmental and resource protection goes against the original intention of green consumption, making our consumption behavior go against "green consumption". Therefore, the primary task facing the current government is to make consumers understand what green consumption is and avoid falling into misunderstandings (Meng *et al.,* 2021). The government's

propaganda and education work is to convey the correct connotation of green consumption to consumers, advocating for ensuring the consumption needs of both contemporary and future generations, as well as safety and health in consumption activities. Its basic requirement is to pay attention to the disposal of garbage during the consumption process, without causing environmental pollution. Consumers need to change their consumption concepts, while pursuing a comfortable life, they should also pay attention to environmental protection, resource conservation, and achieve sustainable consumption. Green consumption must be based on protecting green and achieving sustainable development of China's economy.

In the study of environmental behavior, scholars have realized the role of the government and explored it from the perspective of government intervention strategies. In the intervention policies for behavior shaping, some scholars have pointed out that information dissemination policies and economic incentive policies are the two main intervention strategies. Scholars have also proposed intervention policies for low-carbon consumption behavior, including cultivating values, enhancing low-carbon awareness, providing external conditions, cultivating social norms, and implementing policies and regulations. Scholars have also analyzed the roles of government procurement and government environmental regulation in green consumption; Scholars have also analyzed the government's environmental regulation. Although scholars have different conclusions on government intervention strategies for environmental behavior, they all agree that the government should achieve a restraining effect on consumers through policies and regulations, an incentivizing effect on consumers through economic incentives, and a guiding effect on consumers through publicity and education (Abu-Alkeir *et al.,* 2020). This article draws on classic theories from disciplines such as economics, management, and psychology, and adopts a combination of empirical and qualitative research methods to explore the behavioral mechanisms of consumer participation in the sharing economy. Based on the attribution of sharing consumption behavior, a policy intervention system is constructed, providing valuable policy recommendations for the government to guide consumers to participate in the sharing economy and promote the healthy development of the sharing economy.

Literature review

Since the 21st century, the rapid development of information technology, especially the Internet, and the popularity of mobile devices, online payments, and social platforms have enabled instant sharing. Many scholars believe that the 2008 financial crisis to some extent promoted the development of the sharing economy. The financial crisis has led to a sharp decrease in consumer desire among the public, resulting in severe overcapacity, forced accumulation of large quantities of goods, and idle resources. In this context, people have to re-examine their past

consumption habits. In order to save consumption costs, people's desire to own assets is no longer strong, and they turn to transferring their idle items to obtain profits (Pan & Huang, 2020). After the economic recovery, the improvement of consumption level and the advancement of consumption concepts have driven the rise of the service-oriented consumption market, creating environmental conditions for the development of the sharing economy. In the sharing economy, platforms, as transaction organizers between product or service providers and users, together form the initial trilateral market, helping to more effectively match idle resources, enhance market vitality, and provide consumers with more choices. Since 2008, many representative sharing economy platforms have emerged, such as Airbnb for shared homestays and Uber for shared travel, and quickly entered the traditional consumer market.

People from all walks of life have gradually realized that the sharing economy, as a new economic model, has shown strong development potential and broad development space, which will bring new production and consumption modes to the global economy. The concepts of grid economy, gig economy, cooperative economy, and platform economy have also been proposed one after another (Qalati *et al.,* 2022). At present, domestic scholars mostly draw on the existing achievements of Western scholars in their research on consumer participation in the sharing economy, starting from the motivation of consumer participation or the influencing factors of their behavior, lacking an analysis of the psychology of Chinese consumers. In addition, there are some shortcomings in the existing research on shared consumption behavior from the perspective of consumer psychology. One is that there is no complete and systematic research on the psychological variables of shared consumption. The second is that it has not yet covered the entire process of the formation of shared consumption behavior. The process from consumers developing a shared consumption mentality to executing specific consumption behaviors is a complex one (Dhaliwal *et al.,* 2020; Cruz-Cárdenas *et al.,* 2021; Omar *et al.,* 2021). In both theoretical analysis and practical situations, there exists a gap between shared consumption willingness and behavior. Exploring the formation mechanism of behavior from the perspective of consumer psychology can further deepen the theoretical connotation of consumer behavior and enrich the current theoretical achievements in the field of shared consumption (Peña-García *et al.,* 2020; Saari *et al.,* 2021).

The widespread recognition and participation of consumers in the sharing economy are important reasons for the flourishing development of this new consumption model. Many scholars have focused their research on the sharing economy on the analysis of consumer participation motivation, using sociological and psychological theories such as social exchange theory, self-determination theory, and planned behavior theory as analytical frameworks to construct theoretical models and verify various consumer motivation hypotheses (ElHaffar *et al.,* 2020; Ek Styvén & Mariani, 2021). People's choice to participate in the sharing economy is driven by multiple motivations. From an economic perspective,

the prerequisite for the occurrence of shared consumption behavior is that the benefits brought to consumers by the sharing economy outweigh the costs they need to pay. For the supply side, sharing their idle resources can generate additional income. For the demand side, purchasing behavior requires more time and money, and shared consumption saves these costs. Both supply and demand sides jointly facilitated the achievement of transaction behavior based on their respective needs. On this basis, the motivation for consumers to participate in the sharing economy can be divided into external economic benefits, sense of honor satisfaction, and internal perceived entertainment and sustainability. Among the four motivations, economic benefits are the most important influencing factor, while sense of honor and sustainability do not have a significant impact on consumer willingness to participate (Pezzuti *et al.,* 2021; Donthu *et al.,* 2021). A comprehensive study has been conducted on the motivations of consumers to participate in the sharing economy, including instrumental, normative, and hedonic motivations. Instrumental motivation emphasizes the external economic incentives and functional realization generated by participating in the sharing economy, normative motivation refers to sustainability and altruism, hedonic motivation refers to the emotional satisfaction of consumers in the consumption process, including a sense of entertainment, belonging, etc.

In order to gain a deeper understanding of the motivations behind consumer participation in the sharing economy, some scholars have explored it from the perspectives of consumer psychology and cultural values. The cultural education and social norms received by consumers constitute their initial consumption motivation (Gilal *et al.,* 2020; Nadeem *et al.,* 2021). Consumers may feel guilty because their behavior does not meet their expectations or requirements. If consumers have something they don't really need, they will feel guilty about it. In order to reduce this negative emotion, they tend to share the item with those who need it more. More and more people are realizing that high purchase and maintenance costs reduce asset holding returns, leading to a weakening of their inner desire to possess goods. It is precisely thanks to the transformation of people's values that shared consumption has occurred (Lavoie *et al.,* 2021). The young consumer group of the millennial generation has found that utilitarianism and hedonism are the values that drive them to participate in the sharing economy (Ahn & Kwon, 2022). Research has found that consumers are influenced by consumption concepts to form stable internal psychological tendencies towards their consumption targets, and exhibit different attitudes, which can lead to significant external behavioral differences after judgment and decision-making.

Methodology

Integration and reconstruction of the concept of green consumption behavior

The field of consumer behavior research covers many aspects: the process involved by individuals or groups in selecting, purchasing, using, or disposing of products, services, concepts, or experiences to meet their needs and desires. In the early stages of consumer behavior development, this field usually referred to purchasing behavior, emphasizing the mutual influence between consumers and producers in the purchasing process. With the deepening of research on consumer behavior, people are becoming increasingly aware that consumer behavior is a process, and acquiring or purchasing is only one stage of this process. Studying consumer behavior should not only investigate and understand consumer evaluation and selection activities before purchasing products or services, but also pay attention to activities such as use and disposal after product acquisition. Only in this way can the content covered by consumer behavior become more complete.

Environmental resources have public attributes, and the balance between their own behavioral costs and benefits often leads to externalities when consumers implement green consumption behaviors. External economic behaviors such as environmental pollution cannot solely rely on consumers to correct their own behavior. Scholars in the field of economics unanimously agree that external issues should be addressed through government intervention. The government can establish the rules and regulations that consumers must follow when purchasing energy-saving appliances, using energy-saving appliances, and properly disposing of waste appliances. Introduce clear green consumption policies to constrain consumer purchasing behavior in the form of legislation or administrative regulations for high energy consuming and environmentally polluting household appliances; Encourage consumers to purchase energy-saving home appliances with moderate incentive measures; Develop clear waste disposal regulations and enforce individual behavior through legislation to regulate consumer behavior of indiscriminately disposing of pollutants.

On the basis of reorganizing the concept of consumer behavior, this article integrates green purchasing behavior, green product usage behavior, and waste disposal behavior into green consumption behavior. Based on consumer decision-making theory and information processing theory, the three green consumption behaviors are further decomposed into four psychological stages, and based on this, the influencing factors of the four stages of the three green consumption behaviors are defined, Thus, the conceptual model of this article is proposed.

Several variables in the model have been defined in detail earlier, and consumer psychological cognitive variables are divided into two dimensions: consumer sense of responsibility and perceived behavioral effectiveness; The policy intervention variables are divided into three dimensions: policy regulations, incentive mechanisms, and publicity and education; The variable of consumer green consumption emotion is green consumption attitude; The variables of consumer green consumption behavior include green purchasing behavior, green product usage behavior, and waste disposal behavior. This model mainly includes the following four sets of relationships:

Firstly, the relationship between consumer psychological cognitive variables and green consumption behavior. From the perspective of consumer psychological changes, consumer psychological cognitive variables not only directly affect green consumption behavior, but also indirectly affect green consumption behavior through green consumption attitudes. Specifically, the recognition of green consumption formed by consumers under external information stimulation

Knowledge can generate certain emotional attitudes, likes or dislikes, and corresponding consumption behaviors among consumers. In addition, a large number of theoretical and empirical studies have shown a significant relationship between consumer psychological cognitive variables and green consumption attitudes and behaviors. Therefore, this article believes that individual psychological cognitive variables have both direct and indirect effects on green consumption behavior.

Secondly, the relationship between policy intervention variables and consumer psychological cognition variables. According to the perspective of information processing theory, individuals form a series of cognition through information processing under external stimuli. Therefore, this study believes that policy intervention variables have a significant impact on consumer psychological cognition variables.

Thirdly, the relationship between policy intervention variables and green consumption behavior. Policy intervention variables have a certain effect on individual attitudes and behaviors, either constraining, motivating, or guiding. Moreover, a large number of theoretical and empirical studies have shown a significant relationship between external situational factors and green consumption behavior. Therefore, this study suggests that policy intervention variables have a significant direct or indirect impact on green consumption behavior.

Fourthly, the relationship between green consumption attitudes and green consumption behaviors. Green consumption attitudes and behaviors are generally consistent, but under the influence of moderating variables, the relationship between individual green consumption attitudes and behaviors will change accordingly. It is precisely because of the moderating effect of these obstacles that there is a deviation between green consumption attitudes and behaviors.

Externalities of green consumption behavior and government intervention

In the process of implementing green consumption behavior, individuals have certain personal costs and benefits. Due to their "economic man" characteristics, individuals often balance the costs and benefits of implementing green consumption behavior, and achieve maximum personal benefits through whether or how frequently they implement it. However, in the process of balancing the costs and benefits of their green consumption behavior, individuals create externalities in their green consumption behavior. In other words, the "economic man" characteristics of individual consumers create externalities in their green consumption behavior. Externalities are a concept in economics that refers to the situation where individual or business behavior affects the welfare of other economic units, but other individuals and businesses do not bear costs or receive compensation as a result. Externalities are divided into positive externalities and negative externalities. When an individual or business's behavior has a positive impact on other individuals or businesses, it is called positive externalities. Positive externalities benefit other individuals or businesses, but the beneficiaries do not need to pay a price, and individuals or businesses that generate positive externalities will not be compensated for it, resulting in individual benefits being less than social benefits in the case of positive externalities. For example, proper disposal of waste by consumers can have a positive impact on the surrounding natural environment, but others can enjoy a good natural environment without having to pay a cost for it. The negative externality refers to the behavior of certain individuals or businesses that causes negative impacts on other individuals or businesses, causing harm to their interests. Negative externalities cause harm to other individuals and businesses, leading to a reduction in the effects of others. However, the individuals who cause harm do not bear the corresponding costs, resulting in individual costs being lower than social costs in the case of negative externalities. For example, casually discarding waste can pollute the natural environment and have a negative impact on individuals living in it, but individuals who cause pollution by casually discarding waste will not bear the cost as a result. Therefore, the fundamental reason for the existence of externalities in individual green consumption behavior lies in the differences between individual costs, individual benefits, social costs, and social benefits.

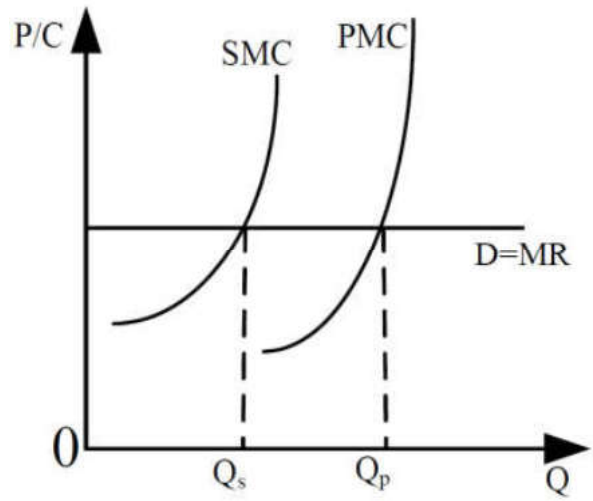

Figure 1. The negative externalities of green consumption

Figure 1 shows the negative externality of green consumption. Due to the pollution of the natural environment and energy waste caused by consumers purchasing, using, and casually discarding ordinary household appliances, it has a negative impact on the surrounding population, resulting in social marginal cost (SMC) greater than individual marginal cost (PMC). Therefore, SMC is located above PMC, and under perfect competition conditions, the individual consumer demand curve D is equal to its marginal benefit curve MR. If consumers only determine the quantity of their green consumption behavior based on private costs, they will implement the quantity Qp determined by the intersection of private cost PMC and marginal benefit curve. If the cost of environmental pollution caused by the consumer during the consumption process is calculated, the number of green consumption behaviors implemented by the consumer is determined by the intersection of social cost and marginal benefit curve, because social cost is high, the number of green consumption behaviors implemented by the consumer is Q. There is a difference between the number of green consumption behaviors implemented by consumers and the actual demand in society. Consumers tend to implement more (Qp -- Qs) of green consumption behaviors, and the natural environment becomes worse due to the negative externalities of green consumption behaviors.

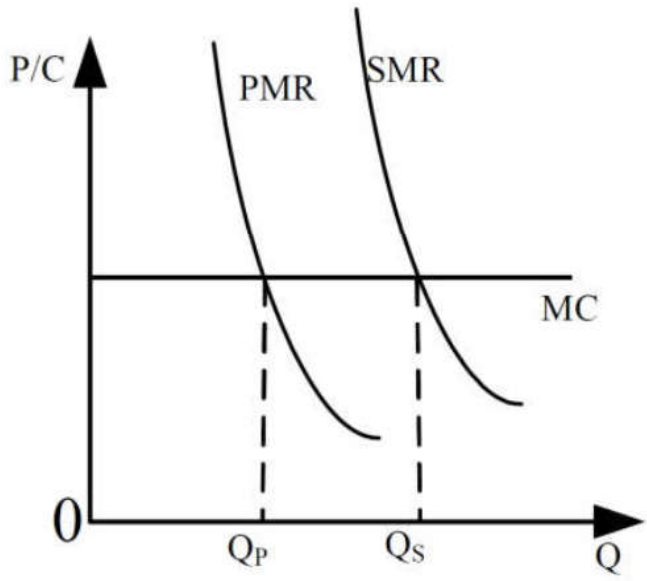

Figure 2. The positive externalities of green consumption

Results and Analysis

Questionnaire survey on the formation mechanism of shared consumption behavior

This article takes consumers participating in the sharing economy as the research object. Based on previous research on the sharing travel market, it was found that China's ride hailing service covers a wide range of regions, with a high market penetration rate. Active users are mainly distributed in coastal cities in the east, and the travel needs of passengers in different regions vary. Specifically, it can be divided into dynamic temporary ride hailing and static early ride hailing. This questionnaire is distributed to residents from all regions of the country. According to the actual answer results, about 50% of the samples are from coastal areas such as Shanghai, Zhejiang, and Jiangsu, and other provinces are also involved, including inland areas such as Xinjiang, Inner Mongolia, Ningxia, and Hong Kong, Macao, and Taiwan. The respondents' feelings and evaluations of the ride hailing service can be regarded as a common viewpoint among Chinese consumers.

In terms of survey time, a total of three months from December 2021 to February 2022 was selected for the questionnaire. Because this time period includes two peak periods for returning home, winter vacation and Spring Festival, for students and office workers, they are facing the most diverse travel needs in the past year, with a higher probability of taking a ride. The riding experience is impressive, and

their own feelings are the most authentic. Moreover, they are also willing to express their thoughts through filling out survey questionnaires, and their evaluations are also the most objective. This is a good guarantee for the effectiveness of questionnaire filling and the quality of data collection. A total of 664 questionnaires were collected during the formal survey. According to the requirements of data collection, questionnaires with too short answer times are likely to lack accuracy and objectivity. The questionnaire distribution platform will automatically record the time spent by each respondent filling out the questionnaire. Considering that each respondent needs to complete 60 questions, 10 questionnaires with a response time of less than 2 minutes will be excluded. In addition, 6 questionnaires were also excluded, which had the same answer results for most of the items or had conflicting logical responses before and after. A total of 648 valid questionnaires were obtained, with an effective response rate of 97.59%. These questionnaires constitute the raw data for this study.

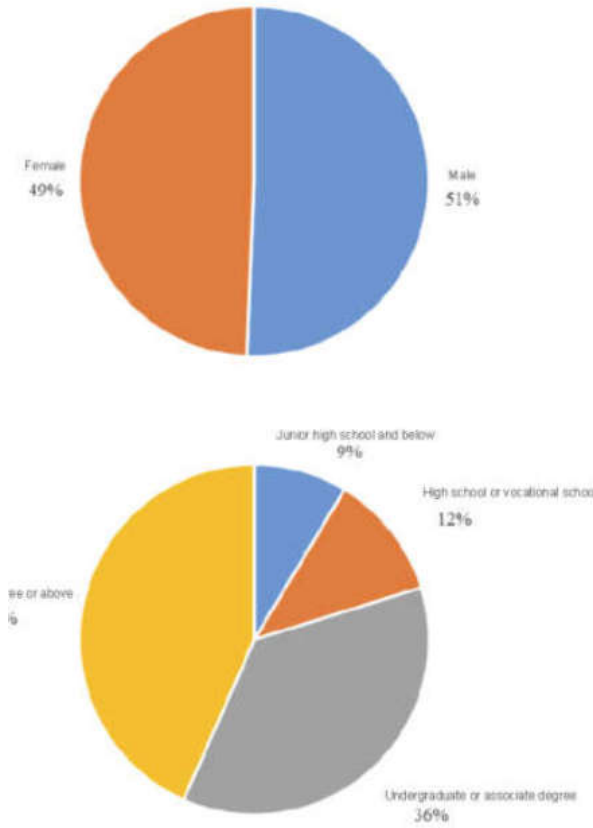

Figure 3. Basic information of respondents

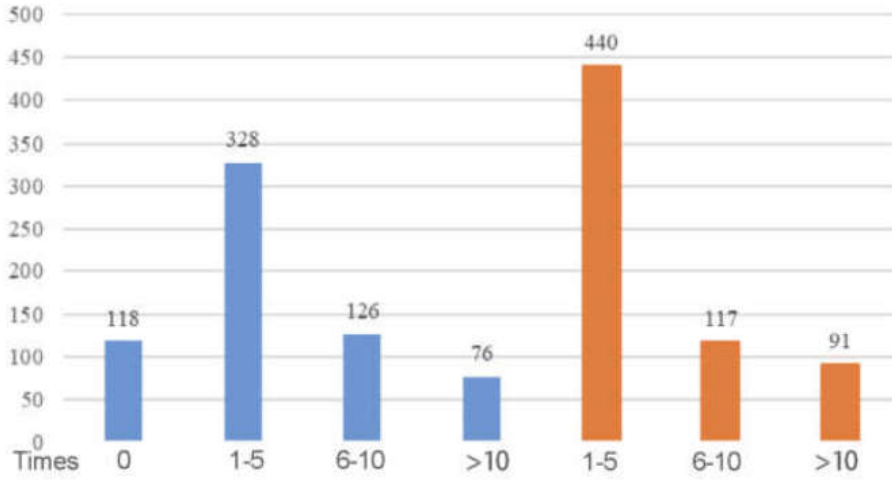

Figure 4. Survey results

From the above figure, it can be seen that among the consumers surveyed, males and females accounted for 50.6% and 49.4% of the total sample size, respectively, and the number of males and females was basically the same. From an age structure perspective, consumers are generally younger, mainly concentrated between the ages of 18 and 25, accounting for 26.4% of the total sample size. From the perspective of educational level, consumers generally accept

Having received higher education (above high school) accounts for 79.8% of the total sample size. From the perspective of occupational distribution, practitioners from various industries are involved, with the main consumer group being students, accounting for 30.7% of the total sample size. From the perspective of income level, the proportion of sample size in the pre-set four month average disposable income level is relatively balanced. In terms of travel methods, although the daily travel choices of the surveyed population include various modes of transportation, the sample size with an average monthly demand for taking a taxi still accounts for 71.8% of the total sample size, and 67.9% of the population has had at least one experience of taking a ride in the past six months. In addition, the sample size of taking a ride in the past six months is 6-10 times and more than 10 times, accounting for 18.1% and 114% of the total sample size, respectively.

Overall, the respondents in this survey have the following characteristics: balanced gender ratio, majority of people under 60 years old, good educational background, and all 648 respondents have taken a ride in the past. According to previous market research, the main group participating in the sharing economy is young, well-educated, and strong consumer power. Therefore, the sample population surveyed in this survey can represent the overall situation of consumers in the sharing economy market.

The application of structural equation modeling needs to be based on the premise that the sample data conforms to a normal distribution. If the data distribution does not have normality, it will lead to significant deviation in the chi square values of the fitting indicators, and also result in inaccurate maximum likelihood estimation results. In addition, multiple regression statistical methods also have the same distribution requirements for data. Therefore, testing whether the sample data conforms to a normal distribution is an essential step before hypothesis testing. Skewness and kurtosis are two indicators that can easily and intuitively determine the normality of data. If skewness ≤ 2 and kurtosis<5, it can be considered that the data satisfies a normal distribution.

Intervention strategies based on individual behavior

Perceived behavioral control is the boundary condition that determines whether shared consumption behavior can occur. If perfect consumption conditions and participation channels are created for the sharing economy, it will greatly increase the probability of consumers participating in the sharing economy. As far as consumers themselves are concerned, the knowledge reserve and consumption skills of the sharing economy are the basic conditions for their consumption behavior to occur. The government should attach importance to education and training for consumers, improve the public's knowledge level of the sharing economy through various means such as offering courses and organizing activities, and help the public acquire the skills and methods necessary for sharing consumption. Shared consumption cannot rely solely on sharing platforms as intermediaries. The government needs to expand consumer participation channels, such as encouraging direct transactions between sharing suppliers and demanders, effectively activating the consumer market.

For consumers, it is not difficult to occasionally participate in shared consumption, but the process of reducing behavioral decision-making when individuals face the same needs, and subconsciously choosing the sharing economy, is a long process. Therefore, long-term effective promotional strategies should be based on helping consumers develop new habits. This requires the government propaganda department to develop a complete set of propaganda measures, shift from persuasion strategies to guidance strategies, eliminate consumer resistance and subjective biases towards emerging consumption models such as the sharing economy, encourage consumers to increase the frequency and frequency of sharing consumption, and also take the lead in sharing consumption by using government behavior as a demonstration and influence on the public. At present, young people are mainly active in the sharing economy. This group has a strong ability to accept new things, but in order to make the sharing economy benefit the whole nation, the behavioral characteristics of all groups should be comprehensively considered, and people of different ages and levels of knowledge can participate. Rural residents and elderly people are also important targets for expanding the

sharing consumption group. The government can learn from the "threshold crossing technique" in social psychology, first encouraging consumers to implement low-cost and barrier free shared consumption behaviors, and then implementing shared consumption behaviors that require certain efforts and difficulties.

Conclusion

This article constructs a complete mechanism model for the formation of shared consumption behavior. Firstly, shared consumption has strong planning, and the theory of planned behavior is suitable as the main framework of the model. Secondly, values that align with the concept of shared consumption are the fundamental factors that contribute to the occurrence of consumer behavior. Using the value variables in the value belief norm theory as the starting point for research can examine the cultural attributes and potential motivations of consumers. Once again, shared consumption has emerged with the development of internet technology, and the technology acceptance model has unique advantages in studying new consumption patterns. Finally, the presence of perceived risk can bring uncertainty to shared consumption, and introducing this variable that conforms to the characteristics of the consumption context can explore its negative impact mechanism. Explored the reasons for the "willingness behavior" gap in the field of shared consumption. In real life, people do not always pursue maximizing utility. Based on bounded rationality and the expectation of reducing cognitive effort, people will subconsciously repeat their past behavior. Therefore, this article introduces the irrational variable - consumption habits - into the model as a moderating variable between willingness and behavior. The empirical research results also confirm that consumption habits have a significant negative moderating effect on the transformation from shared consumption willingness to shared consumption behavior. The more stable the original consumption habits of consumers are, the more likely they are to encounter a gap between willingness and behavior when facing a relatively unfamiliar sharing economy.

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