

Empirical Study on Consumers' Willingness to Consume Green Packaging and Its Influencing Factors

—Based on the Theory of Planned Behavior

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Abstract. Green packaging is the product of green revolution and green movement, which adapts to the trend of green consumption. However, green packaging has not been widely used at present. Based on the theory of planned behavior, this paper constructs the influencing factor model of consumers' consumption intention of green packaging, and uses the structural equation model to analyze the questionnaire data. The empirical research results show that the influence of subjective norms is the most significant, followed by perceptual behavior control, and the behavioral attitude ranks the third. According to the research, There are some suggestions are put forward to provide reference for the government and enterprises to design measures to promote consumers' consumption of green packaging.

Introduction

Green packaging is the product of green revolution and green movement, which adapts to the trend of gree.

Nowdays, China packaging industry has a certain initial production scale. From the total, China has become the world packaging power. In order to meet the requirements of people's pursuit of high-quality material life, the packaging industry often consumes a lot of resources to produce exquisite commodity packaging, causing huge environmental pollution problems. Therefore, to curb excessive packaging and promote the use of green packaging is an important measure to protect China's ecological environment.

In order to effectively promote the use of green packaging, it is necessary to effectively analyze consumers' willingness to consume green packaging and its influencing factors, and put forward targeted measures to promote green packaging.

Literature Review

Research On Green Packaging.

Zhengbo Liang[6], from the perspective of the consumer behavior, analysis of consumers in general attitude towards environmental protection, green packaging for consumers in a particular attitude and the sense of responsibility to consumers emotional factors such as the purchase of the impact of the behavior of the green packaging products. Khare[5] believes that consumers' recognition of green has a strong predictive effect on their future green purchasing behavior. Through a large number of sample studies and questionnaires, Jiaguo Wang (2004)[6] came to the conclusion that "for different green products, the influence of values will vary greatly". However, in the research process, the author only selects university students as sample variables, which leads to the unrepresentative sample. There is still room for improvement. Kim et al. [7] believe that consumers' unbelief in green products, green products' reduction of carbon emissions, improvement of health and other aspects reduces the possibility of green purchasing. Wanzhu Wang [8], believe that consumers' cognitive confusion about eco-labels and packaging instructions results in "attitude behavior" differences. Songmei Zhang [9] believes that many factors, such as consumers' awareness

of environmental protection, low-carbon consumption knowledge and personal responsibility awareness, have a certain impact on low-carbon consumption. Shouhong Xie [10]. discussed the influencing factors of people's low-carbon behaviors from the perspectives of sense of responsibility, ecological values, low-carbon cognition, product price and policy perception effect. Lu Zhang [11], in the study on the influence of carbon labels on the consumption behavior of low-carbon products, constructed the mechanism model of the influence of carbon labels on the consumption behavior of low-carbon products from five aspects including social publicity, environmental protection awareness, consumer cognition, preference and consumption behavior.

The Theory of Planned Behavior the Theory of Planned Behavior.

Based on the assumption that people have the ability to completely control their own behavior, rational behavior theory believes that the occurrence of individual behavior can be completely affected by attitude and subjective criteria. However, rational behavior theory ignores that individual behaviors are restricted by management intervention and external environment. Icek Ajzen introduced some external variables on the basis of the inheritance of rational behavior theory, and added a concept of self-behavior control cognition to form the the theory of planned behavior the theory of planned behavior (TPB). This theory hypothesizes that behavioral intention is the most direct influencing factor of individual behavior, and other influencing factors all indirectly influence behavior through behavioral intention. [4] the theory of planned behavior mainly has the following basic viewpoints.

First, the behavior that is not completely controlled by personal will is restricted by behavioral intention, personal ability, opportunity, resources and other practical factors.

Secondly, accurate perceptual behavior control can be used as an alternative measurement index for actual control conditions. The accuracy of measurement depends on the accuracy of perceptual behavior control.

Thirdly, the behavioral attitude, subjective norm and perceptual behavior are the three main variables that determine behavioral intention.

Fourth, individuals have a large number of behavioral beliefs, but only a relatively small number of behavioral beliefs can be acquired in a specific time and environment. These accessible beliefs, also known as salient beliefs, are the cognitive and emotional basis for the behavioral attitudes, subjective norms and perceptual behavior control.

Fifth, factors such as individuals and social culture control individual behaviors by influencing people's the behavioral attitudes, subjective norms and perceptual behaviors.

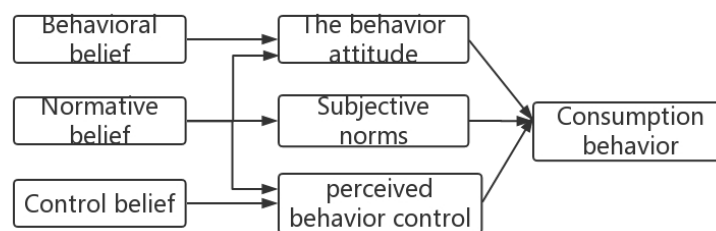


Figure. 1 Plan behavioral theory

Research Model and Hypothesis

Research Model Description.

Under the framework of the theory of planned behavior, the factors that restrict the behavior of consumers are divided into three categories, namely, consumer attitude, subjective group norm and perceived behavior control.

That determine consumer understanding of green packaging consumption and not only the will of the information and the consumer attitude itself, including the sense of social responsibility and environmental protection concept, values, morality itself consumption habits, also restricted by various internal and external factors, the internal and external factors is the cost of the green

packaging, performance, information and consumer consumption environment, etc. At the same time, consumers exist as social beings, and their consumption behavior is also one of individual behaviors. In the process of forming their behavioral intention, they are always subject to the social pressure of the group they are in, that is, the subjective normative factors in the theory of planned behavior. According to the theory of planned behavior, consumers' consumption behaviors of green packaging can be analyzed from three aspects: consumers' attitudes, subjective norms and actual control conditions.

Research Hypothesis.

Influence of the behavioral attitude on consumers' willingness to consume green packaging.

The behavioral attitude refers to the positive or negative feelings of consumers towards commodities, and is also the attitude formed by the conceptualization of consumers' evaluation on the consumption of certain commodities. Behavior and attitude are deeply affected by the individual's knowledge, emotional value and other internal factors. Armitage et al. found that the behavioral attitude can explain 19% to 38% of individual behaviors. [1] based on this, hypothesis H1 is proposed in this study. The behavioral attitude can directly, positively and significantly influence consumers' willingness to consume green packaging. And from the consumer's view of consumption, perception of green packaging, consumption habits and other four aspects to measure the consumer's attitude to green packaging consumption behavior. A total of "I know a lot about green packaging", "I think the green packaging consumption plays an important role in environmental protection", "I think the environmental protection is my obligation", "I used to have green consumption" and other four measurement items.

Influence of subjective norms on consumers' willingness to consume green packaging.

All human beings are individuals in the society. Subjective norms refer to the social pressure that individuals feel on whether to take a specific behavior. In other words, when predicting individual behaviors, individuals or groups that have influence on individual behavior decisions will exert influence on whether individuals take a specific behavior. Cialdini et al. referred to social pressure caused by external factors such as national policies, interests, merchants and important people around them as subjective norms. [2] based on it, this study proposes hypothesis H2, subjective norms can directly, positively and significantly affect consumers' willingness to consume green packaging. And from the relatives and friends, businesses, media publicity, national policies and other four aspects of consumer green packaging consumption to measure the subjective norms. The total design of "friends and relatives mostly choose green packaging consumption" "when buying packaging businesses usually recommend me to buy green packaging" "the media often promote the use of green packaging" "national policies to promote consumer green packaging consumption" and other four measurement items.

Influence of perceived behavior control on consumers' consumption intention of green packaging

In the process of decision-making, rational people will make a comprehensive comparison and analysis of the conditions they have. Perceptual behavior control refers to the obstacles that reflect the past experience and expectations of individuals. When individuals think they have more resources and opportunities, and fewer obstacles that they expect, their perceptual behavior control will be stronger. Virden et al. point out that cost, time, and effort are the three main factors that affect decision making. [3] based on this, this study proposes hypothesis H3, namely, perceptual behavior control can directly, positively and significantly affect consumers' willingness to consume green packaging. Based on this, this study proposes hypothesis H3, namely, the perceived behavior control of green packaging consumption decision can directly and significantly affect the consumption intention of green packaging. The perceived behavior control of consumers on consumption intention of green packaging was measured from three aspects, such as economic conditions, access channels and cost performance. "My economic conditions allow me to use green packaging", "the channel to buy green packaging is smooth" and "the cost performance of green packaging is high" are designed.

Measurement of consumption intention

In the process of consumption, customers' current and future consumption intention is often affected by past experience. Based on this, this study takes consumption experience as the measurement standard, and designs two common items, "I often use green packaging" and "I prefer to use green packaging among various packaging products", to measure consumers' willingness to consume green packaging.

Research Data Statistics

Descriptive Statistics of the Questionnaire.

The four variables set in this study, the behavior attitude, subjective norms, perceived behavior control and Willingness to consume, have no corresponding data support in the green packaging. They are all unmeasurable variables, which must be described and converted into questionnaire items to collect the original data. Likert scale is one of the most commonly used types of the rating summation scale. These items of the same construct are scored by summing. Individual items or individual items are meaningless and applicable to the measurement of individual attitude variables. Therefore, this study adopts the five-level likert scale in the subjective evaluation method. Respondents can judge and evaluate the importance of influencing factors based on their previous experience and subjective understanding.

Based on the hypothesis and model, a questionnaire was designed. The first part of the questionnaire includes control variables such as gender, age, education level, monthly income and occupation. The second part adopts likert scale, from "1" to "5", indicating "strongly disagree", "strongly disagree", "agree", "compare agree" and "strongly agree" with respect to the three factors of the behavior attitude, subjective norms and perceived behavior control.

In order to ensure the authenticity and representativeness of the data, this study lasted for five months. A total of six members participated in the survey, and 872 valid questionnaires were collected. Distribution of sample characteristics: in terms of gender, men and women account for 50.80% and 49.20% respectively. In terms of age, 15-25 years old and 25-35 years old account for 46.79% and 21.44%, respectively. In terms of education level, 64.11% and 23.05% are junior college or above and senior high school diploma, indicating that the respondents have good education level. In terms of monthly income, the proportion of those under 2500 (34.06%) and those between 4500 and 5500 (15.14) is relatively large. In the sample, students under 2500 are the majority. In terms of occupation, except 37.61% of students and 3.10% of other occupation groups, the vast majority of respondents have stable occupation and income.

Questionnaire Reliability and Validity Analysis.

Validity analysis

Content validity, also known as logical validity, refers to the project to test the content or behavior range of the appropriate degree of sampling, that is, the measurement of the content of the appropriate and consistent. Content validity was analyzed in this study, and the condition defined as good content validity was that the factor load in the measurement model was greater than 0.5. Therefore, the measurement model of each factor was constructed according to the last four steps of structural equation model analysis, and then the behavior attitude, subjective norms, perceived behavior control and willingness to consume were tested. According to the test results, the revised measurement items and the revised measurement items all have the load of the behavior attitude, subjective norms, perceived behavior control and willingness to consume close to the standard value of 0.5. The content validity of the questionnaire is good, which can be used for confirmatory analysis.

Reliability analysis.

Reliability refers to the consistency, stability and reliability of test results, which is usually expressed by internal consistency. The higher the reliability, the higher the reliability of the questionnaire. The validity of 872 questionnaires was analyzed by SPSS. The test results of various factors showed that Cronbach's salpha values of the behavior attitude, subjective norms and perceived behavior control were 0.876, 0.883 and 0.769, respectively, and the minimum reference

standard of Cronbach's salpha value was 0.6. Therefore, the reliability of the questionnaire in this study was relatively high.

Empirical Results Analysis

Verification Factor Analysis of Planned Behavior.

The influencing factors model of consumers' willingness to consume green packaging constructed in this study includes three influencing factors, namely, the behavior attitude, subjective norms and perceived behavior control. The main content of the confirmatory analysis is the correlation between the three dimensions. The chi-square test of goodness of fit was 127.74, chi-square test was 32, chi-square test was 3.99. Approximation error root mean square (Root Mean Square Error of Approximation, RMSEA) is 0.09, less than 0.10, the 90% confidence interval (0.07, 0.11), covering 0.08 standard; The Non Normed Fit Index (NNFI) was 0.97, higher than 0.90. Comparative Fix Index (CFI) was 0.98, greater than 0.90. According to the fitting indexes, the model fits well and is acceptable.

AVE (avera gave extracted) is an convergent index that reflects the degree of convergence of a latent variable which is effectively estimated by a set of measurement indicators. From the calculation process, it actually reflects the percentage of the variation of latent variable in the total variable when each measurement index provides a unit variation. When the AVE value is greater than 0.50, it represents the ideal convergent ability of latent variables. The mean variance extraction of the behavior attitude, subjective norms and perceived behavior control was calculated according to the standardized path. Where, the AVE value of the behavior attitude is 0.77, greater than 0.50; The AVE value of subjective norms is 0.65, greater than 0.50. The AVE value of perceived behavior control is 0.69, which is greater than 0.50. It can be seen that the convergence effect of the behavior attitude, subjective norms and perceived behavior control is good.

The discriminant validity test among the three influencing factors including the behavior attitude, subjective norms and perceived behavior control can be determined by whether the 95% confidence interval (95%CI) of the correlation coefficient covers 1.000. There is a certain relationship among the three influencing factors such as the behavior attitude, subjective norms and perceived behavior control. Among them, the correlation between perceived behavior control and subjective norms is strong, r (i.e., C.R. test statistic) is 0.79. The correlation between perceived behavior control and the behavior attitude is weak, $r = 0.67$. There is a strong correlation between the behavior attitude and subjective norms, $r = 0.76$. The 95% confidence intervals of the correlation coefficients of perceived behavior control and subjective norms, perceived behavior control and the behavior attitude, and the behavior attitude and subjective norms are respectively (0.730, 0.850), (0.590, 0.750) and (0.700, 0.820), which do not cover the standard value of 1.000. AreVE value (the average value of AVE) is 0.725, 0.621 and 0.633, respectively. The square of correlation coefficient was 0.720, 0.590 and 0.500, respectively, and the are VE value was greater than the square of correlation coefficient. Therefore, there is an ideal discrimination between the factors.

Relationship Model between Planning Behavior Factors and Consumption Intention.

The factors in the planned behavior model are related to the consumption intention. The chi-square test of goodness of fit was 296.09, chi-square test was 84, chi-square test was 3.52. RMSEA was 0.08, less than 0.10, and its 90% confidence interval was (0.07, 0.09), covering the standard value of 0.08. NNFI is 0.97, greater than 0.90; CFI is 0.98, greater than 0.90. According to the fitting indexes, the model fits well and is acceptable.

After the full model is standardized, the t-test is conducted on the relationship between the three dimensions of planned behavior (the behavior attitude, subjective norms, and perceived behavior control) and willingness to consume. Where, the T value of the path coefficient between the behavior attitude and willingness to consume is 3.20, greater than 1.96; The T value of the path coefficient between subjective norms and willingness to consume is 4.64, greater than 1.96. The T value of the path coefficient between perceived behavior control and willingness to consume is 3.22, greater than 1.96. It can be seen that the behavior attitude, subjective norms and perceived behavior

control of green packaging consumption have a direct and significant positive impact on green packaging consumption behavior. Hypothesis H1, H2 and H3 hold true.

Conclusions and Countermeasures

The Conclusion.

Based on the perspective of the theory of planned behavior the theory of planned behavior , this study takes domestic consumers as the research object, analyzes the influence of the behavioral attitude, subjective norms and perceived behavior control on consumption intention of green packaging, and draws the following conclusions.

(1) The behavioral attitude, subjective norms and perceived behavior control of green packaging directly and significantly affect consumers' willingness to consume green packaging.

(2) Empirical results show that subjective norms have the most significant influence on consumption intention of green packaging, followed by perceptual behavior control and the behavioral attitude ranking the third.

Suggestions.

According to the research conclusion, in order to change consumers' consumption intention of green packaging, we must first use the reference group to exert influence on individuals, reduce the perception difficulty of green packaging purchase as much as possible, improve individuals' knowledge of green packaging, and establish a positive attitude towards green packaging purchase. Specific Suggestions are as follows:

1 Strengthen green packaging knowledge education

Policy makers and green packaging sales entities should strengthen consumers' psychological awareness through education and publicity, publicize the urgency of environmental protection among consumers, popularize the important value of green packaging, and create a good atmosphere for consumption of green packaging. In addition to the basic knowledge of green packaging, the potential value of green products and the impact of using green products on the environment should also be introduced to consumers with poor information of green packaging.

2 Vigorously promote green packaging

Relevant departments make full use of the media to publicize the connotation of green packaging through TV, newspapers, magazines and the Internet. Green packaging marketers publicize and guide a kind of green packaging consumption fashion through the way of product image spokesperson to form the ethos and social atmosphere advocating green packaging consumption. Arrange communication and interaction between employees and consumers in sales stores; Can carry on the commodity promotion, causes the green packing to achieve the outstanding remarkable effect compared with the traditional competitive product; Strategic price promotions can be used to promote product trials, using clear visual symbols such as in-store and out-of-store visual media to visualize products, effectively communicating green credentials, etc.

3 Enhance the perceived accessibility of consumers

Green packaging manufacturers to increase the supply of green packaging, rich product categories, for more consumers to choose. The sales subject of green products should set a reasonable price to avoid setting a false price. Green packaging marketing enterprises should actively expand marketing channels, pay attention to the construction of green packaging retail terminal, to facilitate the purchase of consumers.

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