

The Effect of Green Values on Green Consumption Behaviour

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Abstract—Taking Zhengzhou residents as the research object through the structural equation model test and intermediary utility test, it can be seen that green values significantly affect customers' green consumption behavior; Green values have a significant active effect on public lifestyle, which plays a regulatory role in green values and green consumption behavior. The relevant conclusions are as follows: Firstly, the public's green consumption behavior is affected not only by their green values, but also by lifestyle, and the impact effect of lifestyle is higher than that of green values. Secondly, public green values can directly affect their lifestyle, which means that green values play a vital role in the change of public lifestyle. Thirdly, green values not only have a direct impact on the public's green consumption behavior, but also have an impact on the public's lifestyle which will indirectly affect their green consumption behavior. On the basis of the mentioned analysis, this paper proposes relevant countermeasures to promote the public's green consumption behavior.

Keywords — “Double Carbon”, Green Values, Life Style, Green Consumption Behaviour

I. INTRODUCTION

IN the face of environmental problems, mankind is a community with common destiny for it. On the issue of international cooperation in dealing with environmental change, China has maintained active participation in universal environmental governance and has gradually become a vital pioneer in global environmental protection. In terms of China's environmental protection policy, the focus is on carbon emission reduction. China is to reduce carbon emissions per unit of GDP by 48.4% by 2020, exceeding the action target of the environmental protection plan. But at the same time, in the face of the arduous task of adjusting the structure, changing the mode and high development, the construction of ecological civilization is confronted with many

challenges. As the world's most powerful developing country, China has clearly set the goal of “achieving peak carbon by 2030 and carbon neutrality by 2060”. This implies that the difficulties of China's emission reduction are far higher than those of developed countries, which will take painstaking efforts to achieve it. The realization of “double carbon” has played a great role in building a community of common destiny for mankind and a beautiful new world.

Therefore, the exploration of how to give consumers guidance to promote the greening of public consumption and the inner mechanism of the formation of consumer green consumption behavior has become a hot topic of discussion in the current academic community. This paper will design a questionnaire and conduct a field survey to grasp the consumers' green consumption, and try to think over the green values, lifestyles and consumers' green consumption behavior generally from the perspective of environmental psychology and consumer behavior, and study its inner mechanism, so as to serve the issue of green consumption in China in the context of green development and to provide a theoretical and practical basis for relevant decision-making.

Based on the theory of green values and the green consumption concept, this paper puts forward research assumptions that affect the public's green consumption behavior. According to the research assumptions, a questionnaire is designed, and empirical analysis data is obtained through distribution and recovery. With the help of statistical analysis software SPSS26.0 and AMOS26.0, the hypothesis is tested, research conclusions are obtained, and relevant suggestions are put forward according to the conclusions.

II. RESEARCH BASIS

A. Green Values

Stern and Dietz define green values into three dimensions, namely, ecological values, egoistic values, and altruistic values, based on the previous personal values theory, [1]. Egoists are those that analyze environmental protection from an individual or group perspective, putting personal interests first. People with

egoistic values consider environmental issues in terms of their own interests and may oppose environmental protection when they perceive its costs to be higher than its benefits. Altruistic values refer to considering environmental protection from the perspective of the costs and benefits to the social group. Altruists will be at the expense of their own benefits and take on certain costs to carry out environmental protection work in consideration of the overall interests of society. Ecological values are to consider problems from the perspective of nature. Human beings can only comply with the laws of nature and cannot arbitrarily destroy the environment to meet their own needs. People with ecological values are more concerned with environmental protection, attaching importance to maintaining ecological balance and protecting the environment, and consider it the responsibility and duty of human beings.

B. Green Consumption Behavior

Green consumption means the behavior that consumers try to reduce the adverse effects on the environment when purchasing, using and disposing of products based on the consideration of environmental protection. Green consumption generally has higher costs than conventional consumption, [2]. Green consumption can also be called “sustainable consumption”. Based on ecological needs, its connotation is defined from two aspects of health and ecological environment protection. It is a general term for the unification of human health, consumption mode and environmental protection standards. Green consumption includes quantities of contents, such as green products, recycling and utilization of old materials, rational utilization of various resources, protection of ecological species and living environment, etc., which specifically covers all aspects of production and behavior of consumption. Green consumption is mainly used to refer to moderate and moderate consumption behavior, reducing the damage to the environment, and is a new consumption behavior with the concept of respecting nature and ecology. On the conceptual study of green consumer behavior, Chinese academic circles have conducted plenty of researches and summarized its essence as a systematic process. Specifically, it is a process of actively choosing green consumption driven by the concept of green consumption. The whole process covers resource recycling and ecological protection, etc., [3]. Studies have pointed out that green consumption behavior is meaning the process in which consumers choose to purchase products that are beneficial to environmental protection or have not been polluted, which specifically is the process of reducing environmental pollution through the consumption of green products, [4].

III. RESEARCH HYPOTHESIS

A. Green Values and Green Consumption Behavior

Among other scholars' studies, many of them have

focused on the influence of people's environmental values on environmental behavior. Stern and Dietz, [1], has previously categorized environmental values. Schultz and Zelezny, [5], have studied the influence of environmental values on environmental perceptions based on the categorization. It was found that self-interested values showed a very significant negative correlation with environmental perceptions, and social altruism was significantly positively correlated with ecological values and environmental perceptions. Through an empirical study, Yu, [6], found a significant negative effect of self-interest values on residents' green consumption perceptions, and a significant positive effect of social altruism and ecological values on residents' green consumption perceptions. The results of Wang's, [7], empirical study showed that neither self-interest value nor social altruism value had a significant effect on green consumption perceptions, but the ecological value in environmental value had a high positive correlation with green consumption perceptions. According to the previous review of the literature, it is shown that the different environmental values have an impact on consumers' green consumption perceptions, but the research findings obtained are not the same. Accordingly, this paper will investigate the influence of three dimensions of environmental values on consumers' perceptions of green consumption. It is assumed that,

Specifically, the main hypothesis H1 includes three sub-hypotheses:

H1: public green values significantly affect green consumption behavior.

H1a: public ecological values have a significantly positive impact on green consumption behavior.

H1b: public self-interest values have a significantly negative effect on green consumption behavior.

H1c: public altruistic values have a significantly positive impact on green consumption behavior.

B. Lifestyle and Green Consumption Behavior

At present, a few domestic scholars have explored the influence of consumer lifestyle on green consumption cognition. However, foreign scholars have little research on the cognition of green consumption. Wan, [8] concluded from his empirical research that lifestyle will significantly and positively affect green consumption cognition. This paper is to study the influence on consumers' green consumption cognition based on the consumer lifestyle, which is divided into four aspects: clothing, food, housing, and transportation.

Based on this, this paper proposes the following assumptions. Specifically, the main hypothesis H2 includes three sub-hypotheses:

H2: lifestyle has a significantly positive influence on green consumption cognition.

H2a: clothing lifestyle has a significantly positive influence on green consumption cognition.

H2b: diet and lifestyle have a significantly positive influence on green consumption cognition.

H2c: living style has a significantly positive influence on green consumption cognition.

H2d Travel lifestyle has a significantly positive influence on green consumption cognition.

C. Green Values and Lifestyle

From the review of previous studies, lifestyle, as a complex covering consumer behavior, is affected by various factors such as culture and values, and different lifestyles will affect consumers' different green consumption behaviors, [9]. It can also be seen from the means end chain model of lifestyle that by adding lifestyle as an intermediary variable, the effect between environmental values and green consumption cognition is more obvious, and the explanation of specific behavior is more reasonable. Therefore, this paper proposes hypothesis H3:

H3: public green values significantly affect lifestyle behavior

H3a: public ecological values have a significantly positive impact on lifestyle.

H3b: the public self-interest values have a significantly negative impact on lifestyle.

H3c: public altruistic values have a significantly positive impact on lifestyle.

D. The Role of Intermediaries in Lifestyle

As a comprehensive body covering consumer behavior, lifestyle is affected by various factors such as culture and values. Different lifestyles will affect consumers' different green consumption perceptions. The academic circles have studied the means end chain model of lifestyle, and found that by adding lifestyle as an intermediary variable, the effect between environmental values and green consumption behavior is more obvious, and the explanation of specific behavior is more reasonable. Therefore, this research raises a presumption H4:

H4: lifestyle plays a mediating role between environmental values and green consumption behavior

According to the previous discussion assumptions, this study proposes the relationship model diagram between consumers' environmental values, lifestyle and green consumption cognition as shown in Fig. 1 below.

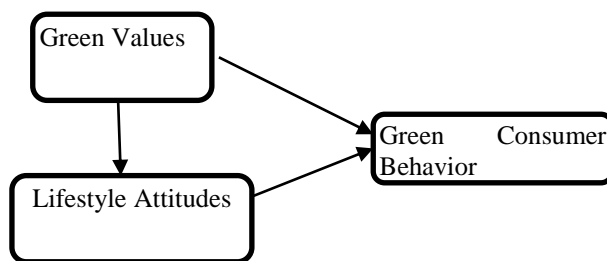


Figure 1. Relational model diagram

IV. EMPIRICAL RESEARCH AND ANALYSIS

A. Data Collection and Processing

In order to test the hypothesis, this paper collects the data with the help of a questionnaire. The questionnaires were distributed online and offline. A sum of 600 questionnaires was issued, with 559 valid and an efficiency of 93.16%. To further test the hypothesis, the collected effective data were analyzed with the help of statistical software spss20.0 and amos26.0, and a structural model was built to verify the causal relationship between potential variables.

B. Demographic Information of the Survey Object

The majority of green consumers are men; 42.1% of the respondents were married, and the married people would pay attention to the quality of life of their families in their daily consumption; The majority of the surveyed consumers are 26-32 years old, and the number of College (secondary) and college students accounts for a large proportion of consumers' education, as high as 81.90%; Most of them are students and enterprise employees, accounting for 56%; Most of the income is between 2500 and 5500.

C. Confirmatory Factor Analysis

To further test the fitting validity of the measurement indicators of green values, lifestyles and green consumption behaviors, this paper conducts confirmatory factor analysis on the data, and constructs the corresponding measurement model with the help of amos26.0 software. See Table I for the specific fitting indicators.

Table I. Model fitting index

M	x	R	G	A	C	N	I	T
odel	2/d	MS	FI	GF	FI	FI	FI	LI
	f	EA		I				
test	2	0	0	0	0	0	0	0
valu	.24	.037	.91	.89	.96	.91	.96	.96
e	1		8	4	7	6	8	1
stan	<3.	<	>	>	>	>	>	>
dar	00	0.08	0.9	0.9	0.9	0.9	0.9	0.9
d	0	0	00	00	00	00	00	00

a. Model goodness of fit validation

It is not difficult to see from the model fitting data that the value of χ^2 / DF is 2.241, < 3.000, the value of RMSEA is 0.037, < 0.080, the values of GFI, CFI, NFI, IFI and TLI are all above 0.900, and the value of AGFI is quite close to 0.900. This indicates that the

fitting degree of the model is relatively good, and the constructed model is available.

b. Reliability test

When the comprehensive reliability is higher than 0.700, the scale has high credibility. According to the data in Table II, the comprehensive reliability index of each dimension is higher than 0.700. In addition, the number of Cronbach α in each dimension is higher than 0.800, which also confirms that the scale has high reliability.

c. Convergence validation

When the factor loading of each dimension is higher than 0.500, and the AVE (mean-variance extraction value) value is larger than 0.500, it has better convergence validity. It is not difficult to see from the data in Table III that the factor loading value of each measurement item is higher than 0.500, and the AVE is also greater than the judgment standard of 0.500, indicating that the convergence validity of each measurement dimension is good.

d. Discriminant validity test

According to the data in Table III, the square root value of AVE (mean-variance extraction value) of each dimension in the model is higher than the coefficient of correlation between itself and other variables, which confirms that the discriminant validity among each potential variable dimension is good.

Through the above confirmatory factor analysis, the eight latent variable dimensions have good reliability and validity, which can be further tested by the structural equation model.

Table II. Validation factor analysis results

Latent variables	The number of questions	Comprehensive reliability	Cronbach α
Ecological values	4	0.842	0.829
Egoistic values	3	0.877	0.800
Altruistic values	4	0.892	0.868
Dress way	3	0.888	0.808
Eating style	5	0.894	0.882
Mode of living	4	0.845	0.886
Trip mode	7	0.901	0.780
Green consumer behavior	4	0.803	0.773

Table III. AVE square root and associated coefficients

	Ecological values	Egoistic values	Altruistic values	Dress way	Eating style	Mode of living	Trip mode	Green consumer behavior
Ecological values	0.759							
Egoistic values		0.649						
Altruistic values			0.560					
Dress way				0.580				
Eating style					0.485			
Mode of living						0.474		
Trip mode							0.446	
Green consumer behavior								0.067

Note: The values on the diagonal represent the extracted value (AVE) of the mean-variance of each potential variable, and the numbers below the diagonal line are the values of the relationship between the dimensions.

D. Hypothesis Testing Based on Structural Equation

In this paper, the structural equation model is established, and the hypothesis is tested by amos26.0. The hypothesis test results are shown in Table IV below.

Table IV. Analysis of route results

Hypothesis	Relationship	β	T	P	Results
1	Green consumer behavior ← Green values	0.274	1.798	* **	support
1a	Green consumer behavior ← Ecological values	0.249	4.903	* **	support
1b	Green consumption behavior ← self-interested values	-0.254	1.782	* **	support
1c	Green consumer behavior ← altruistic values	0.454	1.586	* **	support
2	Green consumption behavior ← Life style	0.443	3.567	* **	support
2a	Green consumption behavior ← clothing	0.388	4.291	* **	support
2b	Green consumption behavior ← eating style	0.293	4.461	* **	support
2c	Green consumption behavior ← way of living	0.541	1.569	* **	support
2d	Green consumer behavior ← Trip mode	0.452	2.469	* **	support
3	Lifestyle ← green values	0.452	2.469	* **	support
3a	Lifestyle ← ecological values	0.103	7.791	* **	support
3b	Lifestyle ← egoistic values	-0.140	8.463	* **	support
3c	Lifestyle ← altruistic values	0.671	9.517	* **	support

It can be seen from the path analysis in Table IV. First, the standardized path coefficient of green values

on green consumption behavior is 0.274, and the p-value is less than 0.001, which confirms that green values are significantly positive to the public's green consumption behavior at the level of 0.001. Therefore, it can be judged that hypothesis 1 is tenable. In addition, the standardized path coefficients of the three dimensions of ecological values, egoistic values and altruistic values on green consumption behavior are 0.249, -0.254 and 0.454, respectively, which are vital at the level of 0.001, further confirming the hypothesis 1a, 1b and 1C; Second, the standardized path coefficient of lifestyle to green consumption behavior is 0.443, and the p-value is less than 0.001, which confirms that lifestyle is significantly positive to green consumption behavior of the public at the level of 0.001. Therefore, hypothesis 2 is supportable. In addition, the standardized path coefficients of the four dimensions of clothing style, eating style, living style and travel style on green consumption behavior are 0.388, 0.293, 0.541 and 0.452 respectively, which are significant at the level of 0.001, further testing the hypothesis 2a, 2b, 2c and 2d. The standardized path coefficient of green values to lifestyle is 0.452, and the standardized path coefficient of ecological values, egoistic values and altruistic values to lifestyle is 0.103, -0.140 and 0.671 respectively, which are significant at the level of 0.001. These further tests that hypothesis 3 and 3a, 3b and 3C are valid.

This paper uses the statistical analysis software process 3.1 to test the mediation effect. The results are shown in Table V.

Table V. Mediation effects test

Variable	Direct Utility	Indirect Utility	Total Utility
Ecological Values	0.249	0.246	0.500
Egoistic Values	-0.254	-0.298	-0.547
Altruistic Values	0.454	0.132	0.581
Dress Way	0.388	0.000	0.397
Eating Style	0.293	0.000	0.293
Mode of Living	0.541	0.000	0.541
Trip Mode	0.452	0.000	0.452

It can be seen from Table V that ecological values, egoistic values and altruistic values not only have a direct impact on the public's green consumption behavior, but also have an indirect impact on it. The total effect of altruistic value is the largest among all the green consumption behaviors, thus testing hypothesis H4.

E. T-test Analysis

An Independent sample t-test was conducted with gender as the control variable and green consumption behavior as the observed variable. The significant p-value of the gender variable is greater than 0.05, which means that there is no significant difference

between citizens of different genders on green consumption behavior at a 0.05 significance level, so it can be concluded that gender has no significant effect on green consumption behavior.

The t-test analysis revealed that there was also no significant effect of marriage on green consumption behavior.

F. One-way Analysis of Variance (ANOVA)

One-way ANOVA was conducted with age and education as control variables and green consumption behavior as the observed variable. When age was used as a control variable, the significance p-value was found to be less than 0.05, indicating that there is a significant difference in green consumption behavior among the public of different ages at the 0.05 significance level. Young people have more tendency to green consumption behavior. Secondly, when education was used as a control variable, the significant P-value was greater than 0.05, indicating no significant difference in green consumption behavior among the public with different education levels at a 0.05 significance level.

V. CONCLUSION

This paper analyzes the influencing factors of public green consumption behavior, and discusses its influencing mechanism on public green consumption behavior from two aspects of public green values and lifestyle. The empirical research shows that the public's green values and lifestyle directly affect their green consumption behavior, and the public's green values can also indirectly affect green consumption behavior by influencing their lifestyle. Therefore, we can guide the public to conduct green behavior from two aspects: improving the public's green values and improving the public's lifestyle.

The study found that green values promoting public lifestyle change is an important way to enhance citizens' green consumption behavior, which is also in line with the psychological principle that cognition influences attitude, and attitude changes behavior. Gender, marriage, and education have no influence on green consumption behavior. Therefore, it is meaningless to distinguish gender, marital status, and education when formulating relevant policies.

At the same time, this study enriches the research literature on the influencing factors of public green consumption behavior from the perspective of green values, adds variables of public lifestyle, and expands the relevant research results on the impact of lifestyle on public green consumption behavior. There are some limitations in the selection of variables in this study. Future research can further expand the influencing factor variables and explore the influencing factors of public green consumption behavior from different angles.

On the basis of the above analysis, this paper puts forward relevant countermeasures to promote the public's green consumption behavior:

In the first place, we should help establish correct green values, strengthen the education of green concepts, and gradually spread green values from the young and highly educated public to groups of all ages and educational levels in society, so as to form a situation of "national green concept".

In the second place, guiding the residents to promote a green consumption lifestyle can not only improve the residents' green consumption concept, but also give play to the external consciousness of individual behavior and further improve the subjective standard of public green consumption.

Finally, government departments should speed up the construction of green consumption systems, subsidize enterprises' green production, launch green consumption preferential policies, and guide public consumption with high-quality and low-cost green products.

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