

Research on the Impact of Green Trust on Consumers' Willingness to Purchase Low-Carbon Products

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Abstract

In the context of global low-carbon development, the gap between consumers' willingness to purchase low-carbon products and their actual behavior has become a key bottleneck restricting the development of the low-carbon market. Combining planned behavior theory and trust theory, this paper constructs a theoretical model with green trust as the core anfactorial variable to explore the direct impact of green trust on purchase intention, as well as the indirect effects of attitudes, subjective norms, and perceived behavior control. Taking consumers in Liaoning Province as the research subjects, 229 valid questionnaires were collected and empirical analysis was conducted using various statistical methods. The results show that the level of green trust among consumers needs to be improved, and there are problems such as insufficient construction of green trust among enterprises, imperfect government guarantee system, and lack of credibility of third-party certification. Based on this, this paper proposes countermeasures from the perspectives of enterprises, governments, and third-party institutions to enhance consumers' purchasing intentions, serve the "dual carbon" goals, and at the same time enrich the application of relevant theories to provide empirical evidence for enterprise marketing and policy-making.

Keywords

Green Trust; Low-carbon Products; Purchase Intention; Theory of Planned Behavior; Mediating Effect.

1. Introduction

According to the notice issued by the National Development and Reform Commission and other departments on the implementation Plan for promoting Green Consumption, promoting green consumption is a profound transformation in the field of consumption. It is necessary to deeply integrate the green concept throughout the entire cycle, chain and system of all areas of consumption and comprehensively promote the green and low-carbon transformation and upgrading of consumption. This plays an important role in implementing the new development philosophy, building a new development pattern, promoting high-quality development and achieving the goals of carbon peaking and carbon neutrality, and is of great significance. In the context of global low-carbon development and the advancement of the "dual carbon" goals, there is a certain gap between consumers' willingness to purchase low-carbon products and their actual behavior. Problems such as information asymmetry and an incomplete certification system have restricted the establishment of green trust. Green trust, as a key psychological variable for reducing consumption risk, influences purchase intention through attitudes, subjective norms, and perceived behavior control in the theory of planned behavior. It is of great theoretical and practical significance to study the impact of green trust on consumers' willingness to purchase low-carbon products.

2. Theoretical Basis and Model Construction

2.1. Theoretical Basis

2.1.1. Theory of Planned Behavior (TPB)

The theory of Planned Behavior, proposed by Ajzen in 1985, holds that behavioral intentions are driven by attitudes, subjective norms, and perceived behavioral controls, and has been widely validated in the field of green consumption. The theory can systematically explain the psychology of consumer decision-making and provide a core analytical framework for this study. Relevant studies have shown that subjective norms, policy perception, etc. in low-carbon consumption significantly positively affect consumption intention[1], and low-carbon labels can also influence purchase intention by enhancing perceived value and environmental value, consistent[2] with TPB logic.

2.1.2. Trust Theory

The theory of trust was first proposed by sociologist Simmel, who first systematically put forward the core idea related to trust in his *Philosophy of Money* in 1900, believing that trust is an important foundation for maintaining social interaction and economic exchange and an indispensable force for social integration. Green trust, as a key psychological variable in the context of green consumption, covers objects such as products, enterprises, and third-party institutions, focusing on the authenticity of environmental attributes and corporate environmental responsibility.

Foreign studies have confirmed that green trust plays a significant mediating or moderating role in the impact of consumption value, personal values, environmental concerns, and green marketing on purchase intention. Domestic research also shows that green trust and green perceived value positively enhance purchase intention[8], consumer innovation can indirectly influence green consumption behavior[9], green trust mediates between policy perception and low-carbon consumption intention, and carbon label characteristics can also influence purchase intention[11] through green trust.

To sum up, green trust, as a preceding variable, can indirectly influence the purchase intention of low-carbon products by acting on attitudes, subjective norms, and perceived behavioral control, and the theoretical integration logic is clear and reliable.

2.2. Model Construction

Based on trust theory, green trust reduces perceived risk by alleviating consumers' concerns about information asymmetry and establishing psychological contracts, thereby enhancing attitudes towards low-carbon products, strengthening perceived behavioral control, and ultimately promoting purchase intention. Based on this, the following hypotheses are proposed:

H1: Green trust significantly positively affects consumers' willingness to purchase low-carbon products.

H2: Green trust significantly positively affects consumers' attitudes towards low-carbon products.

H3: Green trust significantly and positively influences consumers' perception and behavioral control of low-carbon products.

Based on the theory of planned behavior, individual behavioral intentions are driven by three dimensions: attitude, subjective norms, and perceived behavioral control. The following hypotheses are proposed:

H4: Attitudes significantly positively influence consumers' willingness to purchase low-carbon products.

H5: Subjective norms significantly positively influence consumers' willingness to purchase low-carbon products.

H6: Perceived behavioral control significantly positively affects consumers' willingness to purchase low-carbon products.

Relevant studies suggest that green trust has an indirect path to the impact on purchase intention, so the following hypothesis is proposed:

H7: Attitudes play a mediating role between green trust and consumers' willingness to purchase low-carbon products.

H8: Perceived behavioral control plays a mediating role between green trust and consumers' willingness to purchase low-carbon products.

To sum up, construct the theoretical model of "green trust - core variable of planned behavior theory - willingness to purchase low-carbon products" as shown in Figure 1:

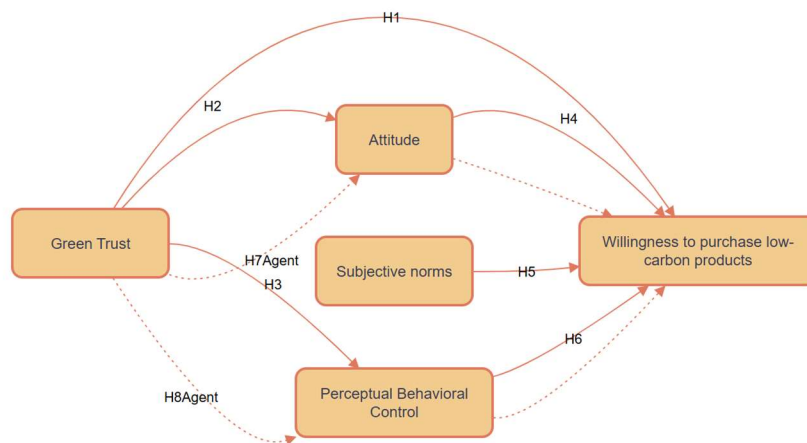


Figure 1. Theoretical model construction

Based on the above theoretical model, with the planned behavior theory as the framework, green trust as the core antecedent variable, attitude, subjective norm, perceived behavior control as the mediating variables, and willingness to purchase low-carbon products as the outcome variable, the composition of the core variables of the model is shown in Table 1.

Table 1. Connotation of Core Variables of the Model

Variable types	Variable Name	Variable Connotation
Antecedent variable	Green Trust	The extent to which consumers trust the environmental effectiveness of low-carbon products
Mediating variables	Attitude	Consumers' overall evaluation and emotional inclination towards the act of purchasing low-carbon products
	Subjective norms	Consumers perceive others in the social environment Expectations and pressures on their purchase of low-carbon products
	Perceived Behavioral control	Consumers' judgment of whether they have the ability to purchase low-carbon products
Outcome variables	Willingness to purchase low-carbon products	The likelihood and tendency of consumers to actively choose and purchase low-carbon products in the future

3. Research Design and Data Collection

3.1. Questionnaire Design

This questionnaire survey aims to systematically explore the impact of green trust on consumers' willingness to purchase low-carbon products based on the integrated plan behavior

theory framework. Based on primary data, this study characterizes the characteristics of the target group and the performance of core variables, examines the direct positive impact of green trust and its key influencing factors, reveals the role path of green trust in consumer psychological decision-making, and provides empirical evidence and management implications for guiding and promoting low-carbon consumption.

The survey questionnaire referred to mature scales at home and abroad, adjusted the items in combination with the characteristics of low-carbon products, and measured using the Likert 7-level scale (1= completely disagree, 7= completely agree). For details, please refer to Appendix 1.

3.2. Data Collection

The survey subjects were consumers in Liaoning Province who had a purchase experience or a potential purchase intention for low-carbon products. The questionnaire survey was conducted using a simple random sampling method to select the respondents. The survey was carried out through the Wenjuanxing platform. 250 questionnaires were distributed, and 229 valid questionnaires were retrieved, with an effective recovery rate of 91.6%.

Table 2. Distribution of Demographic Characteristics of the Sample (N=229)

Variables	Category	Frequency	Percentage (%)	Cumulative percentage (%)
Gender	male	116	50.66	50.66
	female	113	49.34	100.00
Age	Under 18	39	17.03	17.03
	19-25 years old	63	27.51	44.54
	Aged 26 to 35	52	22.71	67.25
	36-45 years old	33	14.41	81.66
	46-55 years old	22	9.61	91.27
	56 years old and above	20	8.73	100.00
Education	High school and below	49	21.40	21.40
	College	45	19.65	41.05
	Undergraduate	88	38.43	79.48
	Master's	27	11.80	91.28
	Doctor	20	8.73	100.00
Monthly income	3,000 yuan or less	59	25.76	25.76
	3001-5000 yuan	62	27.07	52.83
	5001-8000 yuan	54	23.58	76.38
	8001- 12,000 yuan	31	13.54	89.92
	11,001 yuan and more	23	10.04	100.00
Occupation	Student	60	26.20	26.20
	Enterprise workers	73	31.88	58.08
	Personnel of public institutions	43	18.78	76.86
	Freelancer	27	11.80	88.66
	Retirees	23	10.04	98.70
	Others	3	1.31	100.00

The sample was balanced in terms of gender distribution, with an age focus on young and middle-aged people who have both consumption capacity and environmental awareness. The educational attainment was mainly junior college and bachelor's degree, reflecting a certain

level of knowledge. The monthly income range covered the income levels of most urban residents, and the occupational types included typical groups such as enterprise employees and public institution staff. The characteristics are basically in line with the population structure of urban residents in Liaoning Province and are well representative, which can provide effective sample support for subsequent research on purchasing behavior of low-carbon products and ensure that the research conclusions have a certain degree of generalizability and credibility. The specific distribution of the samples is shown in Table 2.

Descriptive statistics for each variable, from the central tendency to the degree of dispersion to the distribution pattern, are within a reasonable range, indicating that the sample data quality is good and can support further analysis of the research framework that "green trust affects the willingness to purchase low-carbon products through the core variables of the theory of planned behavior." Descriptive statistical analysis was conducted on the measurement items of each variable, and the results are shown in Table 3:

Table 3. Descriptive statistics of measurement items for each variable

Variables	Number of questions	Average	Standard deviation	Variance	Skewness	Kurtosis
Green Trust	6	28.004	9.200	84.636	-1.361	0.438
Attitude	7	28.472	8.879	78.838	-1.237	0.299
Subjective norms	4	19.013	6.336	40.145	-1.357	0.417
Perceived behavioral control	6	28.463	9.221	85.030	-1.441	0.582
Purchase intention	5	23.524	7.822	61.189	-1.378	0.481

4. Data Analysis and Results

4.1. Reliability and Validity Analysis

4.1.1. Reliability Analysis

Based on the results of the reliability analysis, the Cronbach's α coefficient of all variables was greater than 0.8, indicating that each scale had good internal consistency reliability and could reliably measure the corresponding constructs, laying a reliability foundation for the analysis of the relationship between variables in subsequent studies. The Cronbach's α coefficient was used to test the internal consistency reliability of each scale, and the results are shown in Table 4:

Table 4. Results of Scale reliability Analysis

Variables	Number of questions	Klonbach Alpha	Based on standardized items Klonbach Alpha	Conclusion
Green Trust	6	0.883	0.884	Good reliability (≥ 0.8)
Attitude	7	0.847	0.834	Good reliability (≥ 0.8)
Subjective norms	4	0.858	0.858	Good reliability (≥ 0.8)
Perceived behavioral control	6	0.899	0.899	Good reliability (≥ 0.8)
Purchase intention	5	0.877	0.877	Good reliability (≥ 0.8)

4.1.2. Validity Analysis

(1) Content validity

This study verified the content validity of the scale through theoretical derivation. The scale was centered around the core theme of "consumption behavior of low-carbon products", systematically integrating classic theories such as planned behavior theory and trust theory. The items of each dimension were strictly designed along the construct boundary, and it was considered that the items were highly relevant to the target construct of "consumption behavior of low-carbon products", adequately representative, and had good content validity.

(2) Structural validity

The structural validity of the scale was validated by a series of analyses: the KMO sampling appropriateness measure was 0.978, close to 1, indicating that the data were highly suitable for factor analysis; The Bartlett sphericity test was significant at 0.000 (<0.05), indicating a significant correlation among the variables and further supporting the reasonableness of factor analysis. The scale has good structural validity and can be used for subsequent analysis. The KMO and Bartlett test results are shown in Table 5:

Table 5. KMO and Bartlett Test Results

KMO and Bartlett tests		
KMO sampling appropriateness measure	0.978	
Bartlett sphericity test	Approximate chi-square	4734.255
	Degrees of freedom	378
	Saliency	0.000

4.2. Correlation Analysis

Pearson correlation analysis was conducted on five variables: green trust, attitude, subjective norm, perceived behavioral control, and purchase intention. The results showed significant strong positive correlations at the $p < 0.01$ level among the variables, with correlation coefficients ranging from 0.853 to 0.907. Among them, the higher the green trust, the more positive the consumers' attitude towards purchasing low-carbon products, and the more they identify with the social norms of green consumption, thereby promoting the increase in purchase intention. The positive association among the variables also conforms to the expectations of the planned behavior theory, laying a solid foundation for subsequent research. Pearson correlation analysis was used to test the correlations among the variables, and the results are shown in Table 6:

Table 6. Analysis of Correlations between Variables

Variables	1 (Green Trust)	2 (Attitude)	3 (Subjective norms)	4 (Perceived Behavioral Control)	5 (Purchase intention)
Green Trust	1	0.853	0.863	0.895	0.878
Attitude	0.853	1	0.857	0.889	0.878
Subjective norms	0.863	0.857	1	0.893	0.871
Perceived behavioral control	0.895	0.889	0.893	1	0.907
Purchase intention	0.878	0.878	0.871	0.907	1

Note: Indicates $p < 0.01$

4.3. Regression Analysis

4.3.1. Direct impact Test

Regression analysis was conducted with green trust as the independent variable and purchase intention as the dependent variable. The overall fitting effect of the model was excellent and

statistically significant: The regression equation is "purchase intention = 2.623 + 0.746 × green trust", indicating that for every 1 unit increase in green trust, the purchase intention increases by 0.746 units, showing a strong positive correlation. This result supports hypothesis H1, that is, green trust significantly positively affects consumers' purchase intention of low-carbon products. The regression analysis results are shown in Table 7:

Table 7. Regression analysis of Green Trust on Purchase Intention

Model	Non-standardized coefficients (B)	Standardized coefficient (Beta)	t value	p value	R ²	Adjust R ²	F value
Constant	2.623	-	3.292	0.001			
Green trust	0.746	0.878	27.607	<0.001	0.771	0.769	762.129

Note: Indicates p < 0.001

4.3.2. Mediating Effect Test

This study conducted a multi-mediating effect analysis using the PROCESS plugin of SPSS and the Bootstrap method to explore the influence mechanism of green trust (X) on purchase intention (Y) through attitude (M1), subjective norms (M2), and perceived behavioral control (M3). The results showed that green trust significantly positively affected attitudes ($\beta=0.8228$, $p<0.0001$) and perceived behavioral control ($\beta=0.3482$, $p<0.0001$), and supported H2 and H3; Attitude ($\beta=0.2097$, $p<0.0001$), subjective norm ($\beta=0.2021$, $p<0.01$), and perceived behavior control ($\beta=0.3049$, $p<0.0001$) all significantly positively influence purchase intention, with the subjective norm effect being weaker, partially supported by H5, and supported by H4 and H6. The mediating effect test shows that green trust has a significant direct effect on purchase intention. In the indirect path, the "green trust → attitude → purchase intention" effect significantly indicates support for H7, and the "green trust → perceived behavior control → purchase intention" effect significantly but weakly indicates partial support for H8.

Table 8. Results of the Multi-mediating effect Analysis of Trust on Purchase intention

Analysis Categories	Critical paths	Core coefficients	Significance	Model fitting
Regression of mediating variables	Green trust → Attitude	Beta = 0.8228	P < 0.0001	R=0.7269, F=604.12, p<0.0001
	Green trust, attitude → subjective norms	$\beta_1=0.3345, \beta_2=0.3158$	P < 0.0001	R ² =0.7981, F=446.62, p<0.0001
	Green trust, attitude, subjective norm → Perceived behavioral control	$\beta_1=0.3482, \beta_2=0.3306, \beta_3=0.4663$	P < 0.0001	R ² =0.8801, F=550.49, p<0.0001
	Trust, attitude, subjectivity, perceived control → purchase intention	$\beta_1=0.1801, \beta_2=0.2097, \beta_3=0.2021$ Beta ₄ = 0.3049	P < 0.01	R ² =0.8636, F=354.42, p<0.0001
Direct/indirect effects	Direct effects (trust → purchase intention)	0.1801	P = 0.0005	95% CI = [0.0802, 0.2800]
	Total indirect effects	0.5663	Significant	95% CI = [0.4651, 0.6674]
	Major mediating pathway 1 (trust → attitude → willingness)	0.1726	Significant	95%CI no 0
	Major mediating pathway 2 (trust → perception → willingness)	0.1062	Significant	95%CI no 0

Note: 1. The "-" in the table indicates that the measure does not need to calculate the t-value and p-value, and significance is determined by Bootstrap confidence intervals (confidence intervals that do not contain 0 are significant); 2. The confidence level for all analyses is 95%.

Overall, the core coefficients of each path were significant ($p<0.01$), and the model fit was good. This result systematically verified the research hypothesis and also provided multi-

dimensional implications for enterprises to formulate green marketing strategies. The results are shown in Table 8.

4.4. Summary of Empirical Results

Based on the above analysis, all eight research hypotheses were empirically supported and theoretical models were validated. The results of the hypothesis tests are summarized as shown in Table 9:

Table 9. Summary of Research Hypothesis Testing Results

Hypothesis Number	Hypothetical Content	Test Results
H1	Green trust significantly positively affects consumers' willingness to purchase low-carbon products	Support
H2	Green trust significantly and positively influences consumers' attitudes towards low-carbon products	Support
H3	Green trust significantly positively influences consumers' perceived behavioral control of low-carbon products	Support
H4	Attitudes significantly positively influence consumers' willingness to purchase low-carbon products	Support
H5	Subjective norms significantly positively influence consumers' willingness to purchase low-carbon products	Partial support
H6	Perceived behavior control significantly positively affects consumers' willingness to purchase low-carbon products	Support
H7	Attitudes play a mediating role between green trust and consumers' willingness to purchase low-carbon products	Support
H8	Perceived behavioral control in green trust Mediating between consumers' willingness to purchase low-carbon products	Partial support

In summary, among the eight hypotheses of this study, H1, H2, H3, H4, H6, and H7 are fully supported, while H5 and H8 are partially supported. Partial support for H5 and H8 is mainly influenced by real-world scenarios: First, current low-carbon consumption is more driven by individuals' intrinsic environmental protection attitudes, with weak binding force of social norms and limited influence of subjective norms; Second, green trust mainly affects consumers' psychological identification and emotional attitude, and has a weak improvement in perceived behavior control such as purchase cost and convenience, resulting in its mediating effect being weaker than attitude.

5. Existing Problems and Countermeasures and Suggestions

5.1. Problems Exist

Empirical results show that green trust has a significant positive impact on the willingness to purchase low-carbon products and can be transmitted through three pathways: attitude, subjective norms, and perceived behavior control. Descriptive statistics suggest that consumers' green trust is only above average, and they still have concerns about the environmental authenticity of low-carbon products, corporate environmental behavior, and third-party certification. There is considerable room for improvement in the level of trust. Overall, the current conversion efficiency of green trust to purchase intention is relatively low, and the root cause lies in the insufficiency of trust supply and guarantee by enterprises, governments and third-party institutions, which is reflected in the following aspects

5.1.1. Inadequate Construction of Green Trust in Enterprises

The empirical results of this study show that green trust has significant direct and total indirect effects on the willingness to purchase low-carbon products, and can be effectively transmitted through three key paths: attitude, subjective norms, and perceived behavior control. However, there is still room for improvement in the construction of green trust systems by enterprises, and the application of the three intermediary paths is not balanced enough. It reflects that there are certain deficiencies in the construction of green trust by enterprises. Some enterprises have not established a three-dimensional trust mechanism involving product environmental information, corporate environmental responsibility, and third-party certification coordination. The methods of disclosing key information such as carbon footprint are relatively traditional, with insufficient transparency and intuitiveness, making it difficult for consumers to form stable and sustainable green trust.

5.1.2. The Government's Green Trust Guarantee System is Not Well Established

China has gradually promoted policy guidance for low-carbon consumption, but considering the mechanism of action of the variables in this study, the supporting system of the government in terms of green trust guarantee, subjective norm cultivation, and improvement of perceived behavior control still needs to be improved. Empirical evidence shows that the scores of consumer perceived behavior control and subjective norms are also not high enough, indicating that the current mechanism for quantifying carbon reduction and information verification of low-carbon products is not sound enough to provide stable support for consumer green trust at the institutional level. The incentives for low-carbon consumption for consumers, the support measures for purchase facilitation and the improvement of perceived behavior control are relatively limited. The coverage and penetration of publicity and education on low-carbon consumption are still insufficient, and the sustainable effect of creating a social atmosphere and strengthening subjective norms needs to be improved.

5.1.3. Lack of Credibility of Third-party Certification Bodies

Third-party certification is an important source of green trust, and this study also confirms that trust has a significant positive impact on consumer attitudes and purchase intentions. On the Green Trust Scale, consumers gave relatively low credibility scores to third-party certifications, indicating that there is still room for improvement in the credibility of third-party certification bodies. At present, some institutions' certification processes are not standardized enough, information disclosure and query channels are not convenient enough, and the traceability of carbon footprint accounting is not strong, which makes third-party certification fail to fully play the role of trust endorsement, and the supporting role in strengthening green trust and positively influencing consumer attitudes has not been fully released, which to some extent affects the smoothness of the trust transmission path.

5.2. Countermeasures and Suggestions

Based on the findings of the above research, combined with the pain points of the low-carbon consumption market and the development trend of digitalization identified during the research process, this paper proposes targeted countermeasures to enhance consumers' willingness to purchase low-carbon products from the three core subjects of enterprises, governments, and third-party certification institutions, in order to facilitate the realization of the "dual carbon" goals.

5.2.1. At the Enterprise Level: Build a Trust System and Activate the Intermediary Path

Enterprises should systematically implement a three-dimensional trust strengthening strategy around three dimensions: product environmental trust, enterprise environmental trust, and third-party certification trust. At the product level, use digital technologies to embed carbon footprint visualization modules into product packaging, official websites and e-commerce

detail pages, and visually display core information such as carbon reduction effects and the proportion of environmentally friendly materials through animations or virtual experiences to reduce consumer information asymmetry. At the enterprise level, regularly release environmental responsibility reports, disclose data such as resource recycling and pollution control in the production process, establish an environmental information disclosure system, and actively participate in environmental public welfare projects to convey environmental sincerity through practical actions and resolutely prevent "greenwashing" marketing. At the third-party certification level, actively select authoritative institutions to carry out low-carbon certification, mark the certification logo and query QR code in a prominent position on the product to facilitate consumers to verify the standardization of the certification process and the authenticity of the results at any time, thereby comprehensively consolidating the foundation of green trust.

5.2.2. At the Government Level: Improve Institutional Safeguards and Create a Consumption Ecosystem

The government should perform macro-control and public service functions to create a stable and orderly institutional environment for the low-carbon consumption market. The first is to improve the standards and regulatory system for low-carbon products. Impose heavy fines on enterprises that make false environmental claims or forge certification labels and put them on the list of untrustworthy entities, and establish a full-process supervision mechanism to ensure the foundation of consumer trust. Second, implement incentive policies to reduce costs on both the supply and demand sides. Tax deductions for research and development subsidies will be provided to enterprises engaged in environmental governance and low-carbon technology research and development. Low-carbon product consumption vouchers will be given to low- and middle-income groups as a priority to implement price subsidies and improve perceived behavior control. Third, build a multi-level publicity and education system. Regularly carry out activities in collaboration with the media and communities to popularize low-carbon knowledge, and integrate low-carbon education into primary and secondary school curricula and corporate employee training to strengthen subjective norms for green consumption and raise public environmental awareness.

5.2.3. At the Third-party Certification Body Level: Enhance Professional Credibility and Strengthen Trust Endorsement

As a bridge of trust connecting enterprises and consumers, third-party institutions need to focus on the construction of professionalism and impartiality to consolidate the foundation of trust in low-carbon certification. On the one hand, standardize the entire certification process, clarify the operational standards from product testing, carbon footprint calculation to result issuance, strengthen professional training for certification personnel, form multi-field expert review teams, and introduce blockchain technology to ensure review transparency and information immutability. On the other hand, establish a certification information sharing and accountability mechanism, build a provincial public query platform to enable one-code-per-item traceability, implement accountability for "pseudo-low-carbon" certification problems caused by audit omissions, seriously hold the relevant entities accountable, urge the improvement of service quality, and enhance consumers' trust in certification results.

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Appendix 1

Questionnaire on the Mechanism by which Green Trust Affects Consumers' Willingness to Purchase Low-Carbon Products

Dear consumers:

Hello! We are conducting an academic study on the mechanism by which green trust affects consumers' willingness to purchase low-carbon products, aiming to explore the key factors that influence consumer decisions. This questionnaire is anonymous and all data will only be used for overall statistical analysis. We will keep your personal information strictly confidential. The questionnaire will take about 8 minutes to complete. There are no right or wrong answers. Please fill it out based on your true feelings and experiences.

Part 1: Basic Information

1. Your gender:

- Male
- Female

2. Your age group:

- 18-25 years old
- 26-30 years old
- 31-35 years old
- 36-40 years old
- 41-45 years old
- 46 years old and above

3. Your highest educational attainment:

- High school and below
- College
- Undergraduate
- "Master's Degree"

Dr.

4. Your current monthly disposable income:

- 3,000 yuan or less
- 3001-5000 yuan
- 5001-8000 yuan
- 8001- 12,000 yuan
- 12,001 yuan and more

5. Your occupation:

- A. Student
- B. Employees of enterprises
- C. Personnel of public institutions
- D. Freelancers
- E. Retirees
- F. Others _____

Part 2 of 2: Green Trust Measurement

Note: Please determine to what extent you agree with the following statements based on your overall impression of low-carbon products and their related enterprises and institutions. (1= completely disagree, 2= disagree, 3= somewhat disagree, 4= neutral, 5= somewhat agree, 6= agree, 7= completely agree)

1. I believe that the environmental effects (such as energy conservation and emission reduction) claimed by low-carbon products are real and credible. 1 2 3 4 5 6 7

2. I think enterprises that produce low-carbon products have leading environmental protection technologies and R&D capabilities. 1 2 3 4 5 6 7

3. I think these companies are honest when it comes to environmental promotion and do not exaggerate. 1 2 3 4 5 6 7

4. I believe these enterprises are truly willing to contribute to environmental protection, not just for commercial interests. 1 2 3 4 5 6 7

5. I trust certification marks issued by the government or authority for low-carbon products (such as energy efficiency labels, China environmental labels). 1 2 3 4 5 6 7

6. I believe that the assessment results of the environmental performance of the product by the third-party testing agency are fair and reliable. 1 2 3 4 5 6 7

Part 3 of 3: Measurement of Core Variables in the Theory of Planned Behavior

(1) Attitudes

Note: Please assess your feelings and opinions about the act of "buying low-carbon products" itself. (1= completely disagree, 7= completely agree)

1. When using low-carbon products, I have a sense of pleasure and pride in doing my best for the environment. 1 2 3 4 5 6 7

2 The process of choosing low-carbon products for the sake of environmental protection itself makes me feel physically and mentally comfortable. 1 2 3 4 5 6 7

3. I'm convinced that the low-carbon products I bought will actually have the environmental effect as advertised. 1 2 3 4 5 6 7

4. I think buying low-carbon products (such as energy-saving appliances) will save me money in the long term. 1 2 3 4 5 6 7

5. I think choosing low-carbon products is a modern, socially responsible consumption trend. 1 2 3 4 5 6 7

6. I think some products that claim to be "low-carbon" must have better actual performance (such as cleaning power, durability) than traditional products. 1 2 3 4 5 6 7

7. I think the pricing of many low-carbon products at present is reasonable and their cost performance is good. 1 2 3 4 5 6 7

(2) Subjective norms

Note: Please assess the influence of the people and social environment around you on your decision to purchase low-carbon products. (1= completely disagree, 7= completely agree)

1. My family or close friends would explicitly expect me to give priority to buying low-carbon products. 1 2 3 4 5 6 7

2. The mainstream perception of society already regards "green consumption" as a responsible act. 1 2 3 4 5 6 7

3. I often see friends or colleagues in my circle using low-carbon products. 1 2 3 4 5 6 7

4. The actions of the social media bloggers/public figures I follow who advocate for an eco-friendly lifestyle can influence my choices. 1 2 3 4 5 6 7

(3) Perceptual behavior control

Note: Please assess your perception of your own capabilities and external conditions when purchasing low-carbon products. (1= completely disagree, 7= completely agree)

1. I am confident that the "low-carbon" attribute advertised by most products is true and credible. 1 2 3 4 5 6 7

2. I know how to verify the environmental information of the product (such as checking the certification mark, looking at the label). 1 2 3 4 5 6 7

3. I can easily find the low-carbon products I need at the shopping places I often go to, such as supermarkets and e-commerce platforms. 1 2 3 4 5 6 7

4. With my current financial situation, I can fully afford the additional expenses that may arise from buying low-carbon products. 1 2 3 4 5 6 7

5. I am willing to spend extra time and effort searching and comparing information about different low-carbon products. 1 2 3 4 5 6 7

6. Whether to buy low-carbon products or not is a decision I can make on my own. 1 2 3 4 5 6 7

Part 4 of 4: Measurement of Purchase intention

Note: Please assess the possibility of purchasing low-carbon products in the future. (1= very unlikely, 7= very likely)

1. When shopping in the future, I will give priority to choosing low-carbon products. 1 2 3 4 5 6 7

2. I'm willing to try buying new low-carbon products if I find them. 1 2 3 4 5 6 7

3. Even if low-carbon products are a little more expensive, I would still choose to buy them. 1 2 3 4 5 6 7

4. I would like to recommend low-carbon products that I have used to my friends and relatives. 1 2 3 4 5 6 7

5. I plan to increase my purchases of low-carbon products over the next six months. 1 2 3 4 5 6 7

Questionnaire ends here. Thank you again for your patient participation and valuable contribution!