



# Exploring the Relationship between Environmental Concerns, Green Marketing, and Brand Image with Green Purchasing Intention

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**Abstract.** This study explores the impact of environmental concern, green marketing, and brand image on consumers' willingness to purchase green products. The research employed a mixed-method approach and surveyed 339 consumers. The results indicate that environmental concern positively influences green marketing. Consumers who are environmentally conscious exhibit a more positive response to companies' green marketing efforts. Green marketing directly enhances consumers' willingness to purchase green products and partially mediates the influence of environmental concern on purchase intention. Environmental concern has a positive impact on brand image, and a reinforced brand image further enhances consumers' willingness to purchase green products, playing a partial mediating role between environmental concern and green purchase intention. There is a significant correlation between green marketing and brand image, suggesting that they can mutually reinforce each other in corporate strategies, collectively driving consumers to make more environmentally friendly purchasing choices. These findings offer new insights into understanding consumers' green purchasing behavior and provide empirical support for how businesses can enhance market competitiveness and green innovation capabilities through green strategies. This study extends the theoretical framework of environmental marketing and consumer behavior research and offers practical guidance for practitioners.

**Keywords:** Environmental concern, Green purchasing intention, Empirical research, Relevant analysis.

## 1 Introduction

With the development of society and the enhancement of environmental awareness, green consumption has become a contemporary fashion element, and green marketing has also become the mainstream trend in today's market. Coffee, known for its refreshing effects, is one of the top three most popular beverages globally. In recent

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years, with the growth of residents' income, improvement of living standards, continuous integration of Eastern and Western concepts, and consumption upgrades, China's coffee market has experienced rapid development. The purchasing power of Chinese consumers for coffee has shifted from the initial cultivation stage to the differentiation stage, mainly reflected in the diversification trends of demographics, taste preferences, and consumption patterns. According to data from iMedia Research, the market size of the coffee industry in China reached 381.7 billion ¥ in 2021, surpassing 485.6 billion ¥ in 2022; it is expected to continue to grow at a rate of 27.2% until 2025, with the market size exceeding 1 trillion ¥. The coffee consumption in China is in a rapid development stage, with fierce competition among companies and rising customer acquisition costs. In order to reduce customer acquisition costs, coffee companies are paying more attention to consumers' purchasing intentions.

In purchasing decisions and consumption, Chinese consumers are increasingly concerned about the green and environmental characteristics of products. In addition to factors such as price, quality, and functionality, a company's green marketing practices have become an important means to enhance competitive advantages. However, in the Chinese coffee consumption industry, there is still a significant lack of understanding and experience in green marketing, and a complete theoretical framework has not been established. In this context, how to effectively guide coffee companies to innovate production methods and promote the greening of public lifestyles has become a hot topic of academic concern. Exploring the relationship between enterprise green marketing practices and consumers and their potential mechanisms has become a key research area. Therefore, starting from an empirical analysis of 339 survey samples, this article explores how to promote consumers' purchasing intentions by studying the relationship between S Coffee Company in Changsha, China (referred to as S Coffee), and consumers. It constructs a research model from the company's green marketing behaviors to consumers' purchasing intentions, aiming to provide practical and theoretical basis for the coffee product industry to pursue green and environmental concepts, reduce customer acquisition costs, and enhance company competitiveness.

## 2 Related Work

Iqbal et al. (2023) <sup>[1]</sup> pointed out that consumers perceive environmentally friendly companies as more trustworthy and are more willing to purchase their products; by adopting green marketing, companies can enhance their brand image, as well as motivate them to engage in green innovation, and introduce more eco-friendly products and services. According to Moslehpour et al. (2023) <sup>[2]</sup>, environmental awareness and the level of environmental education accepted are key factors in determining whether people tend to buy green products; consumers who remain highly vigilant about environmental issues are more likely to actively support eco-innovative products and green goods; similarly, consumers' environmental knowledge is closely related to their inclination towards choosing green products. Wahyoedi et al. (2023) <sup>[3]</sup> found that a green brand image refers to consumers' perception of a company's efforts in

environmental protection and sustainable development. This image directly influences consumers' perceived value of products and purchase intention. By fostering a positive green brand image, companies can enhance consumers' awareness and evaluation of products, thereby increasing the perceived value of products and stimulating consumers' purchase intentions. Shabbir et al. (2020) [4] found that green marketing strategies can enhance consumers' awareness of environmental issues, making them more attentive to and prioritizing environmental protection, enhancing consumers' understanding of environmental knowledge, guiding consumers to form a positive attitude towards environmental protection, and making them more willing to engage in environmental behaviors. According to Alamsyah et al. (2020) [5], with the increasing number of environmental advertisements and the public's rising awareness of environmental protection, more and more consumers are showing a tendency to purchase green products. According to Mukonza et al. (2020) [6], adopting green marketing strategies has a positive impact on a company's business performance and corporate image, and is generally perceived by the public as socially responsible and reputable companies. Green marketing strategies not only focus on a company's economic interests, but also emphasize environmental protection and social responsibility.

### 3 Method

In this study, taking S Coffee Company in Changsha, China as an example, consumer households from six districts, one county, and two county-level cities in Changsha, China were selected as the research subjects. In the absence of exact population numbers, the sample size was determined and sampling was conducted. Roscoe (1975, pp. 156-157) pointed out that for a sample size of 500 units drawn from an uncertain population, the sampling error would not exceed  $\alpha/10$ , therefore, when using a population size ranging from 30 to 500,  $eM = \alpha/10$  should be used, regardless of the population size. The maximum allowable deviation is equal to 1/10 of the standard deviation ( $eM = \alpha/10$ ), and the significance level. When plugging in the formula at a 0.05 statistical level, a sample size of 384 units must always be used. A total of 510 questionnaires were distributed and 510 questionnaires were actually collected. After excluding questionnaires contaminated due to incomplete data and inconsistent answers, 339 questionnaires were deemed valid. Although there is a slight gap between the effective questionnaires and the theoretically required sample size, this gap is not significant, thus more objective and fair conclusions can be drawn from this study. Random sampling method was used in this study, which does not involve probability (non-probability sampling). Detailed data are presented in Table 1 below:

**Table 1.** shows general information

Variables		Frequency	Percent age
Sex	Man	160	47.20
	Female	179	52.80
	Total	339	100.0
age	18~25 years old	138	40.70

	26~35 years old	138	40.70
	36~60 years old	37	10.90
	Over 61 years old	26	7.7
	Total	339	100.0
Education level	Below high school level	31	9.10
	College Diploma	60	17.70
	Bachelor's Degree	200	59.00
	Master's degree or above	48	14.20
	Total	339	100.0
Occupation	College student	131	38.60
	Employee staff	127	37.50
	Freelancer	58	17.10
	Retirees	23	6.80
	Total	339	100.0
Monthly living expenses	2000 ¥ or below	124	36.60
	2001~4000 ¥	120	35.40
	4001~6000 ¥	39	11.50
	6001~8000 ¥	29	8.55
	Above 8000 ¥	27	8.00
	Total	339	100.0

## 4 Experiments and Results

### 4.1 Credibility analysis

Reliability refers to the credibility and trustworthiness of the data. Reliability analysis is the process of examining the consistency of the measurement tool and its results. In this study, Cronbach's Alpha coefficient, commonly used in academia, was used as the indicator for assessing the questionnaire's reliability. Different coefficient values represent different levels of internal consistency. The specific criteria are as follows: when the alpha value is higher than 0.7, it indicates a high level of internal consistency and good reliability of the questionnaire; when the alpha value is between 0.35 and 0.7, it represents moderate reliability; when the alpha value is less than 0.35, the credibility of the survey results is low and should not be accepted. The results of the reliability analysis in this study are shown in Table 2. The overall Cronbach's Alpha value of the questionnaire reached 0.933, indicating good internal consistency and ideal reliability of the measurement scales used in the questionnaire. The Cronbach's Alpha values of the measurement scales for each factor in the study were all above 0.8, indicating good overall reliability of the questionnaire's scales.

**Table 2.** Credibility check of the formal questionnaire

Variable	Cronbach's Alpha	Clone Bach Alpha	Item
Environmental concern	0.88	0.88	3
Brand image	0.89	0.89	4
Green products	0.91	0.91	4
Green advertising	0.94	0.94	6
Green recycling	0.91	0.91	4
Green purchasing intention	0.90	0.90	4

According to the data from Table 2, Reliability analysis data shows that the Cronbach's Alpha value for environmental concern is 0.88, for brand image is 0.89, for green products is 0.91, for green advertising is 0.94, for green recycling is 0.91, and for green purchasing intention is 0.90. All of these values are greater than 0.7 and close to 1. According to statistical principles, the closer the reliability coefficient is to 1, the higher the reliability of the scale. Therefore, this scale has high reliability.

**4.2 Validity analysis**

Validity testing of questionnaire data is shown in Table 3.

**Table 3.** Validity statistics of the formal questionnaire

Variable	Item	KMO	EFN	CEV	Bartlett sphere test		
					$\chi^2$	DF	Sig.
Environmental concern	3	0.742	1	61.874	506.43	3	0.000
Brand image	4	0.846	1	75.934	773.28	6	0.000
Green products	4	0.854	1	78.471	874.96	6	0.000
Green advertising	6	0.933	1	75.700	1573.90	15	0.000
Green recycling	4	0.850	1	77.961	855.879	6	0.000
Green purchasing intention	4	0.848	1	77.504	838.457	6	0.000

According to Table 3, the KOM values of the variables in the questionnaire, such as environmental concern, brand image, green marketing (green products, green advertising, green recycling), and green purchase intention, are 0.74, 0.85, 0.76, 0.92, 0.82, and 0.74, all greater than 0.7. Principal component analysis was conducted on the scale data to extract principal components with eigenvalues greater than 1. As a result, six common factors were extracted, which coincided exactly with the six variables defined in the questionnaire, indicating good content validity. Moreover, the Cumulative Explained Variance (CEV) of the six common factors all exceeded 60, indicating that the scale items have a good explanatory power for the variables. The results of the Bartlett's sphericity test values of the variables, i.e., degrees of freedom (DF) and  $\chi^2$ , showed that, except for the relatively small impact of environmental concern on green consumption behavior, the other variables have a significant influence on green consumption behavior. Therefore, the above results demonstrate that this scale has high validity.

### 4.3 Analysis of Demographic Differences

This work examines the differential impact of consumers' purchasing intentions from the perspectives of the respondents' basic background information, including gender, age, education level, occupation, and average monthly family income. The testing methods employed independent sample t-tests and variance analysis, with the analysis results shown in Table 4.

**Table 4.** Statistical differences in purchase intention based on demographic factors

Variable	Gender		Age		Educational background		Occupation		Monthly living expenses	
	T	Sig.	T	Sig.	T	Sig.	T	Sig.	T	Sig.
GPI	0.395	0.693	0.319	0.750	-0.566	0.572	0.098	0.922	0.498	0.619

Note: GPI is abbreviations of Green purchasing intention.

Table 4 presents the test results, which show that among respondents with different demographic backgrounds such as gender, age, educational background, occupation, and monthly family income, the significance (Sig) values for purchase intention in the five demographic factors are 0.795, 0.492, 0.743, 0.568, and 0.208, all greater than 0.05. This indicates that there is no significant difference in purchase intention among these surveyed individuals.

### 4.4 The correlation coefficient analysis

Correlation analysis reflects the degree of closeness between variables and can also be used to verify the correlation between variables in order to preliminarily determine whether the hypotheses of the study are correct. This work first conducts correlation analysis on green purchase intention, environmental concern, brand image, green products, green advertising, green recycling, gender, age, education level, and occupation in the SPSS 24.0 statistical analysis software to explore the correlation between variables. The Pearson correlation coefficient is used to determine the correlation between variables, and the larger the Pearson correlation coefficient, the closer the relationship between variables, as shown in Table 5.

**Table 5.** Means, standard deviations, and correlation matrix of variables

Variable	Environmental concern	Green marketing	Brand image	Green purchasing intention
Environmental concern	1			
Green marketing	869**	1		
Brand image	873**	872**	1	
Green purchasing intention	897**	888**	931	1

Notes: (1) N=339; (2) \*\* Significantly correlated at the 0.01 level (two-tailed); \* Significantly correlated at the 0.05 level (two-tailed).

According to the analysis results shown in Table 5, it can be seen that variables 1~6 are all significantly correlated at a 99% level of significance, and the correlation coefficients are all greater than 0, indicating positive correlations. The correlation coefficient between green purchasing intention and environmental concern is 0.897, between green purchasing intention and green brand image is 0.931, between green purchasing intention and green product is 0.913, between green purchasing intention and green advertisement is 0.914, and between green purchasing intention and green recycling is 0.912. All of these correlations are positive.

## 5 Conclusions

The study found a significant positive correlation at a 99% confidence level between environmental concern, green marketing (including green products, green advertising, and green recycling), brand image, and the willingness to purchase green products. On the other hand, demographic variables such as gender, age, education level, and occupation do not have a significant impact on the willingness to purchase green products. This finding suggests that the tendency towards green consumption transcends these basic demographic characteristics, becoming a universal phenomenon. Additionally, the study examined the relationships among the independent variables to assess the possibility of multicollinearity, which refers to a high correlation among independent variables that may lead to inaccurate research results. In this study, the correlation coefficients among the independent variables did not exceed 0.6, indicating low multicollinearity among the subjects. Therefore, the results of this study can be considered reliable and are unlikely to be biased by multicollinearity.

### (1) Environmental concern

Environmental concern is an important factor driving consumers' willingness to purchase green products. Consumers with high environmental awareness tend to choose products with minimal environmental impact. This finding emphasizes the importance of raising public awareness of the environment and suggests that companies highlight the environmental features of their products in marketing activities.

### (2) Green marketing

Green marketing strategies can effectively enhance consumers' willingness to purchase green products. This suggests that by conveying the company's environmental values and practices, companies can attract consumers with higher environmental demands. Therefore, companies should authentically showcase their environmental efforts and strengthen this aspect through marketing activities.

### (3) Brand image

Green brand image can significantly increase consumers' willingness to purchase. As an important mediating variable, brand image not only directly influences consumer purchase decisions but also reinforces the impact of environmental concern and green marketing on purchase intentions. This suggests that companies need to invest in establishing and maintaining their green brand image.

In conclusion, this study comprehensively elucidates the dynamic impact of environmental concern, green marketing, and brand image on the inclination to purchase

green products. The research provides clear strategic recommendations for market positioning and emphasizes the importance of these driving factors. The insights gained from this study offer valuable perspectives for academic discussions and provide actionable intelligence for business leaders and policymakers committed to sustainable development.

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