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BUSINESS ADMINISTRATION AND ECONOMICS REVIEW

RESEARCH ON THE IMPACT OF THE BRAND IMAGE OF GEOGRAPHICALLY ICONIC AGRICULTURAL PRODUCTS ON CONSUMERS'PURCHASE INTENTION: A CASE STUDY OF GUANGXI SHATANGJU

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Abstract

The development of geographically iconic agricultural products is an important path for China to achieve rural revitalization, and agriculture still plays an important role in international competitiveness and regional industrial development. However, with the expansion of Chinese market demand and the increase of import and export, the construction of geographical iconic agricultural products brand image has become a major challenge in the agricultural products market. This paper takes the consumers who have purchased geographical iconic agricultural products as the research object to explore the factors that influence the brand image of geographical iconic agricultural products on consumers' purchase intention. Through questionnaire survey, 423 pieces of data collected were analyzed, and the research results showed that each brand dimension significantly positively affected consumers' purchase intention, and the perceived value had a positive moderating effect between the two, that is, the richer the product image and quality information, the more significant the influence of brand image on the purchase intention. The research results of this paper can not only provide theoretical basis for the government and farmers to optimize the brand image construction of geographically iconic agricultural products, but also help consumers to correctly identify and purchase geographically iconic agricultural products.

Keywords: *Geographical Signature Agricultural Products, Brand Image, Perceived Value, Purchase Intention, Guangxi Shatangju*

Introduction

Geographical indications of agricultural products is an important issue under the framework of the World Trade Organization. Especially in China, a country with abundant agricultural resources and a large population, geographical indication agricultural products play an important role in promoting agricultural development and rural revitalization. (Hajdukiewicz, 2014) In the study, it is pointed out that geographical indication agricultural products are the communication carrier for the world to understand national culture and agricultural development. The rural revitalization strategy proposed by China in 2018 is a timely rain for China's agricultural development. The main content of its advocacy of strengthening ecological environmental protection and developing rural industries is undoubtedly the affirmation of the development of geographical indication agricultural products. (Long, 2020) In the article, it is mentioned that China's important measures to "strengthen the protection of geographical indications and trademarks of agricultural products and build characteristic product brands" under the framework of the rural revitalization strategy fully reflect China's emphasis on agricultural brands and geographical indications of agricultural products. In 2020, the Government of the People's Republic of China and the European Commission signed the Agreement on the Protection and Mutual Certification of Geographical Indications, marking that Chinese geographical indication products have opened the door to the international market and gained higher brand recognition in international trade.

From the actual situation, China's agricultural product market has gradually changed from a seller's market to a buyer's market, and the competition between similar agricultural products has penetrated to the level of brand building (Wang, 2022). With China's accession to WTO, Chinese agricultural products have been able to enter the foreign market, but the influx of foreign agricultural products into the Chinese market has also brought a great impact on the localized geographical indication agricultural products. Due to the strong regional nature of the geographical landmark agricultural products, it has two characteristics of public goods and universal market, so we can deeply discuss the construction of the brand image of agricultural products from the perspective of the characteristics of agricultural products, brand signs and geographical culture (Xu and Li, 2010). In the study of the brand structure of Chinese agricultural products, building superior agricultural products brands is a new turning point of Chinese agriculture and a dynamic framework to show the existing value to consumers. Only by changing the pattern of single agricultural products brand

model and uneven strategic distribution can we meet the growth demand of the market and promote the development of agricultural products brand image (Wang and Yan and Zhao, 2017; Dai and Zhu and Zhang, 2019).

The research sample of this paper is Guangxi Shatangju, a geographical landmark agricultural product. Compared with the sugar orange in other producing areas, Guangxi Shatangju is sweeter than other producing areas, full and bright appearance, rich in a variety of vitamins, potassium, calcium and other trace elements, which is closely related to the special climate latitude, geographical environment, soil element content, traditional farming methods of production management and human environment in Guangxi region. According to the records of China Statistical Yearbook in 2024, the citrus planting area of Guangxi in 2023 is about 9.5 million mu, and the output is about 18.9 million tons, of which the sand sugar orange planting area is about 3.25 million mu, and the output is about 6.84 million tons. Mainly distributed in Guilin, Liuzhou, Wuzhou, Baise and other areas. Guangxi Shatangju, as one of China's geographical indication agricultural products, enjoys the advantages of support and convenience in policy and high brand recognition; However, compared with other high-profile geographical indication agricultural products, when the sand sugar orange enters the market, it is difficult for consumers with low understanding to distinguish it from ordinary agricultural products in terms of appearance and smell, which will directly affect the purchasing difficulty of consumers and indirectly lead to the loss of consumers to a certain extent. In addition to the above factors, Although the market development potential of Guangxi Shatangju is huge, there are still some problems in the market, such as insufficient brand promotion, low market share, short sales cycle, imperfect cold chain logistics, single industry chain, and insufficient brand image attraction. It is difficult to make full use of the opportunities brought about by the "three products and one standard" policy. Although the theory of brand research is becoming more and more perfect, through the reading and review of relevant literature on geographical indication agricultural products, the author finds that many scholars tend to focus on the development of geographical indication agricultural products, the protection of geographical indications, the dialectical relationship between geographical indications and consumers, and few scholars study the brand image of geographical indication agricultural products from the perspective of consumers. This is quite different from the current development status of agricultural product industry structure. Therefore, exploring the path to build the brand image of

geographical indication agricultural products can better help the industrial organizations of geographical indication agricultural products to understand the consumer behavior tendency, establish a complete industrial chain as soon as possible, and form a cluster effect. Improve the market competitiveness of geographical indication agricultural products, and promote farmers to increase production and income; Better promote the inheritance and development of local culture; To contribute to the realization of rural revitalization.

Research objectives

1) This paper studies the influence of each dimension of geographical iconic agricultural products brand image on consumers' purchase intention, and finds out the important factors that consumers pay attention to when purchasing geographical iconic agricultural products, which provides a factual basis for promoting the construction of geographical iconic agricultural products brand image of the same category.

2) To explore the moderating effects of image perception and risk perception on consumers' purchase intention and the brand image model of geographical iconic agricultural products, and enrich the theory of brand image construction.

Research questions

1) What is the impact of the elements of the brand image of geographical indication agricultural products on purchase intention?

2) Can perceived value play a moderating role in the model of geographical iconic agricultural product brand image and consumer purchase intention?

Literature review and research hypotheses

In the theory of consumer purchase decision, purchase intention is usually interpreted as the psychological process in which consumers make decisions according to their own needs in order to satisfy their own psychological changes, which are affected by various factors such as social environment and product attributes (Morwitz & Steckel & Gupta, 2007; Ghali - zinoubi & Toukabri, 2019). In the process of the formation of consumers' purchase intention, brand image has

always been the key point of brand communication. Since the concept of agricultural product brand image is rarely defined by scholars in the academic circle, this paper combines the regional characteristics of geographical landmark agricultural products and draws on the concept of regional image of scholars to define it. In the regional industry, the overall image of the cluster formed by the brand origin halo is called the regional image. Geographical location, natural environment, political economy, human history, consumers' overall impression and evaluation of regional characteristic products and other different factors become the carriers of the geographical iconic agricultural product brand image. Therefore, the brand image of geographically iconic agricultural products is not only the external image of the product itself, but also the embodiment of the value of agricultural products in the region, and is a cognition and evaluation of consumers on the planting mode of the origin of agricultural products, human customs, natural environment and other factors (Zeng, 2010; Wang & Wang, 2021).

The brand image in this paper refers to the industrial scale, natural environment, human environment, product quality and production mode of geographically iconic agricultural products, among which the industrial scale of agricultural products refers to the scale of agricultural products involved in agricultural production activities such as planting, breeding, processing and sales (Duan, 2022).Natural environment refers to the origin or source of geographical indication agricultural products. It mainly includes climatic conditions, soil characteristics, landforms and landforms, as well as the richness and diversity of biological resources (Chen, 2013). The human environment refers to the aspects of geographically iconic agricultural products that are closely linked to the specific culture, tradition and history of the region, and also represents the degree of consumer affection for regional cultural characteristics (Zhu, 2011). The product quality of agricultural products usually includes product attributes, appearance characteristics and so on (Wang, 2022). Production mode refers to the unique planting and maintenance mode and production and processing mode (Zheng, 2023).

The expansion and agglomeration of industrial scale can enable producers and operators to realize economies of scale quickly, and the industrial image of the administrative region formed is the overall image of the cluster formed by the halo of brand origin. The high visibility and reputation of the origin of agricultural products depend on the unique natural growth environment. Consumers' attitude towards quality and desire for cultural identity are key factors leading to their continued

growth in demand (Burns et al., 2008； Loureiro & McCluskey, 2000). Kotler & Gertner (2002) It is believed that regional image is the overall evaluation and image of a region after people's association, and people have unique ideas and cognition of regional brands. When consumers identify with the culture of the region they live in, they will pay extra for the product. Other external factors, such as social connections and economic ability, also affect consumers' purchasing behavior (Kotler, 2010; Ning, 2013).

Keller (1993) It is believed that consumers' purchase intention can directly affect brand loyalty and trust, and achieve the purpose of predicting consumer behavior. From the perspective of brand association, brand image can directly affect consumers' purchase intention. Compared with the enterprise brand, the regional characteristics of geographical landmark agricultural products make them have higher brand value and more solid brand effect. Large-scale industries are more likely to gain broad brand exposure and visibility. When the scale of an industry or enterprise is large, consumers are more likely to have sufficient awareness of its brand and form a sense of trust in it. Brand trust is an important determinant in consumers' purchase decisions, and industry scale can positively influence consumers' purchase intention by improving brand trust. The larger scale of the industry means that the enterprise has a greater ability to resist risks, the high level of technology provided can provide quality assurance for the product, and consumers can be more assured when making purchase decisions. Crops in different regions will vary due to the difference in light time or soil water content. When the sunshine time is higher than the dark reaction time of crops, more and more sugar will be accumulated in grapes, thus the sugar degree will be relatively increased. However, rice seeds in the filling stage will be shrivelled due to lack of water in the dry land. Plants will die if they lack water for a long time. "Yanzi Spring and Autumn Annals" once recorded: "Huainan citrus is big and sweet, but an orange tree to Huaibei can only produce small and bitter poncirus, this is not because of the difference in soil and water?" Burns， Bush， Nash (2008) It is believed that the high reputation and reputation of the origin of agricultural products depend on the unique natural growth environment, which will be affected by the weather environment and the substances needed for growth. In the theory of cultural capital, human environment with unique cultural background can often give products additional symbolic significance. This cultural capital makes the product not only a consumer product, but also contains the characteristics of local cultural values. For example, Zhuang brocade, embroidery, paper-cut, etc. are all handicrafts formed under a

specific cultural background, which reflect China's social life, religious beliefs, artistic aesthetics, and technological development. Ning (2013) In the research on regional brand image building, it is found that it will be affected by political, economic, cultural and other factors. Traditional food or clothing can attract consumers through its unique cultural connotation, because consumers are often willing to pay a premium for products containing cultural identity. Loureiro and McCluskey (2000) A study of consumers' willingness to pay for Spanish fresh meat products labelled with protected geographical indication found that consumers' attitudes towards quality and desire for cultural identity led to increasing demand.

In the theory of consumer purchasing decision, quality perception is one of the key factors affecting consumers' purchasing behavior. The way of production determines the quality of the product, in the case of the total input of each production factor is the same, the higher the quality of the product, the higher the added value of the product. When consumers are faced with multiple choices, they tend to choose the more familiar brands, because familiar brands reduce the information confusion caused by information asymmetry and enhance consumers' trust in product quality. In areas such as luxury goods and crafts, consumers have higher expectations for handmade products. This perceived quality makes consumers more willing to pay a premium for such high-quality products. Wen Lina and Cui Maosen pointed out that the product is the part of direct contact between consumers and brands, and its quality and use value will affect the degree of satisfaction of consumers' purchase expectations. Yu (2017) Taking green agricultural products as the representative, this paper draws on the views of mainstream scholars, divides the dimensions of green agricultural products brand image, and verifies that its brand image has a significant impact on purchase intention. Based on the above scholars' description of brand image research, this study puts forward the following hypotheses:

H1: The industrial scale of geographically iconic agricultural products has a significant positive impact on consumer purchase intentions.

H2: The natural environment of geographically iconic agricultural products has a significant positive impact on consumers’ purchase intention.

H3: The cultural environment of geographically iconic agricultural products has a significant positive impact on consumers’ purchase intention.

H4: The product quality of geographically iconic agricultural products has a significant positive impact on consumers' purchase intention.

H5: The production method of geographically iconic agricultural products has a significant positive impact on consumers' purchase intention.

In psychological marketing behavior, perceived value is one of the key variables for consumers to produce purchasing behavior. Previous studies have confirmed that consumers' purchase desire will be affected by individual cognition, internal and external environment, product market performance and other factors (Zeithaml, 1988; Parducci & Helson, 1965). Perceived value refers to consumers' measurement of the acquisition cost and return income of a product or service when they purchase it. An evaluation based on the judgment of subjective consciousness. It reflects the consumer's cognitive, emotional and behavioral willingness to a product or service (Lin and Wang, 2006; Zhao, 2022). Image perception refers to a kind of intuitive judgment produced by consumers when they judge the growing environment and appearance of agricultural products. In the theory of information asymmetry, "when there is an information imbalance between buyers and sellers in the market transaction, buyers will use the economic value of the product and the image perception of the origin to judge the quality of the agricultural products, so as to decide whether to buy." In addition, risk perception refers to the fact that in the traditional market, consumers will decide whether to buy agricultural products based on the functional risks and the time required for purchase without complete understanding of product information (Akerlof, 1970; Aaker, 1997; Qi, 2021; Liang, 2023). From the perspective of long-term relationship, in the process of long-term service contact, customers' preference for products and value evaluation constitute the perceived value, which is the process expression of consumer psychological changes (Flint & Woodruff & Gardial, 1997; Grönroos, 1997).

Under the theoretical framework of consumers' purchase decision, consumers' purchase intention is a conditional reaction based on their consciousness and spontaneous purchase behavior after they have a full understanding of product information. When the consumer is in a higher level of interpretation information environment and has more ways to understand product information, the consumer's purchase intention will increase step by step with the social distance from the seller (Jiao, 2018; Qi and Lin, 2017). When the unique labeling system enables consumers to grasp more information about organic products, the perceived behavioral control of consumers will be improved,

thus achieving the purpose of promoting consumers' purchase intention (Aitken,Watkins, Williams and Kean 2020). Based on the above, this study proposes the following hypotheses:

H6: Perceived value plays a positive moderating role in the model of the impact of brand image of geographical indication agricultural products on consumer purchase intention.

H6a-1: Image perception plays a positive moderating role in the model of the impact of industrial scale of geographical indication agricultural products on consumer purchase intention.

H6a-2: Image perception plays a positive moderating role in the model of the impact of natural environment of geographical indication agricultural products on consumer purchase intention.

H6a-3: Image perception plays a positive moderating role in the model of the impact of humanistic environment of geographical indication agricultural products on consumer purchase intention.

H6a-4: Image perception plays a positive moderating role in the model of the impact of product quality of geographical indication agricultural products on consumer purchase intention.

H6a-5: Image perception plays a positive moderating role in the model of the impact of production method of geographical indication agricultural products on consumer purchase intention.

H6b-1: Risk perception plays a positive moderating role in the model of the impact of industrial scale of geographical indication agricultural products on consumer purchase intention.

H6b-2: Risk perception plays a positive moderating role in the model of the impact of natural environment of geographical indication agricultural products on consumer purchase intention.

H6b-3: Risk perception plays a positive moderating role in the model of the impact of the cultural environment of geographical indication agricultural products on consumer purchase intention.

H6b-4: Risk perception plays a positive moderating role in the model of the impact of product quality of geographical indication agricultural products on consumer purchase intention.

H6b-5: Risk perception plays a positive moderating role in the model of the impact of production methods of geographical indication agricultural products on consumer purchase intention.

Combining the above literature and theories, the author constructed a theoretical model framework. The dependent variable is consumer purchase intention, and the independent variables are the industrial scale, natural environment, cultural environment, product quality, and production methods in the brand image composition dimension. The moderating variable is the image perception

and risk perception subdimensions divided into two subdimensions of perceived value. The model design is shown in 1:

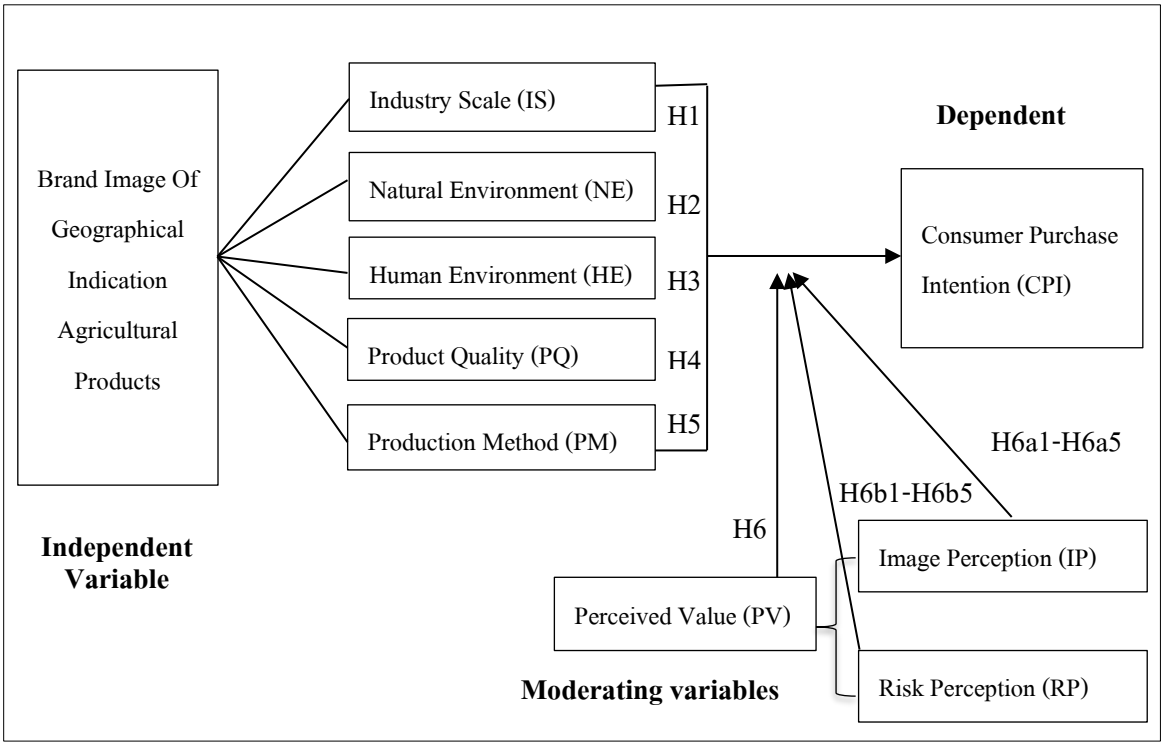

Figure 1 Research model design

Research Methodology Design

1. Design of variable relationships

1) Independent variable. Guangxi Shatangju brand image is the independent variable of this study, including five dimensions: industrial scale, natural environment, human environment, product quality and production mode.

2) Dependent variable. Consumers' purchase intention is the dependent variable.

3) Adjusting variables. Perceived value can be summarized as the cognitive and psychological changes of Guangxi Shatangju brand image, and it is regarded as a moderating variable in the study of Guangxi Shatangju brand image and consumers' purchase intention.

4) Control variables. In previous literature studies, the author found that many scholars often introduce some individual characteristics of consumers (gender, age, race, income, nationality, family, occupation and life cycle, etc.) into the research design of the model when studying related

issues. Considering the authenticity and reliability of empirical results, this paper takes the individual characteristics of consumers as the control variable of the research model. To ensure a more scientific and reasonable conclusion.

2. Design and content of questionnaire structure

In addition to demographic variables, the questionnaire of this study was measured by Likert Scale five-point scale. Likert scale is one of the most commonly used measurement methods in the rating summation scale. The scores obtained from the questionnaire without completing all the items are meaningless. The measurement method of the same dimension adopts the summation score system. In this paper, 59 questions are designed according to the scale design of previous literature and the specific answering situation of the respondents. The author sorted out the relevant research contents of scholars from all walks of life on the geographical landmark agricultural products, and designed the questionnaire structure of this paper according to the product characteristics of the studied agricultural products. The main structure includes the following four parts.

The first part is the background introduction and the basic information of consumers, including the background of the questionnaire issuer, and the content and purpose of the questionnaire to the respondents, a total of 19 questions.

The second part is consumers' awareness of geographical indication agricultural products and their evaluation of the brand image of Shatangju in Guangxi. Refer to (Chen, 2019 ; Yu, 2014) designs 6 measurement items on industry scale (IS); refer to (Niu, 2007; Xu and Li, 2010) designs 6 measurement items about the natural environment (NE) on the measurement scale; the reference (Ma , 2018) designs 6 items about the human environment (CE) Measurement items; refer to the scale of (Zhang,2016; Wen,2017) and make corresponding modifications to obtain 6 measurement items on product quality (PQ). 5 measurements of the production method (PM) are made according to the measurement dimensions of (Bethn & Davanzo & Errázuriz, 2018).

The third part is consumer perceived value, which draws on the research results of (Zeithaml, 1988); refers to the measurement scale of perceived value by (Yao and Feng,2023) and divides perceived value into image perception (IP) and risk perception (RP), a total of 6 items;

The fourth part is consumer purchase intention, which consists of price acceptance, recommendation, etc., and is modified accordingly based on the research results of (Chen, 2019) and the scale of (Zheng, 2023) to obtain 5 measurement items about consumer purchase intention (PI).

3. Collection of questionnaire data

This study is a quantitative study, and convenient sampling is used to collect data for the study. The research data was collected in large supermarkets, farmers' markets, fixed fruit stalls and other places in major cities in Guangxi Zhuang Autonomous Region by combining online electronic questionnaires with offline paper questionnaires. To ensure the diversity of the interviewees and increase the credibility of the questionnaire. After filling in, it will be automatically submitted to the background. The questionnaire survey will start on July 1, 2024 and end on August 1, 2024, for a period of 31 days. Paper questionnaires were distributed by random interception from July 1 to July 15. A total of 106 paper questionnaires were distributed, and 100 were actually collected, with a recovery rate of 94.34%; the electronic questionnaire was designed with the help of the WJX platform and distributed to respondents through social tools such as WeChat, QQ, and email. A total of 352 electronic questionnaires were distributed, and 323 were actually collected, with a recovery rate of 91.76%; a total of 458 questionnaires were distributed this time. Since this study takes consumers who have purchased geographical indication agricultural products as the research subjects, when the data were sorted and imported into SPSS26.0 software, 35 invalid questionnaires whose screening conditions were samples of people who were not familiar with geographical indication agricultural products were manually eliminated, and 423 valid questionnaires were obtained, with an effective recovery rate of 92.36%.

4. Data analysis method

This study mainly uses SPSS 26.0 version software to analyze the data, and specifically adopts the following methods:

1) Descriptive statistical analysis method is a summary method that allows readers to understand the characteristics of the data more quickly after making a simple summary of the basic situation of the data through charts, numerical values, etc. This study mainly uses statistical data such as sample size, percentage, mean, standard deviation, etc. to explain the distribution and central tendency of the data.

2) Reliability and validity analysis usually refers to reliability analysis and validity analysis. This article selects the most commonly used Cronbach's α coefficient to measure the consistency between each question; validity represents the validity test of the data. This article uses KMO and

Bartlett's sphericity test to analyze the correlation coefficient between variables to determine whether there are enough common factors and correlations between variables, and whether factor analysis can be performed.

3) The purpose of exploratory factor analysis is to more quickly explore hidden and representative common factors from the variables with complex relationships among many variables, so as to better judge the independence and correlation between variables, and whether the designed model can quantify the relationship.

4) Correlation analysis is an analytical method used to study the degree of association between multiple variables. The purpose of using the correlation analysis method in this study is to explore the strength of the relationship between the dimensions of the brand image of Guangxi Shatangju, determine the direction of influence between the dimensions of the brand image of Guangxi Shatangju and consumer purchase intention, and find the research variable with the highest correlation with consumer purchase intention.

5) Regression analysis is a statistical analysis method that describes the relationship between a dependent variable and one or more independent variables by establishing a mathematical model. In order to better verify the hypothesis, this paper uses the linear regression analysis method to study the correlation between the brand image of Guangxi Shatangju and consumer purchase intention, and introduces image perception and risk perception as moderating variables to better study how perceived value affects the relationship between brand image and consumer purchase intention.

5. Pre-survey data analysis

In order to improve the accuracy and scientificity of the survey, after a lot of literature reading and sorting, a preliminary questionnaire was formed. This paper completed the pre-survey by online survey before starting the formal survey; from June 20 to 30, 2024, the questionnaires were collected and distributed in large supermarkets, farmers' markets, and fixed fruit stalls. A total of 111 paper questionnaires were distributed in this pre-survey, and 111 were actually collected, with a recovery rate of 100%; SPSS26.0 software was used to analyze the reliability and validity of the data, and the results showed that the questionnaire could be factor analyzed, as shown below.

1) Reliability analysis of the pre-survey scale

In order to test whether the reliability of the questionnaire is up to the standard, reliability analysis should be carried out on the questionnaire results after the questionnaire results are collected to prove the reliability of the questionnaire. When the Klonbach α coefficient of the scale is higher than 0.6, it means that the internal consistency reliability is acceptable. When it is higher than 0.7, it can mean that the internal consistency is good for the scale; As can be seen from Table 1 below, the Klonbach α coefficient of each dimension is higher than 0.6 and greater than 0.7, indicating that the internal consistency of each dimension of the questionnaire is good. Therefore, the reliability of the results of this survey is excellent and the reliability of the questionnaire results is strong.

Table 1 Cronbach reliability analysis of the pre-survey scale

variable	Number of items	Sample size	Cronbach's alpha coefficient
Industry scale	6	111	0.889
Natural Environment	6	111	0.908
Human environment	6	111	0.907
Human environment	6	111	0.869
Production method	5	111	0.863
Image Perception	3	111	0.876
Risk Perception	3	111	0.833
Purchase intention	5	111	0.886

Data source: compiled by the author

2) Validity analysis of pre-survey scale

It can be seen from Table 2 below that the KMO value of this study is 0.764, and the Bartlett sphericity test approximate chi-square value is 2942.216. df=780, p less than 0.000, indicating that the questionnaire is suitable for factor analysis.

Table 2 Test results of KMO and Bartlett pre-survey scales

Kaiser-Meyer-Olkin Metric of Sampling Adequacy		0.764
Bartlett	Approx. Chi-Square	2942.216
	df	780
	Sig.	0.000

Data source: compiled by the author

3) Exploratory factor analysis of pre-survey scale

Exploratory factor analysis of the samples was carried out by using factor analysis and maximum variance rotation method, factors were extracted, items that did not meet expectations were deleted (items in the same dimension should be deleted when they were rotated to different factors), and factor load coefficients with values below 0.5 were eliminated. The specific contents are shown in the validity analysis results in Table 3 below. There are no questions that do not meet the expectations. Therefore, 8 dimensions of the questionnaire can be determined, with a total of 40 questions. The scale after pre-investigation has high feasibility and consistency, which is used as the evidence for large-scale questionnaire distribution in this study.

Table 3 of factor load coefficients after pre-investigation rotation

Name	Factor load coefficient								Common degree (common factor variance)
	1	2	3	4	5	6	7	8	
A1	-	-	0.908	-	-	-	-	-	0.863
A2	-	-	0.743	-	-	-	-	-	0.642
A3	-	-	0.811	-	-	-	-	-	0.710
A4	-	-	0.753	-	-	-	-	-	0.679
A5	-	-	0.628	-	-	-	-	-	0.568
A6	-	-	0.683	-	-	-	-	-	0.626
B1	-	0.926	-	-	-	-	-	-	0.886
B2	-	0.814	-	-	-	-	-	-	0.718
B3	-	0.732	-	-	-	-	-	-	0.626
B4	-	0.853	-	-	-	-	-	-	0.774
B5	-	0.758	-	-	-	-	-	-	0.630
B6	-	0.761	-	-	-	-	-	-	0.613
C1	0.914	-	-	-	-	-	-	-	0.873
C2	0.764	-	-	-	-	-	-	-	0.642
C3	0.752	-	-	-	-	-	-	-	0.697
C4	0.759	-	-	-	-	-	-	-	0.667
C5	0.786	-	-	-	-	-	-	-	0.663
C6	0.765	-	-	-	-	-	-	-	0.701
D1	-	-	-	0.882	-	-	-	-	0.856
D2	-	-	-	0.698	-	-	-	-	0.566
D3	-	-	-	0.731	-	-	-	-	0.666
D4	-	-	-	0.649	-	-	-	-	0.574
D5	-	-	-	0.734	-	-	-	-	0.634
D6	-	-	-	0.661	-	-	-	-	0.650

Table 3 of factor load coefficients after pre-investigation rotation

Name	Factor load coefficient								Common degree (common factor variance)
	1	2	3	4	5	6	7	8	
E1	-	-	-	-	-	0.869	-	-	0.812
E2	-	-	-	-	-	0.803	-	-	0.723
E3	-	-	-	-	-	0.668	-	-	0.602
E4	-	-	-	-	-	0.769	-	-	0.677
E5	-	-	-	-	-	0.722	-	-	0.563
F1	-	-	-	-	-	-	0.850	-	0.810
F2	-	-	-	-	-	-	0.852	-	0.800
F3	-	-	-	-	-	-	0.888	-	0.818
G1	-	-	-	-	-	-	-	0.869	0.818
G2	-	-	-	-	-	-	-	0.798	0.733
G3	-	-	-	-	-	-	-	0.801	0.720

Table 3 of factor load coefficients after pre-survey rotation (continued)

Name	Factor load coefficient								Common degree (common factor variance)
	1	2	3	4	5	6	7	8	
H1	-	-	-	-	0.897	-	-	-	0.864
H2	-	-	-	-	0.777	-	-	-	0.656
H3	-	-	-	-	0.770	-	-	-	0.676
H4	-	-	-	-	0.731	-	-	-	0.669
H5	-	-	-	-	0.765	-	-	-	0.679

Rotation method: Maximum variance Varimax.
Data source: compiled by the author

Research results

1. Statistics of consumers' basic personal information

This article selects five measurement indicators, namely age, gender, income, occupation, and educational attainment, to conduct a descriptive statistical analysis of the survey on consumers' personal situations. The specific content is shown in Table 4 below.

Table 4 Statistics of the frequency analysis results of personal basic information

Variable	Item	frequency	percent
Gender	male	222	52.48
	female	201	47.52
Age	Under 18 years old	79	18.68
	18-29 years old	67	15.84
	30-49 years old	92	21.75
	50-59 years old	92	21.75
	Age 60 and above	93	21.99
Educational status	Junior high school and below	71	16.78
	Senior high school	73	17.26
	Technical secondary school	100	23.64
	Junior college	72	17.02
	Undergraduate course	45	10.64
	Graduate student	62	14.66
Monthly income level	Less than 2000 RMB	68	16.08
	2001-4000 RMB	75	17.73
	4001-6000 RMB	102	24.11
	6001-8000 RMB	83	19.62
	8000 More than RMB	95	22.46
occupation	Enterprise personnel	102	24.11
	Personnel of public institutions and state organs	52	12.29
	Pupil	87	20.57
	Individuals and freelancers	72	17.02
	other	110	26.00
	total	423	100.0

Data source: compiled by the author

2. Reliability and validity test

The purpose of reliability test is to test whether the reliability of the questionnaire meets the standard. This study uses the commonly used Cronbach's α coefficient to test whether the scale has a high internal consistency. As shown in Table 5 below, the Cronbach's α coefficient values corresponding to the 8 dimensions designed in this paper are 0.880, 0.887, 0.881, 0.873, 0.864, 0.818, 0.824, and 0.870, respectively, all greater than 0.7, indicating that the internal consistency and reliability of each dimension of the questionnaire are high, and the questionnaire results are highly reliable, so further quantitative analysis can be carried out.

Table 5 Cronbach reliability analysis of each variable

variable	Number of items	Sample size	Cronbach's alpha coefficient
Industry scale	6	423	0.880
Natural Environment	6	423	0.887
Human environment	6	423	0.881
Human environment	6	423	0.873
Production method	5	423	0.864
Image Perception	3	423	0.818
Risk Perception	3	423	0.824
Purchase intention	5	423	0.870

Data source: compiled by the author

The results in Table 6 below show that the KMO is 0.908, which is greater than 0.6, and the Bartlett's P value is less than 0.05, indicating that the questionnaire in this study has good construct validity.

Table 6 KMO and Bartlett test

Kaiser-Meyer-Olkin Metric of Sampling Adequacy		0.908
Bartlett	Approx. Chi-Square	9404.378
	df	780
	Sig.	0.000

Data source: compiled by the author

Before using exploratory factor analysis for validity analysis, it is necessary to check whether the collected data is suitable for factor analysis. The test method is to check the specific values of KMO and Bartlett sphericity test. As shown in Table 6 above, the value of KMO is 0.908, greater than 0.6, indicating that the prerequisite criteria for factor analysis are met. This indicates that the data collected in this study is suitable for factor analysis. At the same time, we can see that the P-value of Bartlett sphericity test is less than 0.05, which further indicates that the collected questionnaire data can be used for factor analysis. In this study, in order to check the correspondence between items and factors, the author decided to use the maximum variance rotation method (varimax) to rotate the factor analysis results in order to find out their correspondence.

Table 7 Variance interpretation rate

Component	Initial Eigenvalues			Rotational front difference interpretation rate			Explanation rate of variance after rotation		
	Total	Percent variance	Cumulative percentage	Total	Percent variance	Cumulative percentage	Total	Percent variance	Cumulative percentage
1	11.122	27.804	27.804	11.122	27.804	27.804	4.000	10.000	10.000
2	2.983	7.457	35.262	2.983	7.457	35.262	3.931	9.828	19.827
3	2.836	7.090	42.351	2.836	7.090	42.351	3.928	9.820	29.647
4	2.618	6.545	48.897	2.618	6.545	48.897	3.886	9.715	39.363
5	2.366	5.916	54.813	2.366	5.916	54.813	3.313	8.282	47.644
6	1.721	4.303	59.115	1.721	4.303	59.115	3.048	7.619	55.263
7	1.450	3.626	62.741	1.450	3.626	62.741	2.169	5.422	60.686
8	1.288	3.221	65.962	1.288	3.221	65.962	2.110	5.276	65.962
9	0.757	1.893	67.855	-	-	-	-	-	-
10	0.699	1.748	69.603	-	-	-	-	-	-
11	0.664	1.661	71.264	-	-	-	-	-	-
12	0.651	1.628	72.892	-	-	-	-	-	-
13	0.639	1.597	74.489	-	-	-	-	-	-
14	0.606	1.515	76.004	-	-	-	-	-	-
15	0.583	1.458	77.461	-	-	-	-	-	-
16	0.571	1.428	78.889	-	-	-	-	-	-
17	0.546	1.364	80.253	-	-	-	-	-	-
18	0.526	1.315	81.568	-	-	-	-	-	-
19	0.519	1.298	82.867	-	-	-	-	-	-
20	0.505	1.262	84.129	-	-	-	-	-	-
21	0.482	1.206	85.335	-	-	-	-	-	-
22	0.459	1.147	86.482	-	-	-	-	-	-
23	0.456	1.139	87.620	-	-	-	-	-	-
24	0.432	1.080	88.700	-	-	-	-	-	-

Table 7 Variance interpretation rate

Component	Initial Eigenvalues			Rotational front difference interpretation rate			Explanation rate of variance after rotation		
	Total	Percent variance	Cumulative percentage	Total	Percent variance	Cumulative percentage	Total	Percent variance	Cumulative percentage
25	0.426	1.064	89.764	-	-	-	-	-	-
26	0.412	1.030	90.794	-	-	-	-	-	-
27	0.398	0.994	91.788	-	-	-	-	-	-
28	0.384	0.961	92.750	-	-	-	-	-	-
29	0.375	0.937	93.686	-	-	-	-	-	-
30	0.352	0.879	94.565	-	-	-	-	-	-
31	0.339	0.846	95.412	-	-	-	-	-	-
32	0.323	0.807	96.219	-	-	-	-	-	-
33	0.257	0.642	96.861	-	-	-	-	-	-
34	0.222	0.555	97.416	-	-	-	-	-	-
35	0.199	0.497	97.913	-	-	-	-	-	-
36	0.194	0.468	98.399	-	-	-	-	-	-
37	0.183	0.457	98.856	-	-	-	-	-	-
38	0.182	0.455	99.311	-	-	-	-	-	-
39	0.150	0.375	99.686	-	-	-	-	-	-
40	0.126	0.314	100.000	-	-	-	-	-	-

Data source: compiled by the author

As can be seen from Table 7 above, a total of 8 factors were extracted from factor analysis, and the extraction criteria were that the feature root value was greater than 1 (the extraction criteria were factors with the corresponding number of dimensions of the questionnaire). The post-rotation variance explanation rates of these eight factors were 10.000%, 9.828%, 9.820%, 9.715%, 8.282%, 7.619%, 5.422% and 5.276%, respectively. Meanwhile, the post-rotation cumulative variance explanation rates of these factors were 65.962%. If the number of factors that can be extracted from the data extracted from the scale is the same as the number of dimensions involved in our questionnaire, it indicates that the design structure of the questionnaire and the situation reflected by the data results have a certain degree of fit, but it is still unclear whether the data results of each question can correctly match the factors (questions in the same dimension should correspond to the same factors). In order to verify whether each problem corresponds to the correct factor, it is necessary to use the method of maximum variance rotation.

Table 8 Factor load coefficient after rotation

Name	Factor load coefficient								Common degree (common factor variance)
	1	2	3	4	5	6	7	8	
A1	-	0.897	-	-	-	-	-	-	0.843
A2	-	0.740	-	-	-	-	-	-	0.622
A3	-	0.720	-	-	-	-	-	-	0.576
A4	-	0.721	-	-	-	-	-	-	0.589
A5	-	0.748	-	-	-	-	-	-	0.603
A6	-	0.727	-	-	-	-	-	-	0.597
B1	0.896	-	-	-	-	-	-	-	0.856
B2	0.690	-	-	-	-	-	-	-	0.550
B3	0.735	-	-	-	-	-	-	-	0.631
B4	0.723	-	-	-	-	-	-	-	0.607
B5	0.766	-	-	-	-	-	-	-	0.619
B6	0.731	-	-	-	-	-	-	-	0.624
C1	-	-	0.890	-	-	-	-	-	0.845
C2	-	-	0.748	-	-	-	-	-	0.655
C3	-	-	0.713	-	-	-	-	-	0.595
C4	-	-	0.722	-	-	-	-	-	0.621
C5	-	-	0.686	-	-	-	-	-	0.562
C6	-	-	0.730	-	-	-	-	-	0.596
D1	-	-	-	0.900	-	-	-	-	0.843
D2	-	-	-	0.740	-	-	-	-	0.603
D3	-	-	-	0.711	-	-	-	-	0.549
D4	-	-	-	0.719	-	-	-	-	0.569
D5	-	-	-	0.746	-	-	-	-	0.597
D6	-	-	-	0.698	-	-	-	-	0.540
E1	-	-	-	-	0.889	-	-	-	0.845
E2	-	-	-	-	0.702	-	-	-	0.595
E3	-	-	-	-	0.734	-	-	-	0.634
E4	-	-	-	-	0.725	-	-	-	0.643
E5	-	-	-	-	0.747	-	-	-	0.630
F1	-	-	-	-	-	-	-	0.845	0.817
F2	-	-	-	-	-	-	-	0.744	0.713
F3	-	-	-	-	-	-	-	0.718	0.674
G1	-	-	-	-	-	-	0.872	-	0.855
G2	-	-	-	-	-	-	0.737	-	0.688
G3	-	-	-	-	-	-	0.753	-	0.703

Table 8 Factor load coefficient after rotation (continued)

Name	Factor load coefficient								Common degree (common factor variance)
	1	2	3	4	5	6	7	8	
H1	-	-	-	-	-	0.774	-	-	0.877
H2	-	-	-	-	-	0.680	-	-	0.631
H3	-	-	-	-	-	0.671	-	-	0.599
H4	-	-	-	-	-	0.647	-	-	0.576
H5	-	-	-	-	-	0.653	-	-	0.610

Rotation method: Maximum variance Varimax.
Data source: compiled by the author

Table 8 above shows the extraction of factors for all items (common degree) and excludes the factor load coefficient with a value below 0.5, as well as the corresponding relationship between factors and items (factor load coefficient table). The common degree value corresponding to all research items in the table is higher than 0.4, indicating that the correlation between items and extracted factors reaches a certain standard. Factors can effectively extract information. The results show that the correspondence between items and factors is consistent with our theoretical expectations, indicating that the questionnaire in this study has good structural validity.

3. Correlation Analysis

In this study, Pearson correlation analysis was used to study the degree and direction of the correlation between variables. Correlation analysis was used to study the correlation between industrial scale and natural environment, human environment, product quality, production mode, image perception, risk perception, and purchase intention. Pearson's correlation value between 0 and 1 indicated a positive correlation between the variables. A value between -1 and 0 indicates a negative correlation between the variables. The closer the absolute value of the correlation coefficient is to 1, the stronger the correlation degree of the variables is. The closer the absolute value of the correlation coefficient is to 0, the weaker the correlation degree of the variables. As can be seen from the following table 9, all eight items of industrial scale and natural environment, human environment, product quality, production mode, image perception, risk perception, and purchase intention are significant, and the correlation values are 0.270, 0.278, 0.225, 0.244, 0.314, 0.264, 0.452, respectively. Moreover, the correlation values are all greater than 0, which means that there is a positive correlation between industrial scale and natural environment, human environment, product quality, production mode, image perception, risk perception, and purchase intention (Fournier, 2008). This indicates that the correlation between the variables in this study is significant, and the selected variables are reasonable, meeting the prerequisite of correlation regression analysis.

Table 9 Results of correlation analysis between variables

	IS	NE	HE	PQ	PM	IP	RP	CPI
IS	1							
NE	0.270**	1						
HE	0.278**	0.327**	1					
PQ	0.225**	0.292**	0.246**	1				
PM	0.244**	0.344**	0.275**	0.278**	1			
IP	0.314**	0.350**	0.394**	0.347**	0.342**	1		
RP	0.264**	0.319**	0.370**	0.250**	0.346**	0.325**	1	
CPI	0.452**	0.451**	0.462**	0.393**	0.435**	0.448**	0.498**	1

Note: * p<0.05** p<0.01
Data source: compiled by the author

4. Multiple linear regression analysis

After the correlation analysis proved that there was a significant relationship between the variables, in order to further test the hypothesis proposed, the author adopted the method of multiple regression analysis to test the quantitative relationship among the independent variables industry scale, natural environment, human environment, product quality, production mode, and purchase intention of the dependent variable, as shown in Table 10 below.

Table 10 Results of multiple linear regression analysis

(n=423)

	Unstandardized coefficients		Standardized Coefficients	t	p	Collinearity diagnostics	
	B	Standard error	Beta			VIF	Tolerance
constant	-0.756	0.197	-	-3.841	0.000**	-	-
IS	0.268	0.042	0.249	6.422	0.000**	1.162	0.861
NE	0.199	0.043	0.190	4.660	0.000**	1.278	0.783
HE	0.257	0.043	0.235	5.926	0.000**	1.215	0.823
PQ	0.189	0.044	0.169	4.335	0.000**	1.172	0.853
PM	0.206	0.042	0.198	4.959	0.000**	1.225	0.816
R^2				0.459			
Adjust R^2				0.453			
F				F (5,417)=70.858,p=0.000			
D-W				1.962			

Note: Dependent variable = Purchase intention * p<0.05 ** p<0.01
Data source: compiled by the author

From Table 10 above, it can be concluded that the model formula is:

CPI=-0.756 + 0.268 * IS + 0.199 * NE + 0.257 * HE + 0.189 * PQ + 0.206 * PM

The R^2 value of the model is 0.459, which means that industrial scale, natural environment, human environment, product quality, and production methods can explain 45.9% of the changes in purchase intention. When the F test was performed on the model, it was found that the model passed the F test (F=70.858, p=0.000<0.05), which means that at least one of the industrial scale, natural environment, human environment, product quality, and production methods will have an impact on purchase intention. relation. The multicollinearity test of the model found that all VIF values were less than 5, indicating that there was no collinearity problem; the D-W value was 1.962, indicating that there was no autocorrelation in the variables of the model and no correlation between the sample data. The designed study The model is better.:

The regression coefficient value of industry scale is 0.268 (t=6.422, p=0.000<0.01), indicating that industry scale has a significant positive impact on purchase intention; therefore, hypothesis H1 is established.

The regression coefficient of the natural environment is 0.199 (t=4.660, p=0.000<0.01), indicating that the natural environment has a significant positive impact on purchase intention; therefore, hypothesis H2 is established.

The regression coefficient of the humanistic environment is 0.257 (t=5.926, p=0.000<0.01), indicating that the humanistic environment has a significant positive impact on purchase intention; therefore, hypothesis H3 is established.

The regression coefficient of product quality is 0.189 (t=4.335, p=0.000<0.01), indicating that product quality has a significant positive impact on purchase intention; therefore, hypothesis H4 is established.

The regression coefficient value of the production method is 0.206 (t=4.959, p=0.000<0.01), indicating that the production method has a significant positive impact on purchase intention; therefore, hypothesis H5 is established.

5. Testing the moderating effect of perceived value

The moderating variable is an important variable in the process of regression analysis. It explains the positive and negative moderating direction of the independent variable and the dependent

variable. This study selects customer perceived value as the moderating variable between geographical indication agricultural products and consumer purchase intention, and divides the perceived value into two small dimensions: image perception and risk perception to measure consumer purchase intention. The moderating effect is divided into three models for analysis. Model 1 includes independent variables (e.g., industry scale). Model 2 introduces the moderating variable (e.g., image perception) on the basis of Model 1, while Model 3 adds the product term of the independent variable and the moderating variable (e.g., industry scale*image perception) on the basis of Model 2. The purpose of Model 1 is to study the influence of the independent variable (e.g., industry scale) on the dependent variable (purchase intention) without considering the moderating variable (image perception). This study uses the interaction term in Model 3 to test the moderating effect.

Testing the moderating effect of image perception

Table 11 Analysis of the moderating effect of industry scale and image perception

	Model 1	Model 2	Model 3
constant	2.870** (71.305)	2.870** (76.388)	2.841** (72.348)
IS	0.486** (10.397)	0.371** (8.074)	0.398** (8.455)
IP		0.332** (7.948)	0.341** (8.182)
IS*IP			0.113* (2.402)
Sample size	423	423	423
R^2	0.204	0.308	0.318
Adjust R^2	0.202	0.305	0.313
F	F (1,421)=108.089 p=0.000	F (2,420)=93.607 p=0.000	F (3,419)=65.037 p=0.000
$\triangle R^2$	0.204	0.104	0.009
$\triangle F$	F (1,421)=108.089 p=0.000	F (1,420)=63.165 p=0.000	F (1,419)=5.770 p=0.017

Note: Dependent variable = purchase intention, * p<0.05 ** p<0.01, t value in brackets
Data source: compiled by the author

From Table 11 above, we can see that when (t=10.397, p=0.000<0.05), the independent variable (industry scale) is significant; this means that industry scale will have a significant impact on purchase intention. The interaction term between industry size and image perception is significant (t=2.402, p=0.017<0.05). This shows that when the industrial scale affects purchase intention, when

the moderating variable (image perception) is at different levels, its impact amplitude is significantly different and is positively regulated. Therefore, hypothesis H6a-1 is established.

From Table 12 below, we can see that when (t=10.365, p=0.000<0.05), the independent variable (natural environment) is significant; the interaction term of natural environment and image perception is significant (t=3.733, p= 0.000<0.05). This shows that when the natural environment significantly affects consumers' purchase intention, when the regulating variable (image perception) is at different levels, its impact amplitude is significantly different and is positively regulated. Therefore, hypothesis H6a-2 is established.

Table 12 Analysis of the regulatory effects of natural environment and image perception

	Model 1	Model 2	Model 3
constant	2.870** (71.260)	2.870** (75.903)	2.821** (71.463)
NE	0.474** (10.365)	0.352** (7.684)	0.365** (8.066)
IP		0.323** (7.592)	0.360** (8.353)
NE * IP			0.167** (3.733)
Sample size	423	423	423
R^2	0.203	0.299	0.322
Adjust R^2	0.201	0.296	0.317
F	F (1,421)=107.429 p=0.000	F (2,420)=89.763 p=0.000	F (3,419)=66.331 p=0.000
$\triangle R^2$	0.203	0.096	0.023
$\triangle F$	F (1,421)=107.429 p=0.000	F (1,420)=57.642 p=0.000	F (1,419)=13.937 p=0.000

Note: Dependent variable = purchase intention, * p<0.05 ** p<0.01, t value in brackets
Data source: compiled by the author

As can be seen from the table 13 below, when (t=10.696, p=0.000<0.05), the independent variable (humanistic environment) is significant; the interaction term of humanistic environment and image perception is significant (t=3.723, p=0.000 <0.05). This shows that when the humanistic environment significantly affects consumers' purchase intention, when the regulating variable (image perception) is at different levels, its impact amplitude is significantly different and is positively regulated. Therefore, hypothesis H6a-3 is established.

Table 13 Analysis of the moderating effect of humanistic environment and image perception

	Model 1	Model 2	Model 3
constant	2.870** (71.729)	2.870** (75.797)	2.815** (70.139)
HE	0.506** (10.696)	0.370** (7.598)	0.385** (8.001)
IP		0.308** (7.079)	0.342** (7.808)
HE * IP			0.175** (3.723)
Sample size	423	423	423
R^2	0.214	0.297	0.320
Adjust R^2	0.212	0.294	0.315
F	F (1,421)=114.400 p=0.000	F (2,420)=88.932 p=0.000	F (3,419)=65.726 p=0.000
△R 2	0.214	0.084	0.023
△F	F (1,421)=114.400 p=0.000	F (1,420)=50.117 p=0.000	F (1,419)=13.864 p=0.000

Note: Dependent variable = purchase intention, * p<0.05 ** p<0.01, t value in brackets
Data source: compiled by the author

Table 14 Analysis of the moderating effect of product quality and image perception

	Model 1	Model 2	Model 3
constant	2.870** (69.177)	2.870** (74.109)	2.837** (69.645)
PQ	0.440** (8.775)	0.302** (6.056)	0.320** (6.389)
IP		0.346** (7.947)	0.364** (8.299)
PQ *IP			0.123* (2.507)
Sample size	423	423	423
R^2	0.155	0.265	0.276
Adjust R^2	0.153	0.262	0.271
F	F (1,421)=76.993 p=0.000	F (2,420)=75.759 p=0.000	F (3,419)=53.236 p=0.000
△R^2	0.203	0.096	0.023
△F	F (1,421)=107.429 p=0.000	F (1,420)=57.642 p=0.000	F (1,419)=13.937 p=0.000

Note: Dependent variable = purchase intention, * p<0.05 ** p<0.01, t value in brackets
Data source: compiled by the author

From the table 14 above, we can see that when (t=8.775, p=0.000<0.05), the independent variable (product quality) is significant; the interaction term of product quality and image perception is significant (t=2.507, p=0.013 <0.05). This shows that when product quality significantly affects consumers' purchase intention, when the regulating variable (image perception) is at different levels, its impact amplitude is significantly different and is positively regulated. Therefore, hypothesis H6a-4 is established.

As can be seen from Table 15 below, when (t=9.919, p=0.000<0.05), the independent variable (production method) is significant; the interaction term between production method and image perception is significant (t=0.141, p=0.000<0.05). This shows that when the production method significantly affects consumers' purchase intention, the moderating variable (image perception) has significantly different influences at different levels and is positively modulated. Therefore, hypothesis H6a-5 is established.

Table 15 Analysis of the moderating effect of production mode and image perception

	Model 1	Model 2	Model 3
constant	2.870** (70.647)	2.870** (75.442)	2.819** (71.702)
PM	0.454** (9.919)	0.333** (7.297)	0.371** (8.120)
IP		0.331** (7.751)	0.352** (8.335)
PM * IP			0.177** (4.141)
Sample size	423	423	423
R^2	0.189	0.291	0.319
Adjust R^2	0.187	0.287	0.314
F	F (1,421)=98.380 p=0.000	F (2,420)=86.134 p=0.000	F (3,419)=65.344 p=0.000
$\triangle R^2$	0.189	0.101	0.028
$\triangle F$	F (1,421)=98.380 p=0.000	F (1,420)=60.081 p=0.000	F (1,419)=17.144 p=0.000

Note: Dependent variable = purchase intention, * p<0.05 ** p<0.01, t value in brackets
Data source: compiled by the author

Testing the moderating effect of risk perception

As can be seen from Table 16 below, when (t=10.397, p=0.000<0.05), the independent variable (industry scale) is significant; the interaction term between industry scale and risk perception is significant (t=4.706, p=0.000<0.05). This means that when industry scale significantly affects

consumers' willingness to buy, the moderating variable (risk perception) has significant differences in its impact at different levels, and it is a positive adjustment. Therefore, hypothesis H6b-1 is established.

Table 16 Analysis of the moderating effect of industry scale and risk perception

	Model 1	Model 2	Model 3
constant	2.870** (71.305)	2.870** (79.334)	2.827** (77.526)
IS	0.486** (10.397)	0.371** (8.498)	0.408** (9.433)
RP		0.385** (10.058)	0.393** (10.513)
IS * RP			0.193** (4.706)
Sample size	423	423	423
R^2	0.204	0.359	0.391
Adjust R^2	0.202	0.356	0.387
F	F (1,421)=108.089 p=0.000	F (2,420)=117.480 p=0.000	F (3,419)=89.643 p=0.000
$\triangle R^2$	0.204	0.154	0.032
$\triangle F$	F (1,421)=108.089 p=0.000	F (1,420)=101.156 p=0.000	F (1,419)=22.142 p=0.000

Note: Dependent variable = purchase intention, * p<0.05 ** p<0.01, t value in brackets
Data source: compiled by the author

Table 17 Analysis of the moderating effect of natural environment and risk perception

	Model 1	Model 2	Model 3
constant	2.870** (71.260)	2.870** (78.390)	2.830** (74.512)
NE	0.474** (10.365)	0.342** (7.783)	0.359** (8.233)
RP		0.373** (9.459)	0.378** (9.716)
NE * RP			0.144** (3.416)
Sample size	423	423	423
R^2	0.203	0.343	0.361
Adjust R^2	0.201	0.340	0.356
F	F (1,421)=107.429 p=0.000	F (2,420)=109.734 p=0.000	F (3,419)=78.903 p=0.000
$\triangle R^2$	0.203	0.140	0.018
$\triangle F$	F (1,421)=107.429 p=0.000	F (1,420)=89.465 p=0.000	F (1,419)=11.666 p=0.001

Note: Dependent variable = purchase intention, * p<0.05 ** p<0.01, t value in brackets
Data source: compiled by the author

As can be seen from Table 17 above, when (t=10.365, p=0.000<0.05), the independent variable (natural environment) is significant; the interaction term between natural environment and risk perception is significant (t=3.416, p=0.001<0.05). This shows that when the scale of the industry significantly affects the consumer's willingness to buy, the moderating variable (risk perception) has a significant difference in its impact at different levels, and it is a positive adjustment. Therefore, hypothesis H6b-2 is established.

As can be seen from Table 18 below, when (t=10.696, p=0.000<0.05), the independent variable (human environment) is significant; the interaction term between human environment and image perception is significant (t=4.244, p=0.000<0.05). This shows that when the human environment significantly affects consumers' willingness to buy, the moderating variable (image perception) has significant differences in its impact at different levels, and it is a positive adjustment. Therefore, hypothesis H6a-3 is established.

Table 18 Analysis of the moderating effect of humanistic environment and risk perception

	Model 1	Model 2	Model 3
constant	2.870** (71.729)	2.870** (78.081)	2.813** (73.154)
HE	0.506** (10.696)	0.352** (7.535)	0.371** (8.068)
RP		0.358** (8.881)	0.375** (9.435)
HE * RP			0.186** (4.244)
Sample size	423	423	423
R^2	0.214	0.338	0.365
Adjust R^2	0.212	0.335	0.361
F	F (1,421)=114.400 p=0.000	F (2,420)=107.213 p=0.000	F (3,419)=80.376 p=0.000
$\triangle R^2$	0.214	0.124	0.027
$\triangle F$	F (1,421)=114.400 p=0.000	F (1,420)=78.866 p=0.000	F (1,419)=18.016 p=0.000

Note: Dependent variable = purchase intention, * p<0.05 ** p<0.01, t value in brackets
Data source: compiled by the author

As can be seen from Table 19 below, when (t=8.775, p=0.000<0.05), the independent variable (product quality) is significant; the interaction term between product quality and risk perception is significant (t=2.067, p=0.039<0.05). This means that when product quality significantly affects consumers' willingness to buy, the moderating variable (risk perception) has significant

differences in its impact at different levels, and it is a positive adjustment. Therefore, hypothesis H6b-4 is established.

Table 19 Analysis of the moderating effect of product quality and risk perception

	Model 1	Model 2	Model 3
constant	2.870** (69.177)	2.870** (77.354)	2.850** (74.688)
PQ	0.440** (8.775)	0.320** (6.925)	0.328** (7.100)
RP		0.403** (10.315)	0.407** (10.442)
PQ * RP			0.097* (2.067)
Sample size	423	423	423
R^2	0.155	0.325	0.332
Adjust R^2	0.153	0.322	0.328
F	F (1,421)=76.993 p=0.000	F (2,420)=101.340 p=0.000	F (3,419)=69.510 p=0.000
$\triangle R^2$	0.155	0.171	0.007
$\triangle F$	F (1,421)=76.993 p=0.000	F (1,420)=106.409 p=0.000	F (1,419)=4.271 p=0.039

Note: Dependent variable = purchase intention, * p<0.05 ** p<0.01, t value in brackets
Data source: compiled by the author

Table 20 Analysis of the moderating effect of production mode and risk perception

	Model 1	Model 2	Model 3
constant	2.870** (70.647)	2.870** (77.431)	2.829** (72.724)
PM	0.454** (9.919)	0.311** (6.992)	0.323** (7.314)
RP		0.373** (9.259)	0.390** (9.699)
PM * RP			0.136** (3.157)
Sample size	423	423	423
R^2	0.189	0.327	0.342
Adjust R^2	0.187	0.324	0.338
F	F (1,421)=98.380 p=0.000	F (2,420)=101.958 p=0.000	F (3,419)=72.745 p=0.000
$\triangle R^2$	0.189	0.137	0.016
$\triangle F$	F (1,421)=98.380 p=0.000	F (1,420)=85.735 p=0.000	F (1,419)=9.965 p=0.002

Note: Dependent variable = purchase intention, * p<0.05 ** p<0.01, t value in brackets
Data source: compiled by the author

As can be seen from Table 20 above,, when (t=9.919, p=0.000<0.05), the independent variable (production method) is significant; the interaction term between production method and risk perception is significant (t=3.157, p=0.002<0.05). This shows that when the production method significantly affects consumers' willingness to buy, the moderating variable (risk perception) has significant differences in its impact at different levels, and it is a positive adjustment. Therefore, hypothesis H6b-5 is established.

In summary, the interaction terms of image perception and risk perception in industry scale, natural environment, cultural environment, product quality, and production methods are all significant, which means that when the perceived value of the moderating variable is at different levels, the impact amplitude has significant differences and is positively modulated, Therefore, hypothesis H6 is established.

Research Conclusions and Discussion

The results show that industrial scale, natural environment, human environment, product quality, and production methods all have significant positive effects on purchase intention, and the degree of influence shows great differences, with the ratio of industrial scale>human environment>production method>natural environment>product quality. This paper confirms that industrial scale has a greater impact on consumer purchase intention than other brand image dimensions; this is consistent with the hypothesis verified by Duan (2022). It can be seen that in agricultural production activities, having a larger planting scale increases consumers' purchase impressions, thereby increasing purchase intention. The conclusion of this paper that the natural environment positively affects consumers' purchase intention is consistent with the research results of scholar Pang (2024), which shows that the environment of the origin of agricultural products can affect consumers' purchase decisions. The conclusion that the human environment positively affects consumers' purchase intention is consistent with the research results of scholar Han (2015), which shows that in-depth exploration and promotion of the human factors in geographical indication agricultural products can expand brand influence, and promote consumers' purchase intention while promoting farmers' production and income. The construction of brand image is inseparable from the strict control of production methods and the quality of products. Production methods and product quality also have a significant positive impact on purchase intention. The results of this study are

consistent with the research results of (Ma, 2018; Liu & Liu, 2024), but the production method influence coefficient demonstrated in this study far exceeds their research results. It can be seen that the unique production method will promote consumers' desire to buy.

The test analysis of moderated regression verified that perceived value has a moderating effect between the brand image and purchase intention of geographical indication agricultural products, which is significantly positively correlated, which is consistent with the research results of Sang (2018). This shows that when consumers have a sufficient understanding of the growth environment, cultural history, planting technology, and quality and safety of agricultural products, customers will reduce unnecessary concerns when making purchase decisions, and the perceived value of the geographical indication agricultural products will be faster. This paper finally concludes that in the field of geographical indication agricultural product brand image affecting consumer purchasing intention, image perception can more directly affect consumer purchasing intention, which is consistent with the research results of Zheng (2023); this shows that image perception and risk perception still have a great impact on consumer purchasing intention.

Research Recommendations

The final empirical results show that industrial scale has the greatest influence on consumers' purchase intention among all dimensions of geographical iconic agricultural product brand image. To a certain extent, this reflects that when agricultural products have a certain scale, they are more likely to be familiar to consumers, and the cultural environment attracts consumers to understand local characteristic products to a certain extent, thus promoting consumers' purchase intention. Secondly, from the perspective of production mode, natural environment and product quality, it also reflects that the more green and pollution-free, the higher the nutritional value, and the more primitive the growth environment, the more favored by consumers, thus stimulating the purchase intention.

Geographical landmark agricultural products include fruits, meat products, medicinal materials, aquatic products and other plants and microorganisms obtained through agricultural activities. Therefore, the difference and regionality of geographical landmark agricultural products may be ignored in the process of research. To some extent, it affects the general applicability of the research results. In the process of questionnaire, although samples from different ages, occupations and income classes are selected, due to the particularity of the region, they cannot represent all

consumer groups. However, Guangxi, as a gathering place of ethnic minorities, has its own strong local characteristics. There may be a big difference between consumers' image cognition of Guangxi and that of other regions, which may lead to some bias in the samples, and the research conclusions may not be applicable to geographical landmark agricultural products in other regions. As the implementer and supervisor of relevant laws and regulations, the government should actively communicate with farmers, timely solve the technical problems encountered by farmers in the planting process, make full use of the advantages of local planting scale, actively prepare agricultural products with local characteristics exhibitions and agricultural fairs, and spread the local products with local characteristics through the image of hot topics on the Internet. Enterprises that settle in local agricultural products and register geographical trademarks should be given corresponding welfare policies, which can not only increase local economic income, but also solve the employment problem of residents. For direct producers engaged in the cultivation or production of geographical indication agricultural products, product quality should be put in the first place, in the production process in strict accordance with the production standards of geographical indication agricultural products, reduce the use of drugs. For enterprises engaged in related industries, they should make use of the advantages of industrial clusters, readjust market positioning, change the original impression of the market on the product, so that the target customers can establish a new understanding of it, and obtain the maximum strategic advantage in the target market. In addition, "If you want to be rich, build roads first", government functional departments should cooperate with enterprises to continuously improve the service functions of warehousing, logistics, distribution and other services around enterprises, so as to leverage the improvement of the regional business environment with perfect industrial support, and lay the foundation for the development of enterprises themselves, the brand construction of geographically iconic agricultural products and industrial development. In the actual research of subsequent scholars, if there are no regional restrictions on the time and research span, they can consider expanding the types of agricultural products and dividing them according to origin or time of market, so as to better explore whether there will be obvious differences due to regional relations. In the research process, more regulatory variables can also be considered. Enrich the theoretical construction of geographical iconic agricultural products brand image, and provide more favorable evidence for the subsequent construction of geographical iconic agricultural products brand image.

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