



Research on the Influence of Perceived Value on Consumers' Willingness to Pay Premium for Online Agricultural Products with Regional Public Brands

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Abstract. In recent years, Chinese consumers have increasingly higher recognition of regional public brands of agricultural products. The premium profit of brand agricultural products drives industrial revitalization and increases farmers' income. However, the continuous growth of e-commerce of agricultural products has brought the problems of inconsistent standards, unreasonable pricing and fierce homogeneous competition increasingly prominent, which affect consumers' willingness to buy brand products. The objective of this paper is to identify the causal factors of consumers' willingness to pay premium prices for online agricultural products with regional public brands in China. Based on perceived value theory, this study constructed a structural model for regional public brands of agricultural products, and explored the influence of perceived value on consumers' willingness to pay premium. The study conducted a questionnaire survey on consumers with agricultural products online shopping experiences. The findings demonstrate that: a) The quality perceived value and relationship perceived value have a significant positive impact on premium willingness to pay; b) The perceived value of traceability positively affects quality and the perceived value of service positively affects relationship; c) Relationship perceived value has a significant positive impact on perceived negativity, but perceived negativity does not have a significant negative impact on premium willingness to pay.

Keywords: online agricultural products · regional public brand willingness of premium payment · perceived value

1 Introduction

With the increase in people's income and the great attachment to food safety, consumers' demand for agricultural product quality is increasing. The pandemic has accelerated the rapid growth of e-commerce for agricultural products. In 2022, China's online retail sales of agricultural products showed an upbeat growth trend. The national online retail sales of agricultural products reaching RMB 531.38 billion, with a year-on-year increase of 9.2%. The growth rate is 6.4% higher than in 2021 [1]. The homogeneous competition of agricultural products makes branding become a crucial basis for selling agricultural

products. Accelerating the construction of regional public brand is an important development strategy to lead the improvement of industrial quality and efficiency, promote the continuous increase of farmers' income, and promote the improvement of quality and expansion of consumption. Owned by relevant organizations and used by several agricultural producers in a region with a specific natural ecological environment and historical factors, regional public brands can systematize and label agricultural products, which enhances their image of them in consumers' perception, effectively empowers agricultural products, increases their value and improves their competitiveness in the market. More and more consumers are willing to pay a premium for regional public brand farm goods. However, the rapid growth of online sales of agricultural products has also brought problems and challenges for regional brand agricultural products, such as non-standard management of e-commerce platforms, chaotic use of brands, unreasonable pricing, poor logistics and after-sales service, and malicious online evaluation.

In essence, consumers' willingness of premium payment for online agricultural public brands is consumers' perception of the product's value. In the theories of the consumer decision-making process, consumers collect product information from multiple sources and combine product attributes, benefits, and values to make the final purchase decisions [2]. Thus, it is of great importance to understand the perceived value dimension of agricultural regional public brands for electronic commerce purposes. Many scholars have confirmed the theory of perceived value, which is the overall evaluation of a product by consumers, and higher perceived value will increase consumers' buying intention. In addition, different dimensions of perceived value may have different degrees of effect throughout the decision-making process, ultimately changing the outcome of consumers' decisions. Based on the above background, this study will explore the factors and mechanisms of consumers' willingness to pay premium prices for online agricultural products from the perspective of perceived value.

2 Theoretical Framework and Assumptions

2.1 The Perceived Value of Agricultural Products Regional Public Brands and Consumers' Willingness of Premium Payment

According to the theory of perceived value, consumers can effectively predict their preferences and purchase behavior with the help of product quality and performance and the overall evaluation of consumption goals. Zeithaml (1988) defines consumer-perceived value as the overall evaluation of the utility of a good or service after weighing the benefits it can perceive against the cost to obtain it [3]. Perceived value theory has developed continuously and is widely used in various academic fields of research. In that research process, consumers' perceived value and willingness to premium payment usually have an inclusive relationship. Additionally, the improvement of the corresponding dimensions will effectively influence consumers' willingness to purchase. Xie (2016) concluded that the dimensions of function and ecology behind the consumer perceived value, affect the willingness to premium payment in his study, which set ecological agricultural products as the primary research object [4]. Wei Y et al. (2020) gave perceived value a clearer research association and research factors. Based on the customer perceived value theory and the characteristics of branded agricultural products, they

proposed that the customer perceived value has five dimensions—functional, economic, emotional, social, and image value. They also proved that the different dimensions of perceived value have a significant positive impact on the purchase willingness of branded agricultural products [5]. Therefore, this paper argues that for online agricultural regional public brands, the perceived value of quality, relationship, and perceived negativity has a greater impact on the willingness of premium payment.

The perceived value of quality, which is the priority of customers during online purchases, directly reflects the specific needs of consumers in the decision-making stage. The greater perceived value of quality is more likely to affect consumers' engagement in consumption and premium payment behavior. While the increase in relationship perceived value makes consumers feel more favorable and credible about the brand, which in turn pays attention to and supports the sales of the brand products. Perceived negativity refers to consumers' negative evaluations and attitudes toward the brand. In the process of online consumer decision-making, if consumers have perceived negativity towards the brand to a certain extent, they will pay less attention to the online product, or even boycott and ruin it on the social media platform. When consumers' perceived negativity is smaller, consumers are more willing to make purchase decisions based on the maximum perceived value of purchase behavior.

According to the above, these hypotheses are as follows.

H1: For the regional public brands of agricultural products, the perceived value of quality has a positive effect on consumers' willingness of premium payment.

H2: For the regional public brands of agricultural products, the perceived value of the relationship has a positive influence on consumers' willingness of premium payment.

H3: For the regional public brands of agricultural products, perceived negativity has a negative effect on consumers' willingness of premium payment.

2.2 The Perceived Value of Traceability of Regional Public Brands and Quality

Agricultural products are the source of human food, and the quality of agricultural products is the key factor in measuring them. Consumers' perceived value of the quality of agricultural products includes requirements for quality, as well as nutrition and health. Many scholars have earlier studied the factors affecting consumers' perceptions, willingness to pay, and purchase behavior of quality edible agricultural products by analyzing demographic indicators, as well as price indicators of them. Buzby et al. (1995) found that consumers were willing to pay an average of \$0.19 to \$0.69 more per pound for grapes with reduced pesticide [6]. Umberger and Feuz's research found that about 73% of respondents were willing to pay 11% to 24% additional price for branded beef with origin information [7]. Consumers' concerns about the quality and safety of beef, information about the origin of branded beef, freshness, as well as meat quality assurance, and the process of raising beef cattle are the key factors influencing their consumption preferences.

Therefore, the food traceability system is an important part of the food quality and safety regulatory mechanism, because it has a special function in alleviating information asymmetry in the online food market. Traceability of agricultural products means the ability that can quickly and effectively inquire about the raw materials or processing stages that are problematic, and recall products if necessary to improve the quality and

safety of agricultural products. Many scholars have identified the impact of traceability on the perceived value of quality and willingness to pay a premium. Onken et al. took strawberries as an example and selected attributes such as origin, production mode, and purchase place to study consumers' willingness to pay for them. The results showed that consumers were willing to pay a premium for attributes where strawberries were purchased from farmers' markets [8]. Wang et al. (2021) concluded that consumers tracing the production and transportation process of agricultural products, such as by scanning product codes, has a positive impact on consumers' perceived quality of online agricultural products and can enhance consumers' buying intention [9]. Perceived quality refers to consumers' evaluation of product quality through a comprehensive analysis of the basic information about the product. Therefore, the traceability of agricultural products and perceived quality must be indivisible.

Based on this, the research hypothesis is as follows.

H4: For the regional public brands of agricultural products, traceability has a positive effect on the perceived value of quality.

2.3 The Perceived Value of Regional Public Brand Experiential Services and Relationship

The emergence of relationship value perspective is an important development in the study of perceived value theory, which combines image, commitment to online consumers, and trustworthiness represented by the brand of a product or service that can influence its relationship with customers. Gronroos (1977) believed that customers' perceived value not only comes from products themselves but also from the overall relationship between them. The value of customers come not only from the core products but also from the services that maintain the customer relationship. Scholars believe that good and continuous customer relationships can create value [10]. Besides, service means additional service, such as after-sales, buy-back, and upgrade services for agricultural products. Dwivedi et al. (2018) argued that consumers were willing to maintain a good relationship with their aiming brands due to positive experience with that brand and were less sensitive to its price. Thus, they were more likely to pay a higher price [11]. Much of this positive experience comes from service brands, especially in the post-pandemic era, where they have reconstructed new symbolic values to stimulate consumers' own experiences over the social media platform. Jimenez et al. (2022) thought the coolness of service brands could strengthen customers' loyalty and offer the value of online physical and social experiences [12]. Scholars above agree that high experiential service can maintain a good relationship with online consumers and increase the perceived value of the relationship. Therefore, this paper argues that consumers' perceived value of experiential service will have an impact on the perceived value of the relationship.

Based on this, the hypothesis is as follows.

H5: For the regional public brands of agricultural products, experiential service has a positive effect on the perceived value of the relationship.

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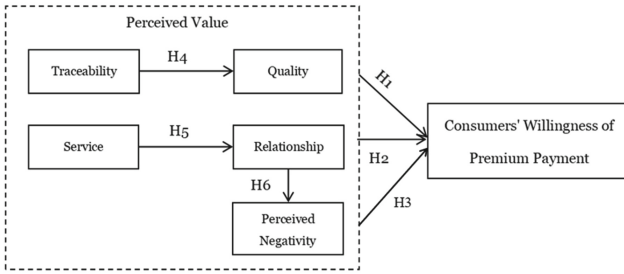


Fig. 1. Research model

2.4 The Perceived Value of Regional Public Brand Relationships and Perceived Negativity

Perceived negativity means the negative evaluation and attitude of consumers toward brands. He Liu et al. proposed the concept of perceived negativity based on the occurrence of negative news released on the internet about the brand [13]. When the perceived negativity of consumers is smaller, the perceived value is maximum, and consumers are more willing to purchase. According to Lapierre, consumer perceived value is the subjective perception of consumers with specific needs or intentions about the value of products or services provided by the company [14]. Therefore, consumers usually have some subjectivity or even perceived negativity, which may have different degrees of influence throughout the online decision-making process and eventually change the outcome of consumers' decisions. Scholars also express perceived negativity by using consumers' risk perception. Delistavrou et al. (2023) argue that people's risk perception of climate change is increasing, because of global warming, which is a serious problem now. Their willingness to purchase cosmetics which are not environmentally friendly is decreasing [15]. Therefore, consumers' perceived negativity is increasing and their willingness of premium payments is decreasing.

Based on this, the hypothesis is as follows. As Fig. 1 shown.

H6: For the regional public brands of agricultural products, the relationship has a negative effect on perceived negativity.

3 Study Design

3.1 Sample and Data Collection

The questionnaire included pre-screening questions asking respondents if they had experience buying online agricultural products. We only interviewed individuals with knowledge and experience in online shopping and asked them questions related to agricultural products of e-commerce. The research uses the "Wenjuanxing" platform to collect data and carries out push through WeChat group forwarding and link sharing in moments. A total of 288 questionnaires were received from the December 2022 to January 2023. After eliminating unqualified questionnaires with missing values or wrong answers, 260

valid questionnaires were obtained. Males accounted for 30.0% and females for 70.0%. In terms of age, most interviewees are between 20 and 40 years old. In terms of education level, the proportion of individuals with college and bachelor's degrees is the largest. From the perspective of monthly income level, the number of people in the RMB 5,000 to RMB 17,000 range exceeds 50%. Based on the survey, 67.3% of consumers said they cared about the brand of online agricultural products, and most of them knew and bought the regional public brand of agricultural products online. Price, brand, quality, traceability and service are the most important factors that consumers care about when shopping online agricultural products.

3.2 Variable Measurement

This paper adopted authoritative measurement scales, and adjusted measurement items to adapt to our research. To measure customer perceived value of regional agricultural products, we employ the scale in Lapierre's research [14]. He measured the customer perceived value scale from the five dimensions of quality perceived value, relationship perceived value, and perceived negativity. Furthermore, we condensed the original measurement items and there are 25 items in total. A review of previous studies found that differences in gender, age, education, and monthly income all had significant effects on individuals' impulse purchase intentions. Therefore, this study took the gender, age, education level, and monthly income level of the respondents as control variables. For each item, the Likert 5-point scale (1 = strongly disagree, 5 = strongly agree) was used.

4 Results and Discussion

In this paper, we use SPSS26.0 and Amos26.0 for statistical analysis of the research data.

4.1 Model Test

In this study, we use SPSS 26.0 to test the reliability of the scales. The Cronbach's alpha and CR values for all variables are above the critical value of 0.7, indicating good reliability of the scales used in this study. We conduct a confirmatory factor analysis using Amos 26.0 to test for convergent validity through mean variance extraction (AVE) and factor loading. The results show that the AVE values for all constructs range from 0.631 to 0.812, which exceed the acceptable level of 0.5, and that the factor loadings for all items exceed the threshold of 0.7. Therefore, the internal quality of the model is good.

Secondly, confirmatory factor analysis shows that the CMIN/DF value is 2.316, which is between 1 and 3 and meets the criteria. The RMSEA value is 0.071, which is less than 0.08. The SRMR value is 0.050, which is less than 0.08. The CFI, TLI and IFI values are 0.923, 0.910 and 0.924 respectively, which are higher than 0.9. Therefore, it can be judged that there exists a good discriminant validity between the variables and the model fits well.

4.2 Hypothesis Test

1) The influence of perceived value on the willingness of premium payment.

In this study, quality perceived value, relationship perceived value, and perceived negativity were sequentially used as independent variables and premium willingness to pay was the dependent variable in the structural equation model. As shown in Fig. 1, the coefficient of quality perceived value was found to be 0.528 (p less than 0.001) indicating that quality perceived value has a significant positive influence on consumers' premium willingness to pay, H1 is supported. And, the coefficient of relationship perceived value was found to be 0.217 (p less than 0.001), suggesting that relationship perceived value has a significant positive impact on consumers' willingness to pay a premium. H2 is supported. However, the coefficient of perceived negativity is -0.05 (p greater than 0.05), indicating that perceived negativity does not have a significant negative effect on consumers' willingness of premium payment, and H3 is not supported.

2) The influence of the perceived value of traceability on the perceived value of quality.

Put the perceived value of traceability into the regression model as the independent variable and the impulse perceived value of quality as the dependent variable. It is found that the coefficient of traceability is 0.938 (p less than 0.001), indicating that the perceived value of traceability has a significant positive influence on the perceived value of quality of regional public brands, H4 is supported.

3) The influence of the perceived value of service on the perceived value of the relationship.

In the regression model, with service perceived value as the independent variable and relationship perceived value as the dependent variable, it is found that the service coefficient is 0.866 (p less than 0.001), indicating that service perceived value has a significant positive influence on the relationship perceived value of regional public brands, H5 is supported.

4) The influence of relationship perceived value on perceived negativity.

Put relationship perceived value into the regression model as the independent variable and perceived negativity as the dependent variable. As shown in Fig. 2, the service coefficient is -0.458 (p less than 0.001), indicating that relationship perceived value has a significant negative influence on the perceived negativity of regional public brands, H6 is supported.

4.3 Discussion

Compared to other studies, this study focuses on agricultural e-commerce products and divides the dimensions of perceived value through literature research of regional public brand. And then the research analyzes the relationship between perceived value and premium payment willingness of customers through questionnaire survey, data analysis. This paper mainly draws the following research results:

According to the descriptive statistical results of the online consumption of public brand agricultural products in consumer areas, consumers pay much attention to the brand of agricultural products, and pay more attention to negative image, traceability, quality, brand and price in turn.

The Regional Public Brand of Agricultural Products

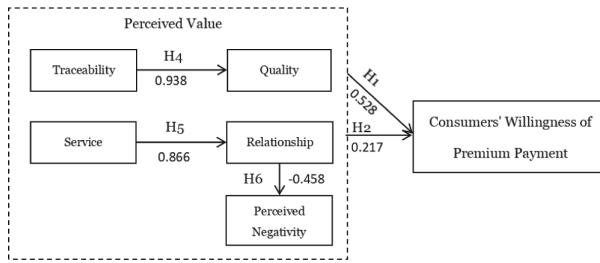


Fig. 2. Research model

Quality perceived value and relationship perceived value are positively correlated with premium payment intention. Among them, the perceived value of quality has the greatest influence on the willingness to pay premium. As an obvious manifestation of value, quality has the greatest impact on consumers' shopping decisions. Therefore, perceived value of quality has the greatest impact on the willingness to pay premium. Traceability positively affects perceived quality value. Service perceived value positively influences relationship perceived value. Relationship perceived value has a significant negative effect on perceived negativity. But perceived negativity has no significant negative effect on premium payment willingness. This study believes that the reason for the insignificance is that the regional public brand belongs to the national certified brand, which has certain popularity and credibility. Consumers are more willing to trust regional public brand agricultural products recognized by national professional institutions. However, the significance of perceived negativity in validity analysis still reflects consumers' concerns about regional public brands.

5 Conclusion

The main purpose of this study is to explore the influence of perceived value on consumers' willingness to pay premium for online agricultural products with regional public brands. In this paper, 260 valid data were collected by questionnaire survey, and models were established by SPSS and AMOS to verify some hypotheses and draw conclusions.

Consumers pay much attention to the brand of agricultural products. The quality perceived value and relationship perceived value have a significant positive impact on premium willingness to pay. The perceived value of traceability positively affects quality. The perceived value of service positively affects relationship. Relationship perceived value has a significant positive impact on perceived negativity, but perceived negativity does not have a significant negative impact on premium willingness to pay.

For regional public brand agricultural products, online business should maintain communication with consumers, so as to establish emotional ties between customers and brand agricultural products. For example, make full use of the Internet, communicate with customers directly, and pay timely attention to consumers' emotional feedback and demand for agricultural products. The enterprises need to strengthen the quality control of regional public brand agricultural products, especially emphasizing the principle of

traceability, and improve consumers' understanding and trust of quality and traceability from various aspects.

Meanwhile, this paper still needs to clarify the existing limitations. The sample for this study is mainly distributed through an online survey questionnaire. Future research could expand the scope of the survey and collect more comprehensive consumer data to improve the external validity of the results.

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