



# Study on Buying Intention of Organic Vegetables under Perceived Risk

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**Abstract.** In recent years, the issue of vegetable quality and safety has become the focus of our government and people. In March 2012, the Ministry of Agriculture proposed to further strengthen the quality and safety supervision of agricultural products and improve the level of food safety. With the steady growth of food products in our country, people pay more attention to the quality and safety of agricultural products. The demand for organic vegetables is gradually increasing, and perceived risk and lack of trust are considered to be the main factors affecting the purchase of organic vegetables. In this paper, a questionnaire of consumers' willingness to buy organic vegetables was compiled. The structural equation model was used to analyze the effects of variables such as trust, perceived risk and perceived benefit on consumers' purchase of organic vegetables.

**Keywords:** organic vegetable, food safety, perceived risk, trust

## 1 Introduction

With the continuous development of economy in our country, people are more and more focused on food quality and safety. Organic vegetables refer to vegetable products that do not use chemical fertilizers, chemical pesticides and genetically engineered organisms in the planting process, but follow the laws of nature and ecological principles, and have been certified by organic food certification bodies and issued organic food certificates. However, food safety incidents in recent years have brought serious threats to people's health. Many businesses use ordinary vegetables to sell as organic vegetables, arbitrarily change the label date, and put expired organic vegetables on the shelf to improve quality and safety, resulting in a lack of trust in the purchase of organic vegetables by consumers. When consumers perceive the risk, they will have an impact on the purchase intention of organic vegetables.

## 2 Research Content and Method

### 2.1 Research Hypothesis

#### 2.1.1 Perceived Risk and Trust.

The certification of organic vegetables can be done with money, and when consumers are aware of these problems, it will lead to a higher perceived risk of consumers and reduce their trust in them. Xu Xiaopeng and Liu Ying (2024)<sup>[2]</sup> construct a rational behavior model to study the purchase intention from the perspective of consumer perception. Zhang Qiyao, Li Na. (2022)<sup>[4]</sup> Analyzing consumers' purchase intention for organic product brands. Accordingly, this paper proposes the following hypothesis:

H1: Perceived risk of organic vegetables has a negative effect on trust.

H1a: Economic risk has a negative effect on trust.

H1b: Functional risk has a negative impact on trust.

H1c: Time risk has a negative effect on trust.

H1d: Psychological risk has a negative effect on trust.

H1e: Physical risk has a negative effect on purchase intention.

#### 2.1.2 Trust and Purchase Intention.

Trust is thought to be an important factor affecting behavior, especially in virtual worlds that rely solely on the Internet to connect to each other. Because consumers are not able to feel and examine the goods they are interested in as much as in a physical store, they face more uncertainty, so trust is more important for online purchasing behavior than in physical stores. Yuan Xiaohui (2021)<sup>[1]</sup> proposed that trust is an important factor in determining consumer behavior. The research shows that trust is positively related to purchase intention, the former has a positive impact on the latter, and has a positive effect on the occurrence of purchase behavior. For Internet financial products, fresh agricultural products, online tourism products, etc., the results show that trust promotes purchase intention. Accordingly, this paper proposes the following hypothesis:

H2: Trust has a positive effect on organic vegetables.

### 2.2 Theoretical Model

Based on the summary of previous studies, for example, Chen Xingye (2022)<sup>[5]</sup> analyzed the perceived risk of online shopping of fresh agricultural products, combined with the characteristics of organic vegetables, proposed research hypotheses, and built a model of the impact of perceived risk and trust on the purchase intention of organic vegetables. The perceived risk of organic vegetables was described through five dimensions: economic risk, functional risk, time risk, physical risk and psychological risk. The research model is shown in Fig. 1.

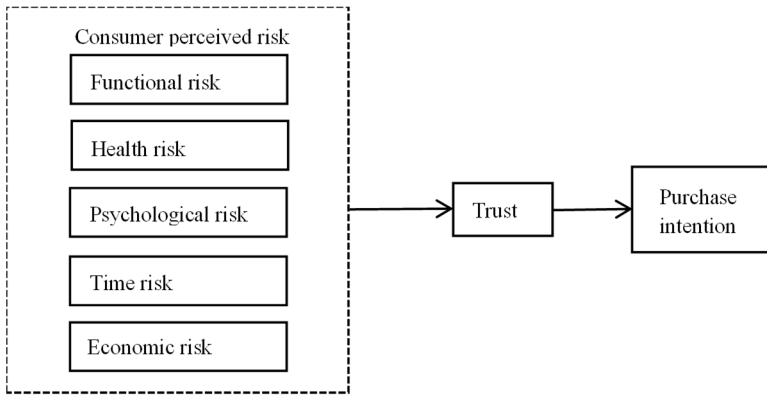


Fig. 1. Purchase intention model of organic vegetables under perceived risk

### 2.3 Questionnaire Design and Data Collection

In order to ensure the reliability and effectiveness of the scale, the variable measurements of this research model are all derived from existing literatures. Ye Naiyi (2014) was used for reference in perceived risk, with a total of 17 items. Trust learning from Ana Paula Gasques Meira(2024)<sup>[8]</sup>; Grachavea R.G (2021)<sup>[9]</sup>; The scale of Lin Jiabao(2015)<sup>[6]</sup> et al. contains 3 items; Purchase intention refer to the scale of Zhao Xiaofei (2016); Li Qi (2020)<sup>[7]</sup>, which contains 3 items. The questionnaire is divided into four parts: the first part is basic information, the second part is the measurement of perceived risk, the third part is the measurement of trust, and the last part is the measurement of purchase intention.

The survey began in March 2024, and the formal survey questionnaires were distributed online. On the basis of the online retransmission in wechat moments, a questionnaire survey was added to the wechat group of some customers in organic vegetable direct stores. A total of 300 questionnaires were distributed, with a recovery rate of 96.3%. After 43 invalid questionnaires were excluded, 294 valid questionnaires were obtained, with an effective questionnaire rate of 84%. The data on the factors influencing the purchase intention of organic vegetable consumers were obtained for follow-up analysis.

## 3 Data Analysis and Research Results

### 3.1 Descriptive Statistical Analysis

Among the 300 samples in this survey, 49% are female and 51% are male. The age distribution is mainly between 21 and 40 years old. In terms of education level, the proportion of bachelor's degree is the highest, reaching 39%. The distribution of the wage level of the research object is mainly concentrated in 2001-6000 yuan; As for the online shopping behavior of the respondents, 44% of the respondents buy online 3-5 times per month on average, and 29% of the respondents buy online 5-10 times per

month on average. In terms of buying organic vegetables, 30% of the respondents rarely choose organic vegetables, and 10% of the respondents often buy vegetables.

### 3.2 Reliability Analysis

After the operation and calculation of SPSS, the Cronbach ' $\alpha$ ' of the three scales is  $0.967 > 0.8$ , indicating good reliability. The Cronbach's  $\alpha$  coefficients of economic risk, functional risk, health risk, psychological risk and time risk in the perceived risk scale were 0.942, 0.871, 0.834, 0.827 and 0.868, respectively, indicating good perceived risk reliability. The Cronbach's  $\alpha$  coefficient of the consumer trust scale is 0.893, indicating good reliability. Cronbach's  $\alpha$  coefficients of purchase intention scale are all greater than 0.8, indicating that the reliability of these three scales is very good. Therefore, based on the above data, the reliability of the scale in this study meets the requirements.

### 3.3 Validity Analysis

As shown in Table 1, the standardized factor loads of the five dimensions of perceived risk are all greater than 0.5, most of them are greater than 0.7, the combined reliability CR value is greater than 0.8, and the average variance extracted from the five dimensions is also greater than 0.5. In addition, the standardized factor loads of the intermediary variables consumer trust and online shopping intention scale are all greater than 0.5, and the combined reliability value CR and the average variance withdrawal value AVE also meet the research requirements. Therefore, the scale in this study has good convergence validity.

**Table 1.** Validity analysis

Dimension	subject	Standardized factor load	AVE	CR
economic risk	ER1	0.779	0.877	0.955
	ER2	0.999		
	ER3	0.997		
functional risk	FR1	0.784	0.63	0.872
	FR2	0.793		
	FR3	0.777		
	FR4	0.819		
health risk	HR1	0.769	0.624	0.833
	HR2	0.79		
	HR3	0.811		
psychological risk	PR1	0.765	0.617	0.829
	PR2	0.787		
	PR3	0.804		
time risk	TR1	0.791	0.622	0.828
	TR2	0.787		
	TR3	0.799		

	TR4	0.777		
	T1	0.977		
trust	T2	0.795	0.748	0.898
	T3	0.81		
	PI1	0.829		
purchase intention	PI2	0.798	0.64	0.842
	PI3	0.772		

### 3.4 Structural Equation Model Research

Structural equation model goodness of fit index. As shown in Table 2, the structural equation goodness of fit index RMSEA was  $<0.08$ , and the normative fitting index (NFI), comparative fitting index (CFI), value-added fitting index (IFI), goodness of fit index (GFI) and adjusted fitting goodness index (AGFI) were all greater than 0.90, indicating that the goodness of fit of the model was good.

**Table 2.** Fitting indexes of structural equation model

Index	$X^2/df$	NFI	CFI	IFI	GFI	AGFI	RMSEA
Judgment value	2.12	0.96	0.96	0.97	0.97	0.91	0.071

The standardized path coefficient and significance test results of the research model are shown in Table 3, and the results of the path coefficient significance test pass C.R. Values and P-values are displayed as a result. C.R. represents the critical ratio, and when the absolute value of C.R. is greater than 1.96, the significance level of 0.05 is reached. By observing the path coefficients among the variables, it can be seen that economic risk, functional risk, health risk, psychological risk and time risk all negatively affect consumer trust. Thus, hypothesis H1, H1a, H1b, H1c, H1d, H1e can be verified. The standardized path coefficient of "online shopping intention  $\leftarrow$  trust" is 0.742, and  $P < 0.001$ , indicating that consumer trust has a positive impact on the online shopping intention of fresh fruits and vegetables. Hypothesis H2 is valid.

**Table 3.** Path coefficient estimation results

path	Estimate	S.E.	C.R.	P
"Trust $\leftarrow$ Economic risk"	-0.224	0.084	-3.12	***
"Trust $\leftarrow$ Functional risk"	0.183	0.088	-3.39	***
"Trust $\leftarrow$ Health risk"	-0.212	0.082	-2.14	*
"Trust $\leftarrow$ Psychological risk"	-0.22	0.079	-2.12	*
"Trust $\leftarrow$ Time risk"	-0.216	0.69	-3.09	**
"Purchase $\leftarrow$ Trust"	0.742	0.085	9.852	***

## 4 Conclusions and Suggestions

### 4.1 Conclusion

Because organic vegetables are not easy to store and transport, have a short shelf life, are perishable, and people pay attention to food safety issues, consumers are usually more cautious when buying. Whether organic vegetables will deteriorate due to long transportation time, whether they have been certified by the authority and other issues, to a certain extent, hinder consumers from choosing to buy organic vegetables, resulting in a sense of rejection of organic vegetables in the heart of consumers, and it is difficult to establish trust, resulting in consumers' purchase willingness to reduce.

### 4.2 Suggestion

Based on the research conclusions, in order to improve consumers' willingness to buy fresh agricultural products online, the following suggestions are put forward:

First, organic vegetable safety certification. For consumers with high level of health awareness, food safety issues have been paid more and more attention. When purchasing agricultural products on the e-commerce platform, the quality and safety of agricultural products cannot be judged by conventional means such as looking and touching, which leads to higher perceived risks, resulting in the reduction of consumers' purchase intention. Therefore, the safety certification from the authority becomes particularly important, which can effectively improve the level of consumer trust.

Second, we will improve logistics services. If the seller can not deliver the product to the consumer in a timely and accurate manner, it will suffer losses. Organic itself has higher requirements for logistics services, ensuring the timeliness of product distribution, ensuring that consumers can receive the freshest products, and improving consumer satisfaction.

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