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Food quality information cognition and public purchase decisions: research from China

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RESEARCH ARTICLE

Abstract

The quality information of food is provided to the public through relevant standards, which affect consumers' consumption preferences and purchase decisions. The purchase decisions of consumers affect the management decision of food enterprises and the regulation strategy of governments. Many standards exist in the food industry, but an adequate supply of information does not equate to an adequate demand for information. This study examined the literature and used the unified theory of acceptance and use of technology and the technology acceptance model to analyse the public's behaviour towards food quality standard information through structural equation modelling. Through investigations in China, this study discussed the key influencing factors of the public's cognition of food quality standard information and its influence on purchase decisions. We revealed that consumers' reliance on food quality standard information and their satisfaction with it was not high. In addition, their use of such information was markedly low. This paper proposes policy suggestions from the perspective of information demand and explores methods for reducing information asymmetry in the food industry.

Keywords: food safety, food quality information, standardisation, public cognition, public purchase decisions

1. Introduction

Food is the material basis for human survival and development. Food safety is a public health concern. Food safety is a global concern. In China. The overall food safety situation is basically good, but the situation is still grim. Under such a severe food safety situation, no matter governments at all levels, media or consumers, the emphasis on food safety has returned to the root, and the fear of poisonous and harmful food has reached an unbearable level. And we have also found a fundamental way to solve the problem of food safety to one by one legislation. Through the law forced prohibition, it undoubtedly let the whole society see the hope of a healthy life. However, from 'see' to 'achieve', there still need all aspects of society to work together. Food safety is a public undertaking, which is closely related to public safety and directly affects and determines public demand. Therefore, the whole society should attach great importance to it. The root of food safety problem is adverse selection and moral hazard caused by asymmetric information in food market. In recent years, the exploration of solving food safety problems from the perspective of information asymmetry has been kept at a high level.

In quality management, quality is a set of inherent characteristics that meet certain requirements. Therefore, food quality can be defined as a set of inherent characteristics of food that meet particular requirements. In general, food quality requirements include explicit demand, which is the requirement expressed explicitly in food quality standards, laws, and regulations, and implicit demand, which meets 'hidden' consumer expectations. For example, food must be safe so that it does not cause harm to the human body. In terms of priority, from high to low, these requirements can be divided into safety, nutritional, and economic requirements. The definition of a 'standard' is 'to get the best order in a certain scope, formulated and approved by recognised agencies, on the basis of common use and reuse of regulatory documents'.

Food standards are the minimum requirements for the quality of food that can be purchased by the public. Food quality standard information is the information provided to the public regarding these standards.

According to government documents, as of May 2018, there are 2,453 food safety standards in China, including 269 national standards and 867 national standard plans that are being revised. The content covers general standards and those related to food products, special dietary foods, food additives, quality specifications, food nutrition fortifier quality specifications, food-related products, production and operation specifications, physical and chemical inspection methods, microbial testing methods, toxicological testing methods, veterinary drug residue detection methods, and detection methods for pesticide residue (12 aspects in total). These numerous quality standards constitute a substantial system in which the quality monitoring of all food types can be incorporated into a comprehensive network. The system is designed to ensure that the quality of food in the market meets certain standards. Food enterprises should provide labels on the packaging of their products, and product standard codes should be indicated. This has been implemented in a legislative form. In other words, when the public purchases food, food-related standards should be visible on labels. However, the adequate supply of food quality standards does not mean a sufficient demand, nor does it mean that food quality information can be fully comprehended by the public.

Scholars at home and abroad have long reached a consensus that the root cause of food safety problems is the information asymmetry in the food market. How to reduce information asymmetry? Most of the existing research points to the construction of traceability system. This study based on the perspective of information asymmetry, research the public's adoption of food safety information. Through mastering the public's adoption first-hand information, we can find the demand factors influencing the adoption of food safety information and improve consumers' willingness to promote the adoption of actual behaviour. It is helpful to draw a silk from a cocoon, show the essence of food safety problems more clearly, and make meaningful exploration from the perspective of economics and management. Through this study, it can also improve the level of food safety, improve the market competitiveness of food enterprises, promote the development of food industry and promote economic transformation.

2. Materials and methods

Literature review

As food safety research has been growing, we have gradually come to realise that having 'zero risks' in food safety is not realistic, but risk factors can be controlled within an acceptable range. By prioritising safety, both the economy and health of the public can be protected efficiently.

A considerable body of research has shown that food is a type of an 'experience good' and a 'trust-based products'; severe information asymmetry exists in the market. Information asymmetry can lead to a collapsed market, as defined by Akerlof (1970). Product quality information is vital for achieving market equilibrium. We consider that quality certification labels on food packaging and standard codes are the most basic forms of communication about food safety between food enterprises and the public. They can effectively reduce the uncertainty of the public (Brody, 1999; Urbany *et al.*, 1988). According to the food labelling laws and regulations and quality standards, the information on the outer packing mainly includes basic information and information on the production process, food nutrition, and food certifications. If this information is accurate, can be effectively understood by the public, and can guide their purchase decisions, enterprises that provide high-quality food will gain a competitive advantage. The behaviour of the public has become a legal requirement for enterprises to disclose quality standard information. However, Chen and Huang (2010) argued that based on the theory of adverse selection, such as when consumers do not realise that certain product attributes are related to the quality of a product, companies may overdisclose information, making it difficult for the public to make effective use of food quality standard information. Therefore, a key issue in food safety risk management is how to make the public better comprehend food safety information. Food safety information is technical by nature. In terms of information exchange between the food industry and public, the credibility, scientific objectivity, and impartiality of this information must be ensured, and it must be available at the lowest cost and in a form that is easy to comprehend by the public. From an economic perspective, the optimal information search volume should ensure that the marginal revenue generated by the information search is equal to the marginal cost of the information search (Lee and Wilde, 1980; Mayr and Meyer, 1982).

Moorthy *et al.* (1997) proposed the comprehensive public information search behaviour theory to identify how information search behaviour influences certain factors and determine how these factors influence each other. In their study, survey data were used to prove that information search activities and experiences have an inverted u-shaped relationship. By conducting consumer research in Beijing,

Quan and Yinchu (2013) analysed the level of consumer food safety information; on the basis of a demand-side analysis, they concluded that food standards and quality information are limited and does not meet the demands of consumers. However, they did not clearly specify these limitations and their influencing factors.

Changping (2008) stated that in information services, information is the human behaviour that dominates a particular demand for information under the external stimulating roles of information access, query, communication, transmission, absorption, processing, and behaviour. The public's search for food quality standard information and their adoption behaviour is similar to the technology acceptance behaviour; for this reason, we referred to the predictors of the technology acceptance model (TAM). TAM, based on social psychology and behavioural science, studies the individual and organisational behaviours of technology in the process of adoption from the perspective of users, so as to provide a basis for the development, promotion and adoption of 'technology'. 'Adoption behaviour theory' is the most significant and influential field in the whole technology adoption theory, and has formed a large number of theoretical models.

The unified theory of acceptance and use of technology (UTAUT) model was developed on the basis of the adoption model. Venkatesh *et al.* (2003) explored the issue of 'user cognitive factors' and proposed the comprehensive model of technology acceptance and utilisation (UTAUT). UTAUT integrates the theory of rational behaviour, theory planned behaviour, motivation model and other relevant variables and influence factors. On this basis, formed the five factors influencing the adoption intention and adoption behaviour: 'public performance expectations' (PPE), 'ease of use expectation' (EUE), 'social influence' (SI), 'risk cognition' (RC) and 'promotion regulation' (PR). Currently, the public's perception of food quality standard information has not been fully investigated. Sears *et al.* (1986) together with Venkatesh *et al.*, (2003) believe that 'behavioural intention' reflects an individual's willingness to engage in a certain behaviour. That is, the subjective possibility of engaging in a certain behaviour, and it is the best indicator of predicted behaviour. In fact, there are many factors influencing behavioural intention. According to Fishbein and Azjen's (1975) 'rational behaviour theory', the most important factor is the 'goal relevance'. That is, the closer the behaviour is to the important goal the user wants to achieve, the more likely the behaviour will happen. According to the ternary attitude structure, attitudes and values also have significant influence on users' behavioural intention. In this study, cognitive factors and emotional factors are integrated into other influencing factors, and behavioural intention is only regarded as 'behavioural tendency', which is measured by questionnaire. Therefore, this study examined the food quality standard information adoption behaviour of the public. On the basis of information economics theory and using TAM and UTAUT, we conducted a confirmatory factor analysis and structural equation modelling to explore the relationship among different influencing factors in order to obtain information regarding the public's adoption behaviour of food quality standards and the influence of the food market to overcome information asymmetry. A demand-side analysis was conducted to provide a reference for regulators in order to improve the public's adoption of food quality standard information.

Research model and hypotheses

The predictors have improved explanatory ability, and the explanatory ability of the information adoption behaviour reached 70%. In this study, the UTAUT was selected to analyse the public's behaviour in searching for and adopting food quality standard information and to identify predictors of such behaviour. Variables and sources are shown in Table 1.

Table 1. Influencing factors and literature sources.

Variable name	Variable concept	Sources of influencing factors
Performance expectation	The extent to which subjects feel that the use of information improves performance and yields significant benefits	Davis *et al.,* 1989; Ellis *et al.,* 1992; Compeau *et al.*, 1999; Moore and Benbasat, 1991; Thompson *et al.*, 1991
Ease of use expectation	The ease of use and adoption of information	Davis *et al.*, 1989; Moore and Benbasat, 1991; Thompson *et al.*, 1991
Social impact	The degree to which you are affected by your surroundings	Ajzen, 1991; Davis *et al.*, 1989; Fishbein and Azjen, 1975; Mathieson, 1991; Moore and Benbasat, 1991; Thompson *et al.*, 1991
Risk cognition	Loss to users that may arise from the user's subjectively determined information adoption behaviour	Jacoby and Kaplan, 1972; Peter and Tarpey, 1975
Promotion regulation	The subject subjectively considers the degree to which the currently available relevant conditions support the adoption and use behaviours	Ajzen, 1991; Moore and Benbasat, 1991; Thompson *et al.*, 1991

In this study, the model contains seven factors, namely PPE for food quality standard information, EUE, SI, RC, PR behavioural intention and actual behaviour.

PPE refers to the public's expectation that food quality standard information is useful and that it is beneficial to purchase quality food by adopting this information. Venkatesh *et al.* (2003) believe that the following elements can explain the expectation of performance: perceived usefulness, extrinsic motivation and outcome expectations.

EUE refers to the degree of difficulty in obtaining, understanding, and using food quality standard information. Venkatesh *et al.* (2003) thought that EUE can be explained in three ways: 'perceived ease of use', 'complexity' and 'ease of use'.

SI refers to the extent to which the public adopts food quality standard information and is often influenced by relevant groups and cultures.

RC refers to the expectation of potential losses incurred by the adoption of quality standard information at the subjective level of the public.

PR refers to the level of knowledge and skills of the public and the support and assistance of specific institutions or personnel. When the public carries out the information adoption behaviour, they are worried that their purpose cannot be achieved. Uncertain factors make the adoption of public information on food quality standards a risk undertaking. Stone and Winter (1987) define risk as a subjectively determined expectation of loss. The greater the likelihood of loss, the greater the perceived risk to the individual. Dowling and Staelin (1994) defined risk perception as: perceived uncertainty or adverse and harmful outcomes. Jacoby and Kaplan further defined risk perception as six risk dimensions, namely psychological risk, financial risk, functional risk, physical risk and social risk. Later, Peter and Tarpey (1975) proposed another new dimension in financial risk, performance risk, psychological risk, physical risk, social risk and risk cognition – time risk. Venkatesh *et al.*, (2003) defined risk perception as: performance risk, time risk and promotion conditions. Performance risk refers to the risk that the adopted information cannot give full play to its full function or the user's expected effectiveness, thus affecting the user's work performance and causing losses. Time risk refers to the loss of users' time and energy caused by inefficient or complete failure of the information product or service adopted and used, which will generate opportunity cost accordingly. Promotion conditions refers to the level of knowledge and skills of the public, the support and assistance of specific institutions or personnel, etc.

As presented in Figure 1, we assumed that there are five predictors (PPE, EUE, SI, RC and PR) that have an influence on behavioural intention and that behavioural intention has an influence on actual behaviour. A structural equation model was built to verify this hypothesis.

Therefore, we propose the following six hypotheses:

- H1: PPE affects the public's behavioural intentions, and they are positively correlated.
- H2: EUE affects the public's behavioural intentions, and they are positively correlated.
- H3: SI affects the public's behavioural intentions, and they are positively correlated.
- H4: RC affects the public's behavioural intentions, and they are negatively correlated.
- H5: PR affects the public's behavioural intentions, and they are positively correlated.
- H6: Public behavioural intentions affect actual behaviour in terms of information adoption, and they are positively correlated.

Methodology

Data were collected through questionnaires. We adopted a stratified sampling method to survey consumers of all ages and cultures in Zhejiang Province, China. The questionnaire was divided into two parts: (1) the basic characteristics of respondents, including gender, age, and cultural level; and (2) evaluation of six predictors. In Applied Multivariate Statistics for the Social Sciences, Stevens pointed out that an average factor requires 15 samples. Bentler and Chou (1987) argue that, on average, an estimated parameter requires five samples, but the premise is that the data quality should be high. In the structural equation model of this study, for a total of 7 factors and 21 parameters, 105 samples are required. After conducting a Monte Carlo simulation, Willerman *et al.* (1992) revealed that approximately 100 samples were needed for a four-factor model, indicating that the structural equation model of this study would require approximately 175 samples. Because a small sample size

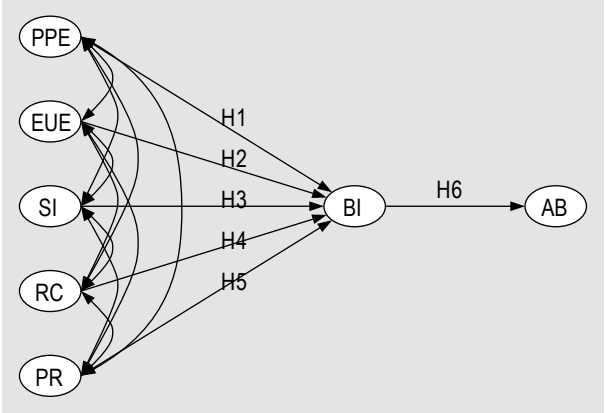

Figure 1. Model framework and assumptions.

can easily lead to failure in model convergence and affect parameter estimation, and considering that data quality could be low or polluted, we handed out 300 questionnaires and recycled 227 questionnaires. There were 182 valid questionnaires, with a recovery rate of 75.67% and an effectiveness rate of 60.67%. Statistics of basic information of questionnaire respondents are shown in Table 2. Results of descriptive statistical survey are shown in Figure 2.

Data analysis and findings

Our adapted degree of the measurement model was applied to conduct the inspection, and the indices applied were the adaptation index (goodness of fit index; GFI), which in turn became the adjustment adaptation index (adjusted goodness of fit index; AGFI), the specification adaptation index (normed fit index; NFI), the fitting index (comparative fit index; CFI), the root mean square error of approximation (RMSEA), and *P*-value. As is shown in Table 3, the proposed model shows that CMIN/DF is 1.970, which is less than 5 (Kettinger and Lee, 2010). The GFI and AGFI scores were

Table 2. Basic information statistics.

Characteristic	Sample composition
Gender	
Male	82 (45.05%)
Female	100 (54.95%)
Age	
<25	68 (37.36%)
26-35	50 (27.47%)
36-45	42 (23.08%)
46-55	20 (10.99%)
>55	2 (1.1%)
Educational level	
Bachelor	50 (27.47%)
Master	69 (37.91%)
Master degree above	4 (2.2%)
Other	59 (32.42%)

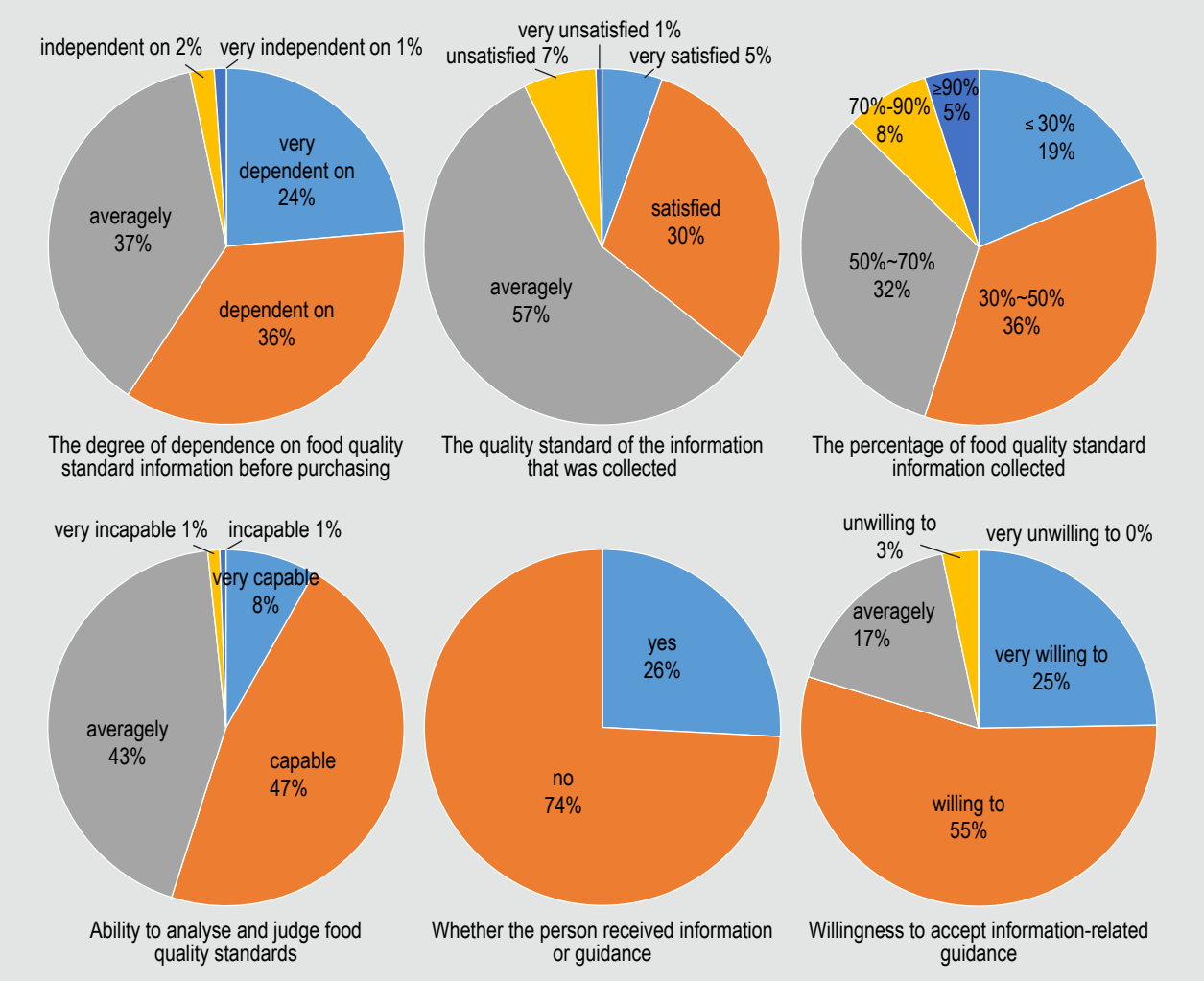

Figure 2. Basic information statistics.

Table 3. Relevant parameters for the degree of model adaptation.[1]

Model	GFI	AGFI	NFI Delta1	CFI	CMIN/DF	RMSEA	*P*-value
Default model	0.858	0.810	0.882	0.937	1.970	0.072	0.001
Independence model	0.171	0.089	0.000	0.000	13.760	0.261	0.000

[1] AGFI = adjusted goodness of fit index; CFI = comparative fit index; CMIN/DF = ratio of chi-square to degree of freedom; GFI = goodness of fit index; NFI Delta1 = normed fit index; RMSEA = root mean square error of approximation.

0.858 and 0.810, respectively, which are larger than the recommended value of 0.8 (Scott, 1995). The NFI and CFI scores were 0.882 and 0.937, respectively, which are higher than the recommended value of 0.9 (Bentler and Bonett, 1980). The RMSEA score was 0.072, which is lower than the recommended value of 0.08 (Leon *et al.*, 1993). The *P*-value was 0.00, which is lower than an expected value; this, this model is reasonable and valid.

Validity refers to the extent to which the measured results reflect the desired content. This study examined the content and construct validity of the questionnaire by performing a confirmatory factor analysis. The commonly used method to determine the content validity of a test is to perform a conformance judgement of the test item and the scope of the content involved. A questionnaire survey item was proposed according to the TAM and UTAUT to empirically measure the project and measuring items, according to the public by a particular object. The reliability analysis confirmed that this questionnaire achieved considerable content validity. A confirmatory factor analysis is often conducted using structural equation modelling. AMOS software (IBM, New York, NY, USA) was used to model the confirmatory factor analysis and the structural equation.

Convergent validity refers to the correlation among different measurement variables of the same potential variable. The most commonly used criteria for testing convergence validity is a factor loading greater than or equal to 0.6, a Cronbach's alpha greater than or equal to 0.7, and a composite reliability (CR) greater than or equal to 0.7. As listed in Table 4, the factor loading of 21 items was greater than 0.6, and the total value of the CR was greater than 0.7. As shown in the last row of Table 5, the Cronbach's alpha coefficient of each influencing factor was in the range of 0.7-0.9, indicating that this study achieved favourable convergent validity.

The most commonly used testing method is the principal component analysis and the correlation coefficient method. Table 5 shows that the principal component extraction of each item was close to 0.7, and Table 6 reveals that the average variance extracted (AVE) values of the construction surface were all greater than 0.5, which demonstrates that this study exhibited favourable difference validity.

Table 4. Convergence validity test results.[1]

			Estimate	S.E.	CR	*P*
PPE1	--->	PPE	0.716	0.054	15.104	***
PPE2	--->	PPE	0.758			
PPE3	--->	PPE	0.846	0.054	17.599	***
EUE3	--->	EUE	0.656			
EUE2	--->	EUE	0.814	0.141	6.493	***
EUE1	--->	EUE	0.869	0.178	6.359	***
SI3	--->	SI	0.789			
SI2	--->	SI	0.851	0.094	11.169	***
SI1	--->	SI	0.811	0.098	11.115	***
RC3	--->	RC	-0.844			
RC2	--->	RC	-0.734	0.129	9.06	***
RC1	--->	RC	-0.756	0.123	9.28	***
PR3	--->	PR	0.654			
PR2	--->	PR	0.711	0.144	8.27	***
PR1	--->	PR	0.764	0.14	8.089	***
BI1	--->	BI	0.777			
BI2	--->	BI	0.822	0.068	15.74	***
BI3	--->	BI	0.869	0.073	13.239	***
AB1	--->	AB	0.788			
AB2	--->	AB	0.888	0.075	13.196	***
AB3	--->	AB	0.879	0.09	10.86	***

[1]AB = actual behaviour; BI = behavioural intention; CR = composite reliability; EUE = ease of use expectation; PPE = public performance expectations; PR = promotion regulation; RC = risk cognition; SI = social influence.

Reliability is the consistency and stability of test results. According to Fornell and Larcker, when the Cronbach's alpha is greater than 0.6, it is within an acceptable range. If this value is between 0.8 and 0.9, the scale is considered to be ideal. The testing of this questionnaire was mainly aimed at analysing the reliability of the second part of the questionnaire (items 10-30). According to Table 4, for the scale and various influencing factors of the scale, the

Table 5. Results of principal component analysis.[1]

	PPE	EUE	SI	RC	PR	BI	AB
PPE1	0.716						
PPE2	0.758						
PPE3	0.846						
EUE1		0.869					
EUE2		0.814					
EUE3		0.656					
SI1			0.811				
SI2			0.851				
SI3			0.789				
RC1				-0.756			
RC2				-0.734			
RC3				-0.844			
PR1					0.764		
PR2					0.711		
PR3					0.654		
BI1						0.777	
BI2						0.822	
BI3						0.869	
AB1							0.788
AB2							0.888
AB3							0.879
variance	8.280	4.236	6.074	4.633	4.465	8.057	5.099
α coefficient	0.902	0.671	0.787	0.721	0.760	0.861	0.866

[1] AB = actual behaviour; BI = behavioural intention; EUE = ease of use expectation; PPE = 'public performance expectations; PR = promotion regulation; RC = risk cognition; SI = social influence.

Table 6. Discriminant validity test results.[1]

	CR	AVE	PR	RC	SI	EUE	PPE
PR	8.28	0.617	0.86				
RC	4.236	0.624	0.408	0.916			
SI	6.074	0.592	0.426	0.484	0.792		
EUE	4.633	0.616	0.398	0.412	0.426	0.824	
PPE	4.465	0.56	0.438	0.424	0.477	0.411	0.917

[1] AVE = average variance extracted; CR = composite reliability; EUE = ease of use expectation; PPE = 'public performance expectations; PR = promotion regulation; RC = risk cognition; SI = social influence.

Cronbach's alpha coefficients were greater than 0.6, the influence factors of the Cronbach's alpha coefficients were in the [0.7, 0.9] interval, said that the factors in the scale are homogeneous. The overall Cronbach's alpha coefficient was higher than 0.9, indicating that the questionnaire achieved favourable reliability.

The structural equation modelling diagram constructed in this study is presented in Figure 3.

From the path chart and Table 7, it can be observed that the standardised path coefficient of the group with expectations of being easy to use and behavioural intentions did not reach statistical significance, and its CR value was -1.211, with an absolute value of less than 1.96. The standardised path coefficient of the group for promoting conditions and behavioural intention was not significant, and its CR value was -0.205, with an absolute value of less than 1.96. The *P* value of performance expectation was less than 0.05, which indicated that it was significantly related to behavioural intention. In the relationship among SI, risk perception, and behavioural intention, the behavioural intention and actual behaviour were significantly correlated. This indicated that PPE, SI, and risk perception have a direct influence on the intention to adopt public food quality standard information, and this adoption intention directly affects the actual adoption behaviour. Among these factors, the stronger the risk perception, the lower the public adoption intention; thus, path coefficient is negative. According to the correlation coefficient between the variables in the model presented in Figure 3 and the factorloading of the measurement variables, the cognitive variable of risk from inadequate food safety information? is negatively correlated with other variables. Therefore, this research hypothesis was verified, and the results are presented in Table 7.

4. Discussion

The fundamental purpose of our study was to reduce the information asymmetry in the food market and provide a reference for regulatory authorities from the perspective of consumers. Therefore, it was crucial to determine the public's willingness and behaviour regarding the adoption of food quality standard information. By establishing a structural equation model to explore interactive relationships among different influencing factors, we revealed that adopting food quality standard information affects the public's actual behaviour. We demonstrated that behaviour intention has three key factors: PPE, SI, and risk awareness.

As Davis states, PPE affects the information adoption intention of the public, and the public's adoption of food quality standard information is mainly to comprehend food quality conditions. The available information is used to make a purchase decision. With rapid changes in the food market environment, food safety problems are becoming increasingly complicated and diverse. Consumer demands for quality standard information before buying is increasing; therefore, improving quality standards and the usefulness of the information provided by the food industry is a pertinent concern. PPE is the public's perception of the usefulness of food quality standard information, which is not necessarily

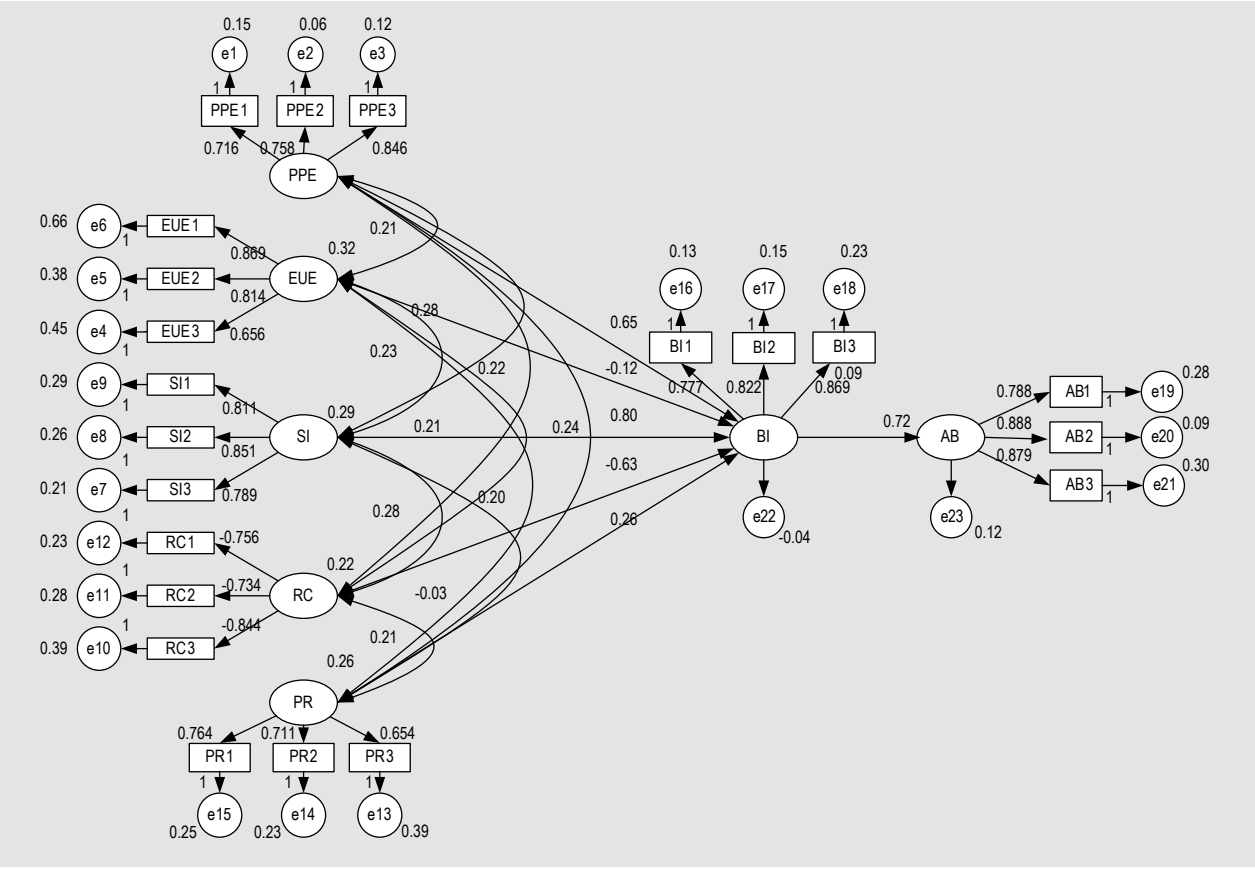

Figure 3. Schematic of the structural equation model.

Table 7. Test results of model path parameters.[1]

Hypothesis				Estimate	S.E.	CR	*P*	Accept or reject
H1	BI	<---	PPE	0.649	0.067	2.214	0.027	accept
H2	BI	<---	EUE	-0.119	0.098	-1.211	0.226	reject
H3	BI	<---	SI	0.799	0.143	6.992	***	accept
H4	BI	<---	RC	-0.634	0.176	2.463	0.014	accept
H5	BI	<---	PR	-0.026	0.128	-0.205	0.838	reject
H6	AB	<---	BI	0.720	0.085	10.769	***	accept

[1] AB = actual behaviour; BI = behavioural intention; CR = composite reliability; EUE = ease of use expectation; PPE = public performance expectations; PR = promotion regulation; RC = risk cognition; SI = social influence.

the same as the actual usefulness of such information. Therefore, increasing the public's attention to food quality standard information is another major aspect that those in the food industry should focus on.

In this study, H2 (EUE affects the public's behavioural intentions, and they are positively correlated) was rejected. We believe that if the food industry provides the public with this information efficiently and conveniently, then this information will guide consumers' purchase decisions. However, we ignored the fact that each person's understanding of food quality standard information may be subjective. The transformation of quality standard information from coded language to clear quality information requires considerable professional knowledge and ability. According to items in the first part of the questionnaire, most participants had not received any training in information literacy and skills. As a result, H2 was rejected.

According to Ajzen (1991) SI affects users' adoption of behavioural intentions, which was confirmed in this study. Social decisions are always made in a certain environment; whether it is an online or offline purchase of food, the public's purchase behaviour is affected by other individuals. For example, in online shopping, it may be conducive to encourage public information adoption in terms of products with a 'quality standard' keyword. Therefore, suppliers should pay particular attention to the promotion of food quality standard information.

Risk perception also affects the public's information adoption intention, which influences its actual behaviour. The authenticity and reliability of quality standard information is critical. When a food product receives quality certification in the form of a label indicating the particular standards it meets, it complies with quality standards. Therefore, guaranteeing the credibility of quality standard information is also a key aspect that the supplier must improve.

In this study, H5 (promoting conditions affect public behaviour intention) was rejected. We assert that regarding the public's knowledge structure and cognitive ability, specific institutions or personnel must support and assist them in placing value on food quality standard information and their adoption intention of such information. However, the public's knowledge structure and cognitive ability is high, meaning they pay more attention to the product brand or food import and export situation and other factors. In addition, according to the results of the questionnaire, the majority users of food quality information in real life have a low degree of dependence; thus, the key assumption (promoting conditions) was incorrect.

According to the results of this study, the hypothesis that 'behavioural intention can influence the actual behaviour' was confirmed. This demonstrates that in the adoption behaviour of public food quality standard information, behavioural intention was not markedly different from the actual behaviour; therefore, behavioural intention can be used to measure and predict actual behaviour.

5. Conclusions and limitations

This study focuses on how the public integrates their cognition and experience into their information behaviour strategies. On the basis of strong explanation and demonstration, it guides and optimises the public's adoption of food quality standard information. In information activities, the public should be active, and this initiative is valuable and worthy to study. In this study, the structural equation model of the adoption behaviour of public food quality standard information was constructed using the TAM and UTAUT, and the empirical analysis was performed on the basis of data obtained from Zhejiang Province. The following conclusions can be drawn:

- According to the basic information statistics of the questionnaire, it can be found that, the public's reliance on food quality standard information and their satisfaction with it was not high. Additionally, the public's judgement of food quality standard information judgement was low, and the vast majority of the participants were not provided with related knowledge or training.
- According to hypothesis H1, H3 and H4 of this study, the public's adoption of food quality standard information affects their actual behaviour; this behavioural intention had three key factors: PPE, SI, and risk awareness.
- According to hypothesis H1 and H3 of this study, the PPE and SI have a positive influence in behavioural intention and actual behaviour. According to hypothesis H1 and H3 of this study, the public RC have a negative influence in behavioural intention and actual behaviour.
- For food quality standard information, the public's main problem in its adoption is that the usefulness of the information still cannot meet the demands of consumers. Information distortion risks lead to low quality standards. This can occur through the quality certification process or the use of a standard that does not guarantee food safety.
- For the public, the major problems of the adoption including several parts: public's cognition level of the usefulness of information does not match the reality; deviations exist in understanding the information regarding food quality standards, and there is a lack of professional knowledge and ability.
- Any effective information dissemination should be user-centred, and food quality standard information should also stimulate the public's awareness of active participation and the ability to adopt, absorb and use. The public should also be guided.

According to the conclusions of this study, to improve public adoption rates for food quality standard information, the information provided by suppliers (mainly administrative and regulatory departments) should be as follows.

- It should be provided through a variety of forms and with the use of new media. Food quality standard information should provide clear explanations, and it should not be too specialised or complicated for the public to understand. At the same time, promote the improvement of food industry self-discipline mechanism, regulate the behaviour of market power subject. The establishment of information, credit, reputation mechanism, food safety information disclosure into factors affecting food prices, and ultimately achieve the market 'invisible hand' self-regulation. As is known to all, the food industry has strong professional, serious information asymmetry in food market. Food related social organisations are more familiar with the industry insider information.

We should promote food safety laws and regulations to make the industry consciously abide by the provisions of the laws and regulations. Compared with the lag of supervision by the regulatory authorities and the public, social organisations related to food can make use of information advantages to implement effective internal supervision more easily, which not only reduces the supervision cost, but also improves the supervision effect.

- An open information resource platform should be provided to strengthen the effectiveness of the food regulatory network, such as through mobile phone apps. Users should be able to scan code information to obtain the relevant quality standards for the sustainable development strategy to provide a robust guarantee of food security.
- These standards should adhere to the principle of gradual, classification guidance. Through training or education programmes, food quality standard information and related knowledge should be promoted to raise the level of public information cognition and strengthen the public's ability to identify fortified foods. Through the government's mandatory requirements for food safety information, the purchase can reduce the cost for the public to obtain or use such information. Once the blue quality safety (QS) logo was considered a symbol of food safety. Starting from October 1, 2018, the 'QS' logo, which has been in service for many years, has been replaced by a 14-digit number beginning with 'SC', which will be mandatory on food packaging. The new number makes it easy to access information and enables food traceability. Therefore, the regulatory authorities should also follow up the supporting public services, so that the signal transmission are unimpeded for the public to adopt.

This study rejected H5, in that the relationship between the behavioural intention of the public to adopt food quality standard information was not explicitly promoted. On the basis of the specific knowledge level and cognitive structure of the public, interactions between food brand information or import and export information on food quality standard information should be studied.

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