Environment and Social Psychology (2025) Volume 10 Issue 6 ISSN: 2424-8975 (O)
doi: 10.59429/esp.v10i6.3783 2424-7979 (P)

RESEARCH ARTICLE

Understanding organic vegetable purchase intentions in an emerging market: The role of values, risks, and knowledge

Kai Fu[1], Azizah Omar[2*]

[1] *PhD candidate at School of Management, Universiti Sains Malaysia, Penang, Malaysia*

[2] *Professor of Marketing in School of Management, Universiti Sains Malaysia, Penang, Malaysia*

*** Corresponding author:** Azizah Omar, aziemar@usm.my

ABSTRACT

The environmental consequences of food production, particularly crop cultivation, have become a growing global concern. In China, the high demand for vegetables has intensified agricultural practices, contributing to soil degradation and pollution. This study investigates the psychological and informational determinants of Chinese consumers' intentions to purchase organic vegetables as a sustainable alternative. Grounded in value theory and perceived risk theory, a structural model was developed and tested using data from 650 respondents through Partial Least Squares Structural Equation Modeling (PLS-SEM). Findings reveal that egoistic, altruistic, biospheric, and collectivistic values positively shape consumer attitudes, whereas financial and functional risks exert negative influences. Attitude significantly predicts purchase intention and mediates the effects of both value orientations and perceived risks. Furthermore, consumer knowledge directly enhances purchase intention but weakens the strength of the attitude–intention relationship, suggesting that informed consumers engage in more critical processing. By integrating values, perceived risks, and knowledge into a unified model, this study advances the theoretical understanding of sustainable consumption and provides practical insights for promoting organic food choices through culturally targeted marketing, transparent communication, and public education initiatives in emerging markets.

Keywords: organic vegetables; sustainable consumption; consumer values; perceived risk; consumer knowledge; purchase intention; emerging markets

1. Introduction

Food plays a pivotal role not only in sustaining individual health but also in driving the global economy. However, its environmental impact is both significant and multifaceted, with agricultural production, particularly crop cultivation, being one of the major contributors[1]. According to the Food and Agriculture Organization (FAO)[2], the global food system is responsible for approximately 29.7% of total greenhouse gas emissions. While livestock remains a dominant source, crop farming also contributes considerably due to the intensive use of synthetic fertilizers, pesticides, and large-scale land conversion. The cultivation of staple crops such as rice, wheat, and corn often involves agricultural practices that emit substantial quantities of methane and nitrous oxide, which are greenhouse gases with high global warming potential[3]. In addition, industrial-

ARTICLE INFO
Received: 05 May 2025| Accepted: 06 June 2025 | Available online: 27 June 2025

CITATION
Kai Fu, A. Omar, Understanding organic vegetable purchase intentions in an emerging market: The role of values, risks, and knowledge. *Environment and Social Psychology* 2025; 10(6): 3783 doi:10.59429/esp.v10i6.3783

scale farming contributes to soil degradation, loss of biodiversity, and water pollution caused by chemical runoff. Agriculture is also the largest consumer of freshwater globally, accounting for nearly 70% of total usage, much of which is lost due to inefficient irrigation methods[4]. The ongoing expansion of agricultural land, particularly in tropical regions, has further accelerated deforestation and ecosystem disruption. In response to these environmental challenges, the adoption of more sustainable agricultural practices has become increasingly urgent[5]. Sustainable food systems prioritize soil health, efficient water usage, minimal chemical inputs, and biodiversity conservation, aiming to reduce ecological harm while ensuring long-term food security[6].

In the context of China, vegetables occupy a central place in the national diet, with per capita annual consumption exceeding 407.84 kilograms, which is significantly higher than the global average[7]. However, this high level of consumption has exerted growing pressure on the environment, particularly in the vegetable production sector. To maximize yields and accelerate harvest cycles, Chinese vegetable farming often relies heavily on chemical fertilizers and pesticides[8]. Data from the Ministry of Agriculture and Rural Affairs indicate that China consistently ranks among the highest in the world in terms of pesticide and fertilizer usage per unit of arable land. This excessive use has resulted in widespread soil acidification, water eutrophication, and the emission of nitrous oxide, which is a greenhouse gas far more potent than carbon dioxide[9].

Moreover, the rise of facility agriculture, such as plastic greenhouse cultivation, has introduced additional environmental risks. The overuse and improper disposal of agricultural plastic films have led to increasing "white pollution" and disrupted soil microbial ecosystems[10]. At the same time, the long-distance cold-chain transportation required to supply vegetables across vast regions of China further exacerbates energy consumption and carbon emissions[11].

Given these pressing issues, promoting the production and consumption of organic vegetables emerges as a necessary and viable solution. Organic farming methods significantly reduce dependence on synthetic agrochemicals, thereby lowering the risk of soil and water pollution, decreasing greenhouse gas emissions, and supporting healthier ecosystems[12]. Techniques such as composting, crop rotation, and biological pest control enhance soil fertility, preserve biodiversity, and improve the long-term resilience of agricultural systems[13]. Beyond environmental benefits, organic vegetables are often viewed by consumers as safer and healthier due to the absence of chemical residues and the use of natural growing processes[14]. This perception aligns with the rising demand in China for high-quality, safe food, particularly in the context of repeated food safety incidents and increasing public health awareness.

Nonetheless, despite the recognized advantages of organic vegetables, Chinese consumers' actual willingness to purchase them remains relatively low[15]. Therefore, this study seeks to explore the underlying factors that influence Chinese consumers' purchase intentions toward organic vegetables.

In the context of sustainable consumption, values play a pivotal role in shaping consumer attitudes and purchase intentions[16]. In China, where concerns over food safety and environmental sustainability are increasingly prominent, the consumption of organic vegetables is influenced by a range of value orientations[16]. Organic vegetables, characterized by natural cultivation methods and the absence of synthetic chemicals, offer both health-related and environmental benefits[17]. Altruistic values drive consumers to prioritize the well-being of family members, while biospheric values reflect a deep concern for ecological sustainability[18]. Egoistic values motivate purchases based on personal health protection, especially considering repeated food safety scandals[19]. Additionally, collectivistic values, rooted in Chinese cultural norms, encourage individuals to make choices that align with group welfare and social responsibility[20]. Together, these diverse values shape consumer intentions toward organic vegetable consumption in the Chinese market.

However, holding positive values does not always translate into actual purchase behaviour. Despite the influence of personal values, perceived risks remain a significant barrier to the widespread adoption of organic vegetables in China. Financial risk, associated with the relatively high prices of organic products, may deter price-sensitive consumers or those uncertain about the cost-effectiveness of organic food[14, 21]. Functional risk, including concerns over taste, freshness, and shelf life, can further erode consumer confidence[22]. These perceived risks may offset the positive effects of value-driven motivations, thereby weakening favourable attitudes. To address this, consumer education and transparent communication regarding the health, quality, and environmental benefits of organic vegetables are essential for mitigating risk perceptions and enhancing purchase intentions[23].

In this regard, consumer knowledge plays an important role in influencing consumers' ability to evaluate the benefits and risks associated with organic products. Well-informed consumers are generally more capable of forming favourable attitudes and stronger intentions to purchase. Conversely, limited knowledge may amplify risk perceptions and hinder the adoption of sustainable food choices[23,24].

While several studies have explored individual drivers such as health concerns or environmental values, few have examined how value orientations and perceived risks jointly shape attitudes and intentions toward organic vegetable consumption in China. Most existing research treats organic food as a broad category without isolating organic vegetables, or focuses primarily on developed markets, leaving the specific behavioural dynamics in emerging economies underexplored. Moreover, although consumer knowledge is often assumed to enhance the effect of positive attitudes, little empirical evidence exists regarding its moderating role between attitude and purchase intention, especially in settings where institutional trust is limited.

Therefore, this study seeks to address these research gaps by developing and empirically testing a comprehensive structural model that integrates value orientations (egoistic, altruistic, biospheric, and collectivistic), perceived risks (financial and functional), consumer knowledge, and attitude as predictors of purchase intention toward organic vegetables. By doing so, the study contributes to a more nuanced understanding of sustainable food consumption behaviour and offers practical insights to support organic food adoption in China and other emerging markets.

2. Literature review and hypotheses

2.1. Theoretical foundation

Understanding consumer purchase intentions toward organic vegetables requires a solid theoretical foundation. This study draws upon two key perspectives: value theory and perceived risk theory. Value theory provides a basis for examining how different value orientations, such as altruistic, biospheric, egoistic, and collectivistic values, influence consumer attitudes and motivations toward sustainable food choices[25]. These values help explain why consumers may view organic vegetables not only as a personal health choice but also as a socially and environmentally responsible behaviour.

In contrast, perceived risk theory addresses the psychological barriers that can hinder purchase intentions. Despite holding positive values, consumers may refrain from buying organic products due to financial concerns, doubts about product quality, or uncertainty about long-term benefits[26]. By integrating these two theoretical perspectives, this study seeks to explore the dynamic interplay between consumer motivations and perceived barriers in the context of organic vegetable consumption in China.

2.2. Purchase intention

Ajzen (1991) defined purchase intention as an individual's willingness to voluntarily exert effort to perform a specific behaviour[27]. Based on this, purchase intention reflects a consumer's readiness to buy a product after considering and evaluating its attributes. Within marketing research, purchase intention serves as a critical predictor of future consumer behaviour, as it serves as a key intermediary between consumers' attitudes and actual purchasing behaviour[28].

In the field of sustainable consumption, purchase intention is particularly relevant because it has been found to closely correlate with actual purchase behaviour. When applied to organic vegetables, purchase intention refers not only to the likelihood that a consumer will buy such products, but also to their willingness to pay a price premium, recommend them to others, and continue purchasing them in the future[23]. As such, understanding the factors that influence purchase intention is essential for promoting organic vegetables purchase in China[16].

2.3. Consumer values

The negative environmental consequences of rapid industrialization have emerged as a global concern, encouraging consumers to adopt more sustainable consumption practices[29]. To better understand the psychological drivers behind pro-environmental behaviour, numerous studies have examined the role of personal values in shaping consumer attitudes and actions[30].

Personal values refer to relatively stable beliefs that guide individual attitudes and behaviours across a variety of contexts[31,32]. Schwartz's (1992) influential value theory identified a set of universal human values, many of which have been integrated into behavioural models such as the Theory of Planned Behaviour (TPB) to explain environmental concern and sustainable intentions[33]. Building on this, Stern and Dietz (1994)[34] categorized environmental value orientations into three dimensions: egoistic (concern for self), altruistic (concern for others), and biospheric (concern for nature), each exerting a distinct influence on environmental attitudes.

While a large body of research has focused on egoistic, altruistic, and biospheric values, increasing attention has been paid to collectivistic values, which emphasize group harmony, social conformity, and collective well-being. This is particularly relevant in East Asian cultural contexts, where communal norms strongly shape consumer decisions[35,36].

Based on this theoretical foundation, the present study explores how four value orientations (egoistic, altruistic, biospheric, and collectivistic) independently influence consumer attitudes toward organic vegetables. The following subsections examine each value orientation in detail.

2.3.1. Egoistic value

Egoistic value refers to individuals' focus on self-interest, including concerns about personal health, comfort, social image, and satisfaction in consumption behaviour [37]. While earlier research suggested that egoism might conflict with pro-environmental behaviour, due to its emphasis on short-term personal gains over long-term ecological outcomes, more recent findings challenge this view[38]. Specifically, when pro-environmental products like organic vegetables are perceived to offer direct personal benefits, such as improved health or food safety, egoistic motivations can support sustainable consumption[39].

Empirical studies have consistently highlighted health concerns as a primary driver linking egoistic values to favourable attitudes toward organic products[40]. Consumers with strong egoistic orientations often perceive organic vegetables as healthier, safer, and of higher quality compared to conventional alternatives. This perception contributes to more favourable attitudes toward organic vegetable consumption[41].

H1: Egoistic value positively influences consumers' attitude toward organic vegetables.

2.3.2. Altruistic value

Altruistic value reflects an individual's concern for the well-being of others, including family members, society, and future generations[42]. Consumers with strong altruistic orientations tend to consider the broader social impact of their purchasing decisions and are more likely to engage in behaviours that benefit others, even at a personal cost[43]. In the context of organic vegetables consumption, Altruistic consumers may prioritize vegetable choices that help protect the environment, reduce pollution, and contribute to long-term sustainability.

In addition, in China's family-centred culture, altruistic values are particularly salient, as individuals often make consumption decisions based on the perceived benefits to their family, especially children and elderly relatives[23]. Organic vegetables, perceived as safer and more nutritious, are frequently chosen by altruistically motivated consumers to safeguard the health of loved ones. Prior studies have confirmed that altruistic values significantly contribute to favourable attitudes toward organic food by reinforcing the social and moral desirability of environmentally responsible consumption[44].

H2: Altruistic value positively influences consumers' attitude toward organic vegetables.

2.3.3. Biospheric value

Biospheric value is defined as a deep concern for the environment, ecosystems, and the well-being of non-human species[45]. Individuals with strong biospheric values are more likely to engage in behaviours that minimize environmental harm and support ecological sustainability, even if these actions do not result in immediate personal benefits[46].

Organic agriculture, which avoids the use of synthetic chemicals and promotes biodiversity and soil health, aligns closely with biospheric values[47]. As a result, consumers who are environmentally conscious are more likely to view organic vegetables as a means of expressing their commitment to environmental stewardship[48]. Research has shown that biospheric values are strong predictors of both positive attitudes toward organic food and higher intentions to purchase environmentally friendly products[49].

H3: Biospheric value positively influences consumers' attitude toward organic vegetables.

2.3.4. Collectivistic value

Collectivistic value emphasizes social harmony, group cohesion, and the prioritization of collective welfare over individual interests[50]. In collectivist societies like China, where interpersonal relationships and group norms play a vital role in shaping behaviour, consumption choices are often influenced by social expectations and a desire to contribute to the common good.

Consumers with collectivistic orientations may regard purchasing organic vegetables not only as a personal health decision but also as a socially responsible act that benefits the community and future generations[51]. Moreover, social endorsement of organic consumption through family, peers, or community networks can reinforce the perception that such choices reflect moral and cultural values. Previous studies have indicated that collectivistic values can positively shape consumer attitudes toward green and organic products by linking individual behaviour to social approval and community well-being[52].

H4: Collectivistic value positively influences consumers' attitude toward organic vegetables.

2.4. Perceived risk

Consumers often exhibit hesitation when they perceive potential negative or uncertain outcomes in their decision-making process. Such hesitation becomes more pronounced when the purchase involves substantial risk, or the consequences are unpredictable. Perceived risk arises when consumers are unable to confidently anticipate the outcomes of their purchasing decisions, leading to anxiety about possible undesirable results [53]. Scholars have categorized perceived risk into several dimensions, including financial, functional, psychological, and social risks[54].

Qi et al.[55] identified several conditions that increase risk perception: limited product information, lack of previous purchase experience, the presence of innovative or unfamiliar technologies, substantial variability in product quality, and high prices. Under such circumstances, perceived risk tends to escalate, particularly when the consumer views the purchase as important or irreversible.

Abdul-Rahim et al.[56] argued for a multidimensional perspective on perceived risk to better capture the variety of concerns influencing consumer behaviour. Similarly, Cabeza-Ramírez et al.[57] emphasized that perceived risk is context-dependent, varying across food types and shopping environments. Product-specific attributes significantly affect how consumers perceive risk, including the degree to which they anticipate functional, economic, psychological, or social consequences[58].

In China, studies such as those by Cui et al.[59] have identified functional risk, financial risk, time risk, and privacy risk as key concerns when purchasing fresh foods. Research by Cao et al.[14] further demonstrated that perceived risks exert a significant negative impact on consumer behaviour toward organic food.

Building on these insights, the present study focuses on two key dimensions of risk, financial and functional, which are particularly salient in the context of organic vegetable consumption among Chinese consumers.

2.4.1. Financial risk

Financial risk refers to a consumer's perceived likelihood of experiencing economic loss or wasting money because of a purchase decision[60]. This is especially relevant when products are priced higher than conventional alternatives, as is often the case with organic vegetables. Consumers may question whether the higher cost is justified by tangible benefits, such as improved taste or health outcomes. If the perceived benefits are ambiguous or not immediately observable, financial risk perception increases[61].

In the case of organic vegetables, consumers may worry about overpaying for marginal gains, particularly when product certifications or labels are unclear or unfamiliar[62]. Moreover, in the absence of effective after-sales policies such as refunds or satisfaction guarantees, financial concerns are further exacerbated. This is especially true for first-time buyers or individuals with limited exposure to organic products. Thus, when financial risk is high, consumers may delay or avoid purchase altogether, regardless of positive attitudes or environmental awareness[63].

H5: Financial risk negatively influences consumers' attitudes toward organic vegetables.

2.4.2. Functional risk

Functional risk arises when consumers doubt that a product will perform as expected or provide the claimed benefits[50]. In food consumption, this includes uncertainties regarding taste, freshness, safety, appearance, texture, and shelf life. Organic vegetables, due to their natural growth process and limited use of preservatives or pesticides, may sometimes have shorter shelf lives, irregular appearances, or inconsistent taste, which differ from the uniform standards of conventional produce[63]. Such characteristics can create scepticism, especially among consumers unfamiliar with organic farming practices.

Furthermore, lack of standardized quality assurance or limited access to reliable product information increases functional uncertainty. Consumers may also worry that the "organic" label is merely a marketing tactic, especially in cases where counterfeit or uncertified organic products have appeared in the market, which have been reported in various parts of China[64].

Michałowska et al.[65] emphasized that functional risk plays a crucial role in shaping purchase intentions for both food and eco-friendly products. If consumers are uncertain about whether organic vegetables will fulfil their expectations in terms of taste or nutritional value, their attitudes may shift toward caution or even resistance. Thus, when functional risk is perceived as high, it can undermine consumer confidence and weaken favourable attitudes, regardless of health awareness or environmental concern.

H6: Functional risk negatively influences consumers' attitudes toward organic vegetables.

2.5. The mediating role of attitude

Attitude is a psychological construct shaped by cognition (thoughts), values (beliefs), and affect (emotions) toward a particular object or behaviour[66]. In the context of organic vegetable consumption, attitude plays a pivotal role in shaping consumers' purchase intentions. Previous research has shown that beliefs about the positive outcomes of consuming organic food, such as health benefits and environmental sustainability, significantly guide consumers toward selecting organic vegetables[67,68].

The link between attitude and purchase intention is a foundational concept in consumer behaviour literature, particularly within the Theory of Planned Behaviour (TPB) framework. According to TPB, attitude represents an individual's overall evaluation of a product or behaviour as favourable or unfavourable, which in turn directly influences their intention to act[68]. In the case of organic vegetables, consumers who perceive desirable attributes, such as safety, nutritional value, and eco-friendliness, are more likely to develop positive attitudes, thereby reinforcing their intention to purchase[69]. For example, individuals who value the environmental impact of organic farming may view the purchase of organic vegetables as a meaningful contribution to ecological sustainability, strengthening their motivation to buy.

In addition to its direct effect, attitude also acts as a key mediating mechanism between personal values and behavioural intentions. Specifically, four types of value orientations, egoistic, altruistic, biospheric, and collectivistic, have been found to influence organic food consumption by shaping consumers' evaluative judgments[70]. Egoistic values, which emphasize self-interest and personal health, tend to foster favourable attitudes when consumers believe organic vegetables promote their well-being[71]. Altruistic and biospheric values, which prioritize concern for others and the natural environment, respectively, contribute to positive attitudes when organic consumption is viewed as a means of supporting public health and environmental protection[72]. Likewise, collectivistic values, which emphasize group welfare and social harmony, encourage positive attitudes when purchasing organic vegetables is perceived as a socially responsible act aligned with national sustainability goals[73]. Through these pathways, attitude translates value-based motivations into behavioural intentions, serving as an essential psychological bridge.

Furthermore, attitude plays an important mediating role in the relationship between perceived risk and purchase intention. Among the various dimensions of risk, financial risk, concerns about paying a higher price for a product that may not offer corresponding value, and functional risk, the fear that the product may not meet expectations in terms of taste, freshness, or quality, are especially salient in consumers' decision-making processes[65]. When consumers perceive high levels of financial or functional risk, their attitudes towards organic vegetables tend to deteriorate, thereby reducing their likelihood of purchasing. However, when consumers hold strong positive beliefs about the benefits of organic food, such as enhanced safety, superior

nutrition, or environmental protection, these beliefs can buffer the negative effects of perceived risk, resulting in more resilient positive attitudes[74].

For instance, a consumer who is initially hesitant to purchase organic vegetables due to their higher price may still form a favourable attitude if convinced of the long-term health benefits or reduced pesticide exposure[75]. Similarly, doubts about product performance may be mitigated by prior positive experiences or trust in organic certification schemes. In such cases, favourable attitudes, shaped despite the presence of risk, ultimately lead to stronger purchase intentions[76].

In summary, attitude functions as a critical psychological filter that either amplifies or mitigates the effects of both personal values and perceived risks on purchase intention. By shaping consumers' overall evaluation of organic vegetables, attitude serves as a decisive mediator, transforming value orientations and risk perceptions into either approach or avoidance behaviours.

Based on the above discussion, the following hypothesis is proposed:

H7: Attitude positively influences consumers' purchase intention toward organic vegetables.

H8: Attitude mediates the relationship between egoistic value and purchase intention.

H9: Attitude mediates the relationship between altruistic value and purchase intention.

H10: Attitude mediates the relationship between biospheric value and purchase intention.

H11: Attitude mediates the relationship between collectivistic value and purchase intention.

H12: Attitude mediates the relationship between financial risk and purchase intention.

H13: Attitude mediates the relationship between functional risk and purchase intention.

2.6. Moderating role of consumer knowledge

While attitude is widely recognized as a key predictor of purchase intention, prior research suggests that the strength of this relationship may vary depending on individual-level factors, such as consumer knowledge[77]. In the context of organic vegetables, consumer knowledge refers to the extent to which individuals are aware of the product's attributes, benefits, production methods, and certifications. Consumers with higher levels of knowledge are typically more confident in their evaluations and are better equipped to assess the credibility of organic claims. As a result, they are more likely to translate positive attitudes into actual behavioural intentions[78].

Conversely, consumers with limited knowledge may experience uncertainty or scepticism, which could weaken the link between their favourable attitudes and intention to purchase[79]. Thus, consumer knowledge is expected to function as a moderating variable, strengthening or weakening the impact of attitude on purchase intention. Understanding this moderating effect is essential for designing effective communication and education strategies to promote sustainable food consumption[80].

H14. Consumer knowledge moderates the relationship between attitude and purchase intention, such that the relationship is stronger when consumer knowledge is high.

Based on above discussion, the research model was constructed as shown in **Figure 1**.

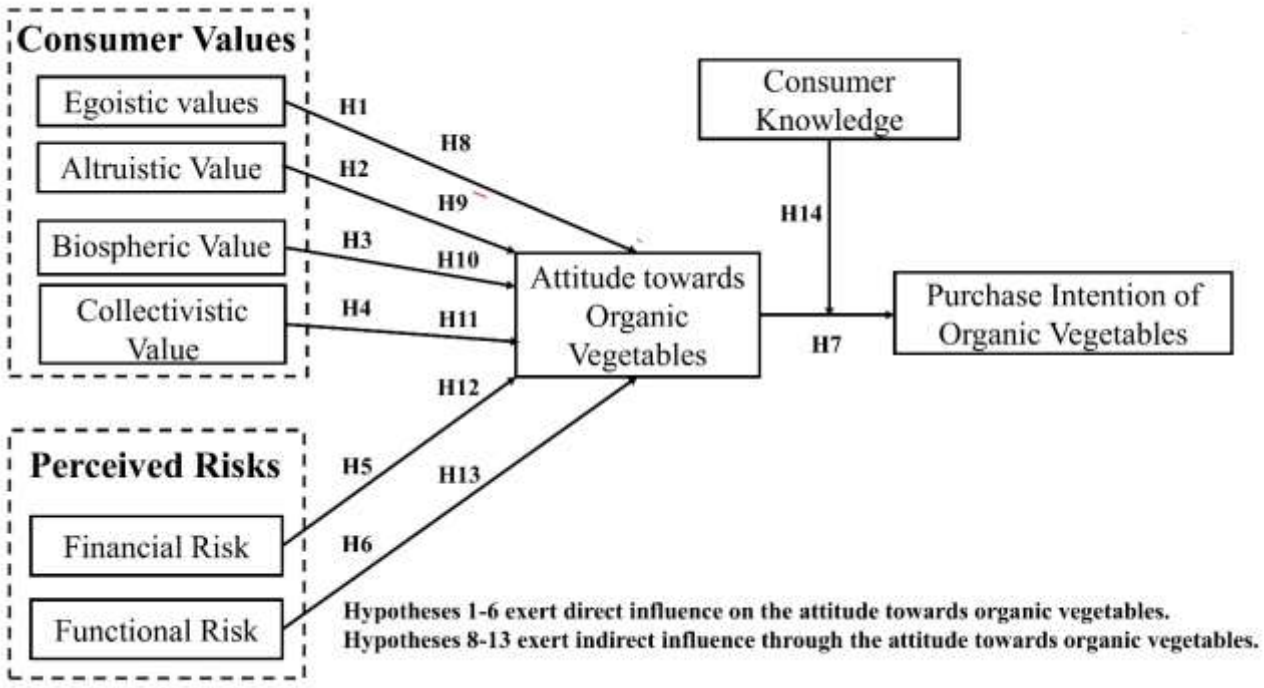

Figure 1. Hypothesised research model.

3. Research methodology

3.1. Questionnaire and instrument development

This study proposed a theoretical framework encompassing eight latent constructs: egoistic, altruistic, biospheric, and collectivistic values, financial and functional risks, consumer knowledge, and attitude toward organic vegetables. These constructs were hypothesised to exert either direct or indirect effects on purchase intention. As these variables are abstract and not directly observable, a structured self-administered questionnaire was designed to measure them.

The questionnaire consisted of two sections. The first collected demographic information, such as gender, education, and monthly expenditure, to contextualize the data. The second section assessed the constructs using established scales adapted from previous studies, enabling empirical testing of the proposed model.

To ensure measurement reliability and validity, all scale items were adapted from validated sources. The four-item scale for egoistic values was adapted from Tarkiainen and Sundqvist (2005)[81] and Yadav and Pathak (2016)[82]. Altruistic values were measured using items from de Groot and Steg (2008)[83] and Stern et al. (1999)[84]. Biospheric values were captured using five items from Shin et al. (2017)[85], focusing on environmental concern and harmony with nature. Collectivistic values were assessed using five items from Roseira et al. (2022)[86], capturing group orientation and concern for collective welfare. Financial risk was measured with four items from Kim et al. (2021)[87], while functional risk was assessed using five items adapted from Vega-Zamora et al. (2019)[88], addressing doubts about health, environmental, and natural attributes of organic vegetables.

Consumer knowledge was measured using four items from Li et al. (2021)[89], covering identification and purchasing familiarity. Attitudes toward organic vegetables were measured using four items from Peña-García et al. (2020)[90] and Li et al. (2021)[89]. Purchase intention was captured using five items from Teng and Lu

(2016)[91], reflecting future behavioural intentions. All items were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) to standardize responses for statistical analysis.

3.2. Sample and data collection

A pilot test involving 30 participants was conducted to refine the questionnaire. All 40 items demonstrated acceptable factor loadings (above 0.7), confirming their suitability for full-scale data collection. The final survey was distributed via Wenjuanxing (https://www.wjx.cn), a widely used Chinese online survey platform, targeting individuals aged 18 and above. A total of 677 responses were received, of which 650 were retained after filtering for completeness, logical consistency, and minimum response time (≥ 1 second per item).

Table 1 presents the demographic profile of the final sample. Gender was evenly distributed (50% male, 50% female). The largest age groups were 36–45 (24.46%) and 26–35 (24.31%), followed by 46–55 (21.38%) and 18–25 (19.08%). Smaller proportions were found among those aged 56–65 (5.08%) and over 65 (5.69%). Monthly income levels varied: 28% earned under 3,000 CNY, 25.69% between 3,000–5,000 CNY, and 24% between 5,001–8,000 CNY. Only 1.54% reported earning over 20,000 CNY.

Regarding education, 42.15% held diplomas, 32.31% bachelor's degrees, and 19.54% completed high school. Those with master's and doctoral degrees accounted for 4.62% and 1.38%, respectively. In terms of marital status, 57.23% were married and 42.77% single. The most common occupations were self-employed (26.92%), professionals (22.92%), and students (19.08%). Other groups included managers (8.46%), administrative staff (8.31%), and sales personnel (8.31%), with retirees and others making up 2.92% and 3.08%.

3.3. Data analysis

Partial Least Squares Structural Equation Modelling (PLS-SEM) was selected as the main analytical method due to several key advantages. First, it is ideal for analysing complex models involving multiple latent constructs, such as values, risk perceptions, knowledge, attitude, and purchase intention, which are central to this study. Second, PLS-SEM performs well with moderate sample sizes (n = 650) and does not require normally distributed data, making it appropriate for self-reported survey data. Third, it supports exploratory research by enabling predictive and flexible modelling of consumer behaviour. These strengths affirm the suitability of PLS-SEM for analysing the proposed research framework.

Table1. Demographic information of the sample of respondents

Characteristic	Categories	Frequency(n=650)	Respondents (%)
Gender	Male	325	50.00 %
	Female	325	50.00 %
Age	18-25	124	19.08%
	26-35	158	24.31%
	36-45	159	24.46%
	46-55	139	21.38%
	56-65	33	5.08%
	>65	37	5.69%
Income per month (CNY)	<3000	182	28.00%
	3000-5000	167	25.69%
	5001-8000	156	24.00%
	8001-10,000	93	14.31%
	10,001-15,000	28	4.31%

Characteristic	Categories	Frequency(n=650)	Respondents (%)
	15,001-20,000	14	2.15%
	>20,000	10	1.54%
	High School	127	19.54%
	Diploma	274	42.15%
Education Level	Bachelor's Degree	210	32.31%
	Master's Degree	30	4.62%
	Doctorate	9	1.38%
Marital Status	Married	372	57.23%
	Single	277	42.77%
	Student	124	19.08%
	Self-employed	175	26.92%
	Professionals	149	22.92%
Occupation	Sales personnel	54	8.31%
	Administrative staff	54	8.31%
	Management staff	55	8.46%
	Retired	19	2.92%
	Others	20	3.08%

Table 1. (*Continued*)

4. Results

4.1. Measurement model

This study employed a reflective measurement model assessment in accordance with the procedures outlined by Hair et al.[92]. To evaluate the model's adequacy, several criteria were used, including reliability, convergent validity, and discriminant validity. Composite reliability, which assesses the consistency of indicator loadings, served as a primary metric[92]. Discriminant validity was determined using the Heterotrait-Monotrait Ratio of Correlations (HTMT) approach[93].

As illustrated in **Table 2**, the reliability and convergent validity of the measurement model were examined through factor loadings, composite reliability (CR), and average variance extracted (AVE). All factor loadings exceeded the recommended threshold of 0.70, with the majority falling between 0.80 and above 0.90, suggesting strong reliability of individual indicators. The composite reliability scores for all constructs were well above the 0.70 standard, ranging from 0.915 (FNR) to 0.937 (AV), indicating excellent internal consistency. Additionally, every AVE value was greater than the 0.50 minimum, affirming adequate convergent validity. Overall, these findings confirm that the measurement model possesses strong reliability and convergent validity, making it suitable for subsequent structural model analysis.

Table 2. Confirmatory factor analysis

Item	Factor loadings	Composite Reliabilities	Average Variance Extracted
ATT1	0.868		
ATT2	0.886	0.923	0.749
ATT3	0.849		

Item	Factor loadings	Composite Reliabilities	Average Variance Extracted
ATT4	0.857		
AV1	0.901		
AV2	0.876	0.937	0.789
AV3	0.864		
AV4	0.912		
BV1	0.877		
BV2	0.860		
BV3	0.852	0.931	0.731
BV4	0.815		
BV5	0.870		
CK1	0.863		
CK2	0.859	0.924	0.752
CK3	0.882		
CK4	0.863		
CV1	0.819		
CV2	0.867		
CV3	0.816	0.921	0.699
CV4	0.806		
CV5	0.871		
EV1	0.886		
EV2	0.830	0.923	0.750
EV3	0.897		
EV4	0.848		
FCR1	0.875		
FCR2	0.853		
FCR3	0.857	0.931	0.728
FCR4	0.826		
FCR5	0.856		
FNR1	0.872		
FNR2	0.821	0.915	0.728
FNR3	0.869		
FNR4	0.850		
PI1	0.866		
PI2	0.855		
PI3	0.842	0.936	0.746
PI4	0.906		
PI5	0.849		

Table 2. (*Continued*)

Henseler et al. proposed the heterotrait–monotrait (HTMT) ratio as a more reliable approach for identifying potential issues with discriminant validity, highlighting its superior balance between sensitivity and specificity compared to the Fornell–Larcker criterion[94]. In this study, the HTMT ratio was utilized to evaluate discriminant validity. As presented in **Table 3**, all HTMT values were below the recommended threshold of 0.85, indicating that the constructs achieved satisfactory discriminant validity[98].

Table 3. HTMT result.

	ATT	AV	BV	CK	CV	EV	FCR	FNR	PI	CK x ATT
AV	0.821									
BV	0.780	0.751								
CK	0.799	0.750	0.785							
CV	0.763	0.801	0.732	0.803						
EV	0.782	0.765	0.767	0.726	0.760					
FCR	0.744	0.760	0.783	0.801	0.777	0.827				
FNR	0.827	0.794	0.801	0.746	0.827	0.737	0.829			
PI	0.767	0.810	0.725	0.746	0.761	0.735	0.724	0.839		
CK x ATT	0.784	0.752	0.840	0.721	0.705	0.836	0.838	0.824	0.819	

4.2. Structural model

Following the evaluation of the measurement model, the structural model was assessed using the Structural Equation Modelling (SEM) approach. The model's explanatory capability was examined through the coefficient of determination (R^2), as detailed in Table 4. In line with the classification by Hair et al. [95], R^2 values of 0.25, 0.50, and 0.75 represent weak, moderate, and substantial levels of explanatory power, respectively. **Table 4** showed that the model accounts for 68.5% of the variance in purchase intention and 77.7% of the variance in attitude toward organic vegetables. These outcomes indicate that the model possesses strong explanatory strength and robust predictive accuracy for both constructs.

Table 4. The coefficient of determinants.

	R-square
ATT	0.777
PI	0.685

The study tested its hypotheses through a bootstrapping approach using 5,000 resamples at a 95% confidence level. As noted by Hair et al.[96], a structural path is deemed statistically significant when the p-value is below 0.05 and the bias-corrected confidence interval does not contain zero. This criterion ensures that the observed relationships between constructs are statistically meaningful and unlikely to result from random variation. As summarized in Table 5 (direct effects) and Table 6 (mediating effects), all proposed hypotheses were supported, indicating strong empirical associations among the examined variables.

Table 5 outlines the results of the direct path analysis within the structural model. Each path coefficient was statistically significant, supported by p-values under 0.05 and confidence intervals that excluded zero. Notably, attitude toward organic vegetables had a significant and positive influence on purchase intention ($\beta = 0.258$, $t = 6.420$, $p < 0.001$), underscoring the pivotal role of attitude in shaping consumers' behavioural intentions.

In addition, several value orientations were found to significantly enhance attitudes. Altruistic value (β = 0.193, t = 4.519, p < 0.001), biospheric value (β = 0.203, t = 4.730, p < 0.001), collectivistic value (β = 0.130, t = 3.401, p = 0.001), and egoistic value (β = 0.201, t = 5.031, p < 0.001) all showed positive and significant effects on attitude, highlighting the importance of personal and social values in fostering favourable evaluations of organic vegetables.

Risk perceptions were also shown to significantly impact attitudes. Functional risk (β = 0.157, t = 3.664, p < 0.001) and financial risk (β = 0.092, t = 2.548, p = 0.011) emerged as significant predictors. Furthermore, consumer knowledge had a direct and positive influence on purchase intention (β = 0.261, t = 7.071, p < 0.001), emphasizing the role of information and awareness in encouraging sustainable consumption decisions.

Overall, these results validate the hypothesized direct relationships among the study's key constructs and provide robust support for the proposed conceptual model.

Table 5. Results of direct path analysis

Path	β (Path coefficients)	T-statistics	P-values	LLCI	ULCI	Result
ATT -> PI	0.258	6.42	<0.001	0.179	0.336	Supported
AV -> ATT	0.193	4.519	<0.001	0.107	0.276	Supported
BV -> ATT	0.203	4.73	<0.001	0.116	0.288	Supported
CK -> PI	0.261	7.071	<0.001	0.186	0.332	Supported
CV -> ATT	0.13	3.401	0.001	0.055	0.204	Supported
EV -> ATT	0.201	5.031	<0.001	0.12	0.279	Supported
FCR -> ATT	0.157	3.664	<0.001	0.075	0.24	Supported
FNR -> ATT	0.092	2.548	0.011	0.022	0.164	Supported

Note: *AV = Altruistic Value; BV = Biospheric Value; CV = Collectivistic Value; EV = Egoistic Value; FCR = Financial Risk; FNR = Functional Risk; CK = Consumer Knowledge; ATT = Attitude; PI = Purchase Intention; β = Standardised path coefficient; LLCI = Lower-Level Confidence Interval; ULCI = Upper-Level Confidence Interval.*

As presented in **Table 6**, the mediation analysis reveals that attitude plays a significant mediating role in the relationships between each of the independent variables and purchase intention toward organic vegetables. All indirect paths were statistically significant, as evidenced by p-values below 0.05 and confidence intervals that excluded zero, thereby confirming the presence of mediation effects. These results underscore the central function of attitude as a psychological conduit through which consumer values and perceived risks exert their influence on purchase intentions.

Table 6. Mediating effects test results.

Path	β (Path Coefficient)	T statistics	P values	LLCI	ULCI	Result
AV -> ATT -> PI	0.05	3.622	<0.001	0.025	0.08	Supported
BV -> ATT -> PI	0.053	3.811	<0.001	0.028	0.082	Supported
CV -> ATT -> PI	0.034	3.064	0.002	0.013	0.056	Supported
EV -> ATT -> PI	0.052	3.826	<0.001	0.027	0.081	Supported
FCR -> ATT -> PI	0.041	3.256	0.001	0.018	0.067	Supported
FNR -> ATT -> PI	0.024	2.285	0.022	0.005	0.046	Supported

Note: *AV = Altruistic Value, BV = Biospheric Value, CV = Collectivistic Value, EV = Egoistic Value, FCR = Financial Risk, FNR = Functional Risk, ATT = Attitude, PI = Purchase Intention; β = Standardised path coefficient; LLCI = Lower-Level Confidence Interval; ULCI = Upper-Level Confidence Interval.*

The moderating role of consumer knowledge in the relationship between attitude and purchase intention was examined through an interaction term (CK × ATT). As illustrated in **Table 7**, the interaction effect was statistically significant (β = -0.312, t = 12.294, p < 0.001, LLCI = -0.361, ULCI = -0.262). Nonetheless, the negative coefficient suggests that consumer knowledge diminishes the strength of the relationship between attitude and purchase intention, rather than enhancing it. As a result, the proposed moderating hypothesis is not supported, given that the observed direction of moderation contradicts the expected positive effect.

Table 7. Moderating effects test results.

Path	β (Path Coefficient)	T statistics	P values	LLCI	ULCI	Result
CK x ATT -> PI	-0.312	12.294	<0.001	-0.361	-0.262	Not Supported

Note: *CK = Consumer Knowledge, ATT = Attitude, PI = Purchase Intention; β = Standardised path coefficient; LLCI = Lower-Level Confidence Interval; ULCI = Upper-Level Confidence Interval.*

5. Discussion

This study provides empirical validation of a structural model examining the psychological mechanisms influencing Chinese consumers' intentions to purchase organic vegetables. In line with the Theory of Planned Behaviour (TPB)[97], the findings confirm that attitude plays a central role in shaping purchase intention. Respondents with favourable evaluations of organic vegetables are significantly more likely to intend to purchase them. Moreover, value orientations including altruistic, biospheric, collectivistic, and egoistic values, along with perceived risks, both functional and financial, exerted strong and statistically significant effects on attitude formation. These results highlight the interplay between intrinsic motivations and risk considerations in forming pro-environmental consumer attitudes[98].

Beyond attitude, consumer knowledge also emerged as a significant direct predictor of purchase intention, reinforcing the importance of informed awareness in encouraging sustainable consumption[99]. The mediation analysis further confirmed that attitude acts as a key psychological mechanism through which values and perceived risks influence behavioural intention. This lends support to the theoretical coherence of the model and underscores the integrative value of TPB in explaining sustainable food choices.

However, a particularly noteworthy and unexpected outcome lies in the negative moderating effect of consumer knowledge on the attitude–intention relationship. Although the interaction was statistically significant (β = –0.312), its direction contradicts initial expectations. Rather than strengthening the influence of attitude, higher levels of knowledge appear to weaken its effect. This counterintuitive finding suggests that more informed consumers may be more discerning, cautious, or even sceptical, particularly in contexts where institutional trust is fragile or product claims are ambiguous. It introduces a compelling conceptual nuance referred to in this study as the "knowledge–trust paradox," and warrants further theoretical and empirical investigation in future research[100].

Taken together, these findings not only extend the explanatory scope of TPB by integrating nuanced attitudinal drivers but also provide critical insights into how cognitive mechanisms and contextual uncertainties interact in emerging consumer markets. These findings have important implications for certification policies, regulatory frameworks, and market communication strategies, which are discussed in detail below.

5.1. Implications for policy and practice

The emergence of the "knowledge–trust paradox" in this study underscores the pressing need for more effective policy and institutional responses in China's organic food sector. While consumer knowledge is generally assumed to enhance purchase intention, the observed negative moderating effect indicates that more

informed consumers may become increasingly critical, especially in situations where organic certification systems are perceived as inconsistent, lacking transparency, or lacking institutional credibility.

By contrast, several developed countries have established robust regulatory infrastructures that enhance consumer confidence in organic products. For example, the United States' National Organic Program (NOP) implemented the Strengthening Organic Enforcement (SOE) rule in 2023, which introduced stricter traceability requirements and strengthened oversight across the supply chain. In the European Union, Regulation 2018/848 ensures uniform standards, consistent labeling, and mandatory certification for all organic products across member states. Similarly, Australia has proposed new legislation to address organic greenwashing and elevate certification integrity.

China, however, continues to face consumer scepticism due to fragmented certification systems, inconsistent enforcement, and a lack of centralised traceability mechanisms. These challenges are especially salient for knowledgeable consumers, who actively seek verifiable information yet often encounter ambiguity or inconsistent certification standards. Therefore, implementing a national-level, government-endorsed certification system with legal enforceability and real-time digital traceability is imperative. Malaysia's "myOrganic" scheme offers a useful precedent, demonstrating how a clear and credible label can enhance knowledge, trust, and perceived quality, thereby strengthening consumer purchase intention.

Moreover, comparative research has shown that consumers in developed markets often trust domestic certification schemes, whereas Chinese consumers tend to place greater confidence in imported or foreign-affiliated certifications. This reflects a broader trust deficit in local regulatory institutions and highlights the need for institutional branding, third-party audits, and transparent public communication. Aligning national standards with internationally recognised frameworks, such as the Asia Regional Organic Standard (AROS), could further improve global credibility and domestic trust.

In summary, bridging the gap between consumer knowledge and purchase intention requires not only education but also systemic change. Certification bodies, policymakers, and marketers must collaborate to improve traceability, ensure credibility, and convey value through consistent, evidence-based communication. Only by addressing both informational and institutional dimensions can the organic sector in China fully realise its potential for sustainable market growth.

6. Conclusion

This research offers a comprehensive examination of the psychological mechanisms influencing Chinese consumers' intentions to purchase organic vegetables. With the model explaining 68.5% of variance in purchase intention and 77.7% in attitude, it demonstrates substantial explanatory power and robustness. The study confirms the central roles of attitude, values, risk perceptions, and consumer knowledge, while extending TPB to reveal how knowledge can both facilitate and attenuate attitudinal influence.

Despite its contributions, the study has limitations. Its cross-sectional design limits causal interpretation, and reliance on self-reported data may introduce social desirability bias. Moreover, the findings are geographically and culturally specific to China.

Future research might address these limitations through longitudinal or experimental designs to further probe the knowledge–trust paradox. Investigations into institutional trust (e.g., in government or certification bodies) as a potential moderator or mediator could deepen theoretical understanding. Additionally, cross-cultural replication in other emerging markets would help assess the generalisability of the observed psychological mechanisms.

Overall, this study not only advances the literature on sustainable consumption but also provides actionable guidance for policymakers and practitioners aiming to enhance stronger consumer engagement with organic food products in emerging economies [101-102].

7. Implications

7.1. Theoretical implications

This study advances the theoretical understanding of sustainable consumer behaviour by integrating value orientations, perceived risks, consumer knowledge, and attitude into a unified structural model predicting purchase intention toward organic vegetables[103]. Several important theoretical insights emerge from the findings.

To begin with, the inclusion of four distinct value dimensions, namely altruistic, biospheric, collectivistic, and egoistic, demonstrates that both self-transcendent and self-enhancement values significantly influence pro-environmental attitudes. This extends prior research (e.g., de Groot & Steg, 2008)[83] by confirming that consumer attitudes toward organic vegetables are shaped not only by concern for others and the environment but also by self-interest and social belonging.

Moreover, the study contributes to the literature on perceived risk by showing that both functional and financial risks significantly undermine consumer attitudes. These findings underscore that even in sustainability-focused markets, concerns over product performance and cost remain salient, influencing consumer evaluations and willingness to engage in pro-environmental purchasing.

Another noteworthy contribution lies in the study's geographic focus. By examining urban Chinese consumers, this research addresses an underexplored context in the existing literature, which has predominantly centred on developed markets[104]. It offers novel insights into a rapidly growing consumer segment within emerging economies.

In addition, this research narrows its analytical lens to organic vegetables, rather than treating organic food as a homogenous category. This product-specific focus allows for a more nuanced understanding of consumer psychology and purchasing behaviour, offering targeted implications for both theory and practice in sustainable food marketing.

7.2. Managerial implications

The findings yield several actionable implications for practitioners seeking to promote organic vegetable consumption in China and other emerging markets.

One key implication is the significant role of consumer values in shaping attitudes[67]. Marketing strategies should be designed to appeal to both self-transcendent (e.g., environmental and social concerns) and self-enhancing (e.g., health and status-related) motivations. Tailored messaging that speaks to these value orientations is likely to foster more positive consumer responses.

A further implication relates to perceived risks. As both functional and financial risks negatively influence attitudes, marketers must address consumer concerns regarding product quality and affordability[65]. Transparent communication about nutritional benefits, production standards, and safety, coupled with competitive pricing, can help alleviate doubts. The use of certification labels, sourcing transparency, or satisfaction guarantees may further strengthen trust.

An additional insight arises from the moderating role of consumer knowledge. Contrary to expectations, the study finds that greater knowledge may attenuate the influence of attitude on purchase intention. This suggests that informed consumers are more critical of marketing claims and require clear, evidence-based

communication[105]. Overly idealized or vague messages may trigger scepticism, especially among more discerning audiences.

Together, these implications highlight the need for a balanced strategy that integrates emotional appeal, credible information, and risk mitigation to enhance consumer acceptance of organic vegetables.

Furthermore, insights from prior studies in other emerging economies reinforce the importance of enhancing consumers' product knowledge to drive purchase intention. For instance, Nautiyal, S., & Lal, C. [106] demonstrated that product knowledge acts as a critical facilitator in shaping organic purchase intention in emerging markets like India. This suggests that educational campaigns, in-store information, and digital content that highlight the unique attributes of organic vegetables, such as safety, health benefits, and production transparency, can significantly influence consumer confidence and decision-making. Such efforts should be designed with cultural and contextual sensitivities to avoid information overload or scepticism among more knowledgeable consumer segments.

In addition, while the present study focuses on consumer perspectives, prior research has highlighted the economic sustainability of organic farming from the producer's viewpoint. Garg et al.[107] argued that organic farming can be economically viable when supported by institutional mechanisms and consumer awareness. Managers and policymakers should consider supporting initiatives that link producer and consumer interests, such as fair pricing, farmer cooperatives, and government subsidies. These structural interventions not only improve supply chain stability but may also strengthen public trust in organic certification systems and market integrity.

8. Limitations and further research

While the study provides valuable contributions, several limitations should be acknowledged.

To start, the use of an online, self-administered survey distributed via social media may have introduced self-selection bias and limited representativeness. Future research could benefit from more robust sampling techniques, such as stratified or multi-stage sampling, and by including offline data collection to reach underrepresented populations[108].

Additionally, the cross-sectional nature of the study limits causal interpretation. Longitudinal or experimental research designs could offer deeper insight into how attitudes and intentions evolve over time or in response to targeted interventions.

Another limitation lies in the study's exclusive focus on organic vegetables, which, while enhancing specificity, limits generalisability across other organic product categories. While this enhances the specificity of findings, it restricts generalizability to other organic product categories. Comparative research across different food types could test whether the observed relationships hold more broadly.

Another area for further inquiry concerns the unexpected negative moderating effect of consumer knowledge [105]. Future research should investigate additional moderating variables, including consumer scepticism, perceived greenwashing, and brand trust, and consider qualitative approaches to gain deeper insight into how knowledgeable consumers interpret marketing messages.

Lastly, the study focuses solely on the Chinese market. Given the substantial regional differences within China in terms of economic conditions, cultural values, and environmental awareness, comparative studies across different regions or between urban and rural areas could offer more comprehensive insights into consumer behaviour. Comparative studies across diverse product categories and cultural settings will be

essential in establishing the generalisability of the observed psychological mechanisms and refining strategies for sustainable consumption.

Conflict of interest

The authors declare no conflict of interest.

References

1. Robinson GM. Global sustainable agriculture and land management systems. Geography and Sustainability. 2024;5(4):637-46.
2. Food and Agriculture Organization. Greenhouse gas emissions from agrifood systems: Global, regional and country trends, 2000–2022. Rome; 2023.
3. Qian H, Zhu X, Huang S, Linquist B, Kuzyakov Y, Wassmann R, et al. Greenhouse gas emissions and mitigation in rice agriculture. Nature Reviews Earth & Environment. 2023;4(10):716-32.
4. UNESCO. UN World Water Development Report 2024. 2024.
5. Technology， CUo. Agriculture drives more than 90% of tropical deforestation 2022 [Available from: https://www.sciencedaily.com/releases/2022/09/220908172312.htm.
6. Fund, WW. Sustainable Agriculture 2025 [Available from: https://www.worldwildlife.org/industries/sustainable-agriculture.
7. World Population Review. Vegetable Consumption by Country 2025 2025 [Available from: https://worldpopulationreview.com/country-rankings/vegetable-consumption-by-country.
8. Zhan X, Shao C, He R, Shi R. Evolution and Efficiency Assessment of Pesticide and Fertiliser Inputs to Cultivated Land in China. Int J Environ Res Public Health. 2021;18(7).
9. Yang S, Chen H, Li Z, Ruan Y, Yang Q. Temporal and spatial analysis of fertilizer application intensity and its environmental risks in China from 1978 to 2022. Environmental Sciences Europe. 2024;36(1):188.
10. Zhang X, Zhao B, Zhang Y, Zhang J, Li Y, Zhong J, et al. Sources, interactions, influencing factors and ecological risks of microplastics and antibiotic resistance genes in soil: A review. Science of The Total Environment. 2024:175226.
11. Lin X, Qian J, Chen J, Yu Q, You L, Chen Q, et al. Potential decarbonization for balancing local and non-local perishable food supply in megacities. Resources, Environment and Sustainability. 2025;20:100206.
12. Gamage A, Gangahagedara R, Gamage J, Jayasinghe N, Kodikara N, Suraweera P, et al. Role of organic farming for achieving sustainability in agriculture. Farming System. 2023;1(1):100005.
13. Zou Y, Liu Z, Chen Y, Wang Y, Feng S. Crop rotation and diversification in China: Enhancing sustainable agriculture and resilience. Agriculture. 2024;14(9):1465.
14. Cao D, Xie Q, Yao X, Zheng Y. Organic food consumption in China: food safety concerns, perceptions, and purchase behavior under the moderating role of trust. Frontiers in Sustainable Food Systems. 2023;7:1319309.
15. Anand A, Sharma M. Unveiling the impact of environmental factors on consumer purchase intention for sustainable products. International journal of environmental sciences. 2023.
16. Fu K, Jin X, Omar A. Towards sustainable and healthier food consumption: Factors influencing organic vegetables purchase intention of Chinese consumers. Global Business & Management Research. 2024;16.
17. Nitzko S. Consumer evaluation of food from pesticide-free agriculture in relation to conventional and organic products. Farming System. 2024;2(4):100112.
18. Yang J, Al Mamun A, Reza MNH, Yang M, Abd Aziz N. Predicting the significance of consumer environmental values, beliefs, and norms for sustainable fashion behaviors: The case of second-hand clothing. Asia Pacific Management Review. 2024;29(2):179-94.
19. Wei S, Liu F, She S, Wu R. Values, motives, and organic food consumption in China: a moderating role of perceived uncertainty. Frontiers in psychology. 2022;13:736168.
20. Wu Y, Yu J. Exploring social influences and values in promoting sustainable food consumption using hybrid three stage methods. Scientific Reports. 2025;15(1):12067.
21. Xing Y, Li M, Liao Y. Trust, price sensitivity and consumers' organic food purchasing behaviour in China. Food Science and Technology. 2022;42:e42422.
22. Castro Campos B, Qi X. A literature review on the drivers and barriers of organic food consumption in China. Agricultural and Food Economics. 2024;12(1):18.
23. Hu T, Al Mamun A, Reza MNH, Wu M, Yang Q. Examining consumers' willingness to pay premium price for organic food. Humanities and Social Sciences Communications. 2024;11(1):1-15.
24. Moroşan E, Popovici V, Popescu IA, Daraban A, Karampelas O, Matac LM, et al. Perception, Trust, and Motivation in Consumer Behavior for Organic Food Acquisition: An Exploratory Study. Foods. 2025;14(2):293.

25. Al Mamun A, Yang M, Hayat N, Gao J, Yang Q. The nexus of environmental values, beliefs, norms and green consumption intention. Humanities and Social Sciences Communications. 2025;12(1):1-14.
26. Li B, Chen Z. Barriers Preventing Chinese Male Consumers from Purchasing Green Beauty Products. 2023.
27. Park J, Ryu Y, Kim Y. Factors influencing air passengers' intention to purchase voluntary carbon offsetting programs: The moderating role of environmental knowledge. Journal of Air Transport Management. 2024;118:102619.
28. Li J, Guo F, Xu J, Yu Z. What influences consumers' intention to purchase innovative products: Evidence from China. Frontiers in Psychology. 2022;13:838244.
29. Vega E. The Abyss of Abundance: Consumer Overconsumption and the Road to Environmental Collapse. 2024.
30. Linder N, Giusti M, Samuelsson K, Barthel S. Pro-environmental habits: An underexplored research agenda in sustainability science. Ambio. 2022:1-11.
31. Schwartz SH. Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. Advances in experimental social psychology. 25: Elsevier; 1992. p. 1-65.
32. Nazirova Z, Borbala S. Values, attitudes and the behaviour paradigm: a systematic literature review. Journal of Human Values. 2024;30(2):214-39.
33. Kim M, Kim S, Jeon S. One in three or three in one: Integrating three competing theoretical models (TPB, VIP, and PADM) to explain the intentions to act/actions against climate change. Heliyon. 2024;10(21):e39337.
34. Stern PC, Dietz T. The value basis of environmental concern. Journal of social issues. 1994;50(3):65-84.
35. Yang Y, Yuan Y, Liu P, Wu W, Huo C. Crucial to me and my society: How collectivist culture influences individual pro-environmental behavior through environmental values. Journal of Cleaner Production. 2024;454:142211.
36. Huang T, Leung AKy, Eom K, Tam K-P. Important to me and my society: How culture influences the roles of personal values and perceived group values in environmental engagements via collectivistic orientation. Journal of Environmental Psychology. 2022;80:101774.
37. Simeone M, Verneau F, Russo C. Me, us, or the planet: Who comes first? An explanatory analysis of consumer motivation for sustainable food consumption. Cleaner and Responsible Consumption. 2025:100268.
38. Hong Y, Al Mamun A, Masukujjaman M, Yang Q. Significance of the environmental value-belief-norm model and its relationship to green consumption among Chinese youth. Asia Pacific Management Review. 2024;29(1):127-40.
39. Park-Poaps H, Han T-I. The Roles of Perceived Threat, Organic Trust, and Consumer Effectiveness in Organic Consumption Across Different Organic Products. Sustainability. 2025;17(7):2821.
40. Issock PBI, Mpinganjira M, Roberts-Lombard M. Beyond sustainable consumption practices: Linking organic food consumption to hedonic and eudaimonic well-being. Appetite. 2023;188:106633.
41. Dang VT, Wang J, Nguyen HV, Nguyen QH, Nguyen N. A moderated mediation study of consumer extrinsic motivation and CSR beliefs towards organic drinking products in an emerging economy. British Food Journal. 2022;124(4):1103-23.
42. Khan Z, Khan A, Nazish M. "From farm to fork, naturally": consumers' intentions to buy organic food through online platforms, extending the UTAUT model with values. British Food Journal. 2025;ahead-of-print(ahead-of-print).
43. Khadka C. The Psychology of Altruism: Insights from Evolutionary and Social Psychology. Namuna Academic Journal. 2025;3(1):75-91.
44. Li H, Lin W. Would Altruistic Consumers Place A Higher Value on Sustainable Foods? Foods. 2023;12(19):3701.
45. Weigandt S. Altruism, Empathy and Political Orientation: Antecedents of Energy Saving behaviour? 2021.
46. Li J, Kim R. Consumers' green attitude and behavior in China and Singapore: The role of altruistic value and perceived consumer effectiveness, economic motive. Journal of Infrastructure, Policy and Development. 2024;8:9278.
47. Bhakta D, Bhowmick S. Cultivating Sustainability: Organic Farming as an Alternative Paradigm. Harvesting Tomorrow. 2024:57.
48. Fernandes E, Saraiva A. Alternative consumer practices for a sustainable identity: the perspective of organic food consumption. Journal of Marketing Management. 2022;38(3-4):279-308.
49. Hu T, Al Mamun A, Reza MNH, Wu M, Yang Q. Examining consumers' willingness to pay premium price for organic food. Humanities and Social Sciences Communications. 2024;11(1):1249.
50. Chang K-F, Lin C-T, Bin Y-Q. Harmony with nature: Disentanglement the influence of ecological perception and adaptation on sustainable development and circular economy goals in country. Heliyon. 2024;10(4).
51. Sihombing SO. The Transformation of Indonesian Consumers: Values Shaping Behavior: Penerbit NEM; 2025.
52. Xue L-L, Chang Y-R, Shen C-C. The sustainable development of organic agriculture-tourism: The role of consumer landscape and pro-environment behavior. Sustainability. 2020;12(15):6264.
53. Phamthi VA, Nagy Á, Ngo TM. The influence of perceived risk on purchase intention in e-commerce—Systematic review and research agenda. International Journal of Consumer Studies. 2024;48(4):e13067.

54. Koh LY, Xia Z, Yuen KF. Consumer acceptance of the autonomous robot in last-mile delivery: A combined perspective of resource-matching, perceived risk and value theories. Transportation Research Part A: Policy and Practice. 2024;182:104008.
55. Qi L, Xie Y, Zhang Q, Zhang J, Ma Y. Multi-feature fusion-based consumer perceived risk prediction and its interpretability study. PloS one. 2025;20(1):e0316277.
56. Abdul-Rahim R, Bohari SA, Aman A, Awang Z. Benefit–risk perceptions of FinTech adoption for sustainability from bank consumers' perspective: The moderating role of fear of COVID-19. Sustainability. 2022;14(14):8357.
57. Cabeza-Ramírez LJ, Fuentes-García FJ, Cano-Vicente MC, González-Mohino M. How generation X and millennials perceive influencers' recommendations: Perceived trustworthiness, product involvement, and perceived risk. Journal of Theoretical and Applied Electronic Commerce Research. 2022;17(4):1431-49.
58. Zhang Z, Hou Y. The effect of perceived risk on information search for innovative products and services: the moderating role of innate consumer innovativeness. Journal of consumer marketing. 2017;34(3):241-54.
59. Cui L, He S, Deng H, Wang X. Sustaining customer loyalty of fresh food e-tailers: an empirical study in China. Asia Pacific Journal of Marketing and Logistics. 2023;35(3):669-86.
60. Featherman M, Jia SJ, Califf CB, Hajli N. The impact of new technologies on consumers beliefs: Reducing the perceived risks of electric vehicle adoption. Technological Forecasting and Social Change. 2021;169:120847.
61. Imran HM, Sabbir MM. Understanding Organic Food Consumption as a Sustainable Choice in the Post-COVID Era Through the Lens of Extended Theory of Planned Behavior: The Moderating Role of Health Value. Asia-Pacific Journal of Business. 2025;16(1):21-46.
62. Chang Y, editor Study on Buying Intention of Organic Vegetables under Perceived Risk2024: Atlantis Press.
63. Tomassetti J. Controlling the shrink levels of organic produce: The Produce News; 2024 Available from: https://theproducenews.com/organics/controlling-shrink-levels-organic-produce.
64. Farrah. Fake Organic Food From China is FLOODING U.S 2024 [Available from: https://doctorfarrah.com/2024/05/02/fake-organic-food-from-china-is-flooding-u-s-store-shelves-what-you-need-to-know-2/.
65. Michałowska M, Kułyk P, Pietrow L. Consumer Risk in the Purchasing Process in the Organic Food Market. Sustainability. 2024;16(21):9205.
66. Ajzen I, Fishbein M. Attitudes and the attitude-behavior relation: Reasoned and automatic processes. European review of social psychology. 2000;11(1):1-33.
67. Leyva-Hernández SN, Toledo-López A, Hernández-Lara AB, Arango-Ramírez PM, Avendaño-Rito MdC. Values, attitude, and desire in organic food purchase intention in Mexico. Frontiers in Sustainable Food Systems. 2025;8:1516788.
68. Aertsens J, Verbeke W, Mondelaers K, Van Huylenbroeck G. Personal determinants of organic food consumption: a review. British food journal. 2009;111(10):1140-67.
69. Zhang Y, Quoquab F, Mohammad J, Tao YM. Eat green, be healthy: Gen-Z's green food purchase intention–moderated by greenwash and fear of pandemic recurrence. British Food Journal. 2025.
70. Wang Z-X, Chee WM, Jantan AHB, Xia Y-H, Xue H, Ye M-J, et al. Impact of perceived value in virtual brand communities on purchase intention of domestic electric vehicles. Acta Psychologica. 2024;248:104371.
71. Cahyasita D. Intention to re-consume organic food: Sensory attributes, egoistic motive, and warm glow in the extended TPB. AIMS Agriculture & Food. 2021;6(4).
72. Guan T, Zhang Q. Value orientations, personal norms, and public attitude toward SDGs. International Journal of Environmental Research and Public Health. 2023;20(5):4031.
73. Boobalan K, Nawaz N, Rm H, Gajenderan V. Influence of altruistic motives on organic food purchase: Theory of planned behavior. Sustainability. 2021;13(11):6023.
74. Canova L, Bobbio A, Manganelli AM. Buying organic food products: the role of trust in the theory of planned behavior. Frontiers in psychology. 2020;11:575820.
75. Teixeira SF, Barbosa B, Cunha H, Oliveira Z. Exploring the antecedents of organic food purchase intention: An extension of the theory of planned behavior. Sustainability. 2021;14(1):242.
76. Mishra U, Thaichon P. Why is no one buying organic food? The role of nature experience and attitude antecedents on purchase intention. Asian Journal of Business Research. 2025;15(1):42-65.
77. Jyothychandra R, Sulaimann E. Effect of consumer prior knowledge on attitude, behavioural intention and adoption of artificial intelligence enabled products: A study among generation Y and Z. International Journal of Health Sciences. 2022(II):2109-28.
78. Nazir YaK, Maaz Ali. Consumer knowledge of organic food and attitude towards buying organic foods: Moderating role of organic food knowledge: International Islamic University; 2023.
79. Cicciù B, Carmona LJDM. The impact of consumer skepticism on the perceived value of organic food and purchase intention. Revista de Administração da UFSM. 2024;17:e8.
80. Nguyen TM, Park JH, Choi WL. Factors Influencing Consumer Purchase Intention toward Organic Food Products: an Empirical Study in Vietnam Market. Journal of Channel and Retailing. 2021;26(1):127-47.

81. Tarkiainen A, Sundqvist S. Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. British food journal. 2005;107(11):808-22.
82. Yadav R, Pathak GS. Intention to purchase organic food among young consumers: Evidences from a developing nation. Appetite. 2016;96:122-8.
83. De Groot JIM, Steg L. Value orientations to explain beliefs related to environmental significant behavior: How to measure egoistic, altruistic, and biospheric value orientations. Environment and behavior. 2008;40(3):330-54.
84. Stern PC, Dietz T, Abel T, Guagnano GA, Kalof L. A value-belief-norm theory of support for social movements: The case of environmentalism. Human ecology review. 1999:81-97.
85. Shin YH, Moon H, Jung SE, Severt K. The effect of environmental values and attitudes on consumer willingness to pay more for organic menus: A value-attitude-behavior approach. Journal of Hospitality and Tourism Management. 2017;33:113-21.
86. Roseira C, Teixeira S, Barbosa B, Macedo R. How collectivism affects organic food purchase intention and behavior: A study with Norwegian and Portuguese young consumers. Sustainability. 2022;14(12):7361.
87. Kim I, Jung HJ, Lee Y. Consumers' value and risk perceptions of circular fashion: Comparison between secondhand, upcycled, and recycled clothing. Sustainability. 2021;13(3):1208.
88. Vega-Zamora M, Torres-Ruiz FJ, Parras-Rosa M. Towards sustainable consumption: Keys to communication for improving trust in organic foods. Journal of Cleaner Production. 2019;216:511-9.
89. Li L, Wang Z, Li Y, Liao A. Consumer innovativeness and organic food adoption: The mediation effects of consumer knowledge and attitudes. Sustainable Production and Consumption. 2021;28:1465-74.
90. Peña-García N, Gil-Saura I, Rodríguez-Orejuela A, Siqueira-Junior JR. Purchase intention and purchase behavior online: A cross-cultural approach. Heliyon. 2020;6(6).
91. Teng C-C, Lu C-H. Organic food consumption in Taiwan: Motives, involvement, and purchase intention under the moderating role of uncertainty. Appetite. 2016;105:95-105.
92. Hair JF, Astrachan CB, Moisescu OI, Radomir L, Sarstedt M, Vaithilingam S, et al. Executing and interpreting applications of PLS-SEM: Updates for family business researchers. Journal of Family Business Strategy. 2021;12(3):100392.
93. Ab Hamid MR, Sami W, Sidek MHM, editors. Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion2017: IOP Publishing.
94. Henseler J, Ringle CM, Sarstedt M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the academy of marketing science. 2015;43:115-35.
95. F. Hair Jr J, Sarstedt M, Hopkins L, G. Kuppelwieser V. Partial least squares structural equation modeling (PLS-SEM) An emerging tool in business research. European business review. 2014;26(2):106-21.
96. Hair JF, Risher JJ, Sarstedt M, Ringle CM. When to use and how to report the results of PLS-SEM. European business review. 2019;31(1):2-24.
97. Ajzen I. The theory of planned behavior. Organizational Behavior and Human Decision Processes. 1991;50(2):179-211.
98. Yadav R, Pathak GS. Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. Journal of Cleaner Production. 2016;135:732-9.
99. Kumar B, Manrai AK, Manrai LA. Purchasing behaviour for environmentally sustainable products: A conceptual framework and empirical study. Journal of retailing and consumer services. 2017;34:1-9.
100. Dhir A, Talwar S, Kaur P, Malibari A. Food waste in hospitality and food services: A systematic literature review and framework development approach. Journal of Cleaner Production. 2020;270:122861.
101. Roh, Taewoo & Seok, Junhee & Kim, Yaeri, 2022. "Unveiling ways to reach organic purchase: Green perceived value, perceived knowledge, attitude, subjective norm, and trust," Journal of Retailing and Consumer Services, Elsevier, vol. 67(C).
102. Garg, S., Narwal, K.P. and Kumar, S. (2024), "Exploring the determinants of purchase intention of organic consumers for organic food items: an exploratory study in India", British Food Journal, Vol. 126 No. 3, pp. 1238-1258. https://doi.org/10.1108/BFJ-09-2023-0788
103. Thøgersen J. Consumer decision-making with regard to organic food products. Traditional food production and rural sustainable development: Routledge; 2016. p. 173-92.
104. Zhou Y, Thøgersen J, Ruan Y, Huang G. The moderating role of human values in planned behavior: the case of Chinese consumers' intention to buy organic food. Journal of consumer marketing. 2013;30(4):335-44.
105. Abdul Latip M, Newaz F, Mohamad M, Tumin SA, Rahman N, Noh I. The Moderating Effect of Food Safety Knowledge on Organic Food Purchase Intention in a New Normal. Pertanika Journal of Social Science and Humanities. 2021;29:2281-99.
106. Nautiyal S, Lal C. Product knowledge as a facilitator of organic purchase intention in emerging markets: Empirical evidence from India. Journal of Cleaner Production. 2022;372:133782.

107. Garg, S., Narwal, K. P., & Kumar, S. (2024). Economic sustainability of organic farming: An empirical study on farmer's perspective. International Journal of Sustainable Agricultural Management and Informatics, 10(2), 117–133. https://doi.org/10.1504/IJSAMI.2024.137659
108. Huo H, Sh. Ahmad F, Teoh B. Evaluating the purchasing behavior of organic food among Chinese consumers. Young Consumers. 2023;24(6):669-85.