

# The Effect of Consumer Acquisition Process on Consumer Satisfaction in Purchasing Fresh Food Online in the Context of Uncertainty

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**Abstract:** This study aims to identify the key factors influencing Chinese consumers' satisfaction when purchasing fresh food online in the context of uncertainty. It explores how these factors impact consumer satisfaction, electronic word-of-mouth (e-WOM), and behavioral intentions, providing insights into the unique challenges of the online fresh food market. A conceptual framework was developed based on prior literature, identifying seven key determinants of consumer satisfaction: information quality, website design, merchandise attributes, security, payment, delivery, and customer service. The study employs a quantitative research approach, using path analysis through linear regression to test hypotheses. Data were collected from 266 respondents with prior experience in online fresh food shopping, and reliability and validity were confirmed through Cronbach's alpha and confirmatory factor analysis. The results confirm that all seven determinants positively influence consumer satisfaction in the online fresh food market. Additionally, consumer satisfaction is found to have a significant positive impact on both behavioral intentions and e-WOM. These findings highlight the importance of addressing perishability, quality sensitivity, and uncertainty in shaping consumer satisfaction. This research contributes to the theoretical understanding of consumer satisfaction in e-commerce by extending existing models to the context of uncertainty. It provides a comprehensive hierarchical model that evaluates the consumer acquisition process from pre-purchase to post-purchase stages. The findings offer actionable insights for online retailers to enhance their strategies and meet consumer needs in a highly competitive and volatile market.

## 1 INTRODUCTION

The rapid growth of online shopping has transformed consumer behavior and the retail landscape in China, and the China Online Shopping Market was estimated at USD 1400 billion in 2022 and is anticipated to reach around USD 2300 billion by 2030, growing at a CAGR of roughly 9% between 2023 and 2030 in Table 1 (CMI, 2024). Compared to traditional brick-and-mortar stores, online shopping offers unparalleled convenience, enabling consumers to compare and evaluate goods and their alternatives with ease (Shankar et al. 2003). Additionally, online platforms provide a broader variety of products than local markets, with many offering direct-to-home

delivery services (Chu et al. 2010). Among the various categories of online shopping, fresh food and groceries have emerged as a critical segment, driven by increasing consumer demand and the unique characteristics of perishable goods. The online fresh food market has experienced exponential growth and continues to witness both success and struggle. It estimates that the scale of the fresh food e-commerce transactions in 2023 will reach RMB 642.76 billion, a year-on-year increase of 14.74% (CIW, 2023). However, the perishable nature of fresh food, coupled with its short shelf life, makes it a unique and challenging category for e-commerce. For Chinese consumers, food safety remains a top priority, particularly during periods of uncertainty (Wang et al., 2019; Gao et al., 2020). This underscores the

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importance of understanding the factors that influence consumer satisfaction in the online fresh food market, especially in the face of unpredictable and volatile conditions.

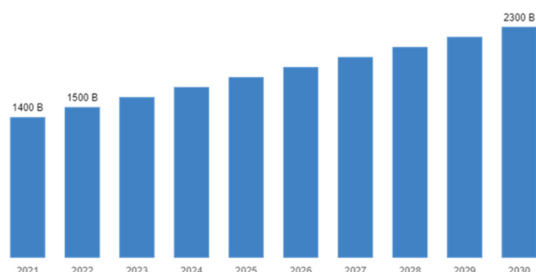


Figure 1: China Online Shopping Market 2022-2030 (dollars by billion) (CMI, 2024).

Periods of uncertainty, such as economic instability, supply chain disruptions, and shifting consumer preferences, have introduced new complexities to the online shopping landscape. Especially, external shocks can act as catalysts for behavioral changes, pushing consumers to adopt online shopping due to health concerns and restrictions on physical movement. Such shifts highlight the critical role of e-commerce in addressing consumer concerns and meeting their needs during uncertain periods (Gao et al., 2020). Existing studies have identified key factors influencing consumer satisfaction, such as information quality, delivery, and website design (Rita et al. 2019; Komara and Fathurahman, 2024). However, these studies primarily focus on stable market conditions and do not account for the unique challenges posed by uncertainty. The COVID-19 pandemic and other periods of uncertainty have amplified the importance of fresh food e-commerce.

With the growing importance of online fresh food shopping, the rise of uncertainty necessitates a deeper understanding of how the consumer acquisition process influences satisfaction in the online fresh food market. Factors such as economic instability, logistical challenges, and cultural differences during uncertain times may deviate from previous research findings and require updated models and frameworks. Moreover, while prior research has explored consumer satisfaction at specific stages of the purchasing process, limited studies have examined satisfaction across the entire consumer acquisition process, from pre-purchase to post-purchase stages, and its subsequent impact on future consumer behavior, such as electronic word-of-mouth (e-WOM) and repurchase intentions (Cheung et al., 2021).

To conclude, fresh products represent a unique and critical segment of e-commerce due to their perishability, short shelf life, and heightened quality sensitivity (Kim & Krishnan, 2015; Lee et al., 2020). Unlike durable goods, fresh food requires robust quality control, timely delivery, and effective communication to meet consumer expectations. These factors make fresh products a critical yet underexplored area in consumer satisfaction research. These challenges are further exacerbated during periods of uncertainty, such as the COVID-19 pandemic, when consumers increasingly rely on online platforms for essential goods (Zhou et al., 2018). Understanding the determinants of satisfaction in this context is crucial for addressing consumer concerns and fostering loyalty, particularly in a competitive and volatile market.

## 2 HYPOTHESIS DEVELOPMENT

### 2.1 Consumer Satisfaction in Online Shopping: A Hierarchical Model

Consumer satisfaction is a multidimensional construct influenced by both outcomes and comparisons. It is achieved when the performance of a product or service exceeds consumer expectations (Lu et al., 2020). While extensive research has explored the determinants of consumer satisfaction in traditional retail and online shopping contexts, the online fresh food market remains underexplored. Existing studies have identified key factors influencing satisfaction, such as service quality, shipping, information quality/transparency, and website design (Zhou et al., 2018; Savastano et al., 2024; Komara and Fathurahman, 2024). However, there is no consensus on how these factors interact or their relative importance in driving satisfaction (Schaupp and Bélanger, 2005). Furthermore, most studies focus on specific stages of the purchasing process, such as pre-purchase or purchase, neglecting the holistic consumer acquisition process and its impact on future behaviors (Kumar and Anjaly, 2017) like electronic word-of-mouth (e-WOM) and repurchase intentions (Cheung et al., 2021), especially the updates to reflect the challenges and dynamics of uncertain environments (Yang et al., 2024).

Recent research highlights the importance of post-purchase experiences in shaping consumer satisfaction, particularly in online retail. For example, Kumar and Anjaly (2017) developed a validated scale for Online Post-Purchase Customer Experience,

emphasizing dimensions such as returns/exchanges, delivery reliability, customer support, and the "feel-good" factor. These dimensions collectively influence consumer satisfaction and loyalty, underscoring the need to evaluate satisfaction across the entire consumer acquisition process. In the context of online fresh food shopping, product-level uncertainty is a significant determinant of satisfaction. Unlike traditional retail, where consumers can physically inspect products, online shoppers face challenges in assessing product quality, especially for perishable goods. Higher levels of product intangibility exacerbate this uncertainty, making it difficult for consumers to align product features with their needs (Kim and Krishnan, 2015). Vendors can mitigate this uncertainty through strategies such as detailed product descriptions, customer reviews, and flexible return policies, which enhance trust and satisfaction.

This study categorizes the consumer acquisition process into three stages: pre-purchase, purchase, and post-purchase. The pre-purchase stage involves information quality, website design, and merchandise attributes, while the purchase stage focuses on security and payment. The post-purchase stage emphasizes delivery reliability and customer service. Consumer behavioral intentions, such as repurchase willingness and frequency, are influenced by satisfaction across these stages (Cheung et al., 2021). Building on prior research, this study proposes a hierarchical model to examine the impact of the consumer acquisition process on satisfaction and future behavioral intentions (Lin et al., 2009; Blut, 2016; Zhou et al., 2018; Lu et al., 2020; Cheung et al., 2021; Savastano et al., 2024).

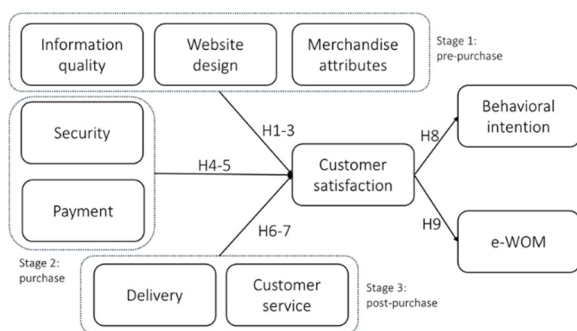


Figure 2: Conceptual Framework.

## 2.2 The Role of Information Quality, Website Design, and Merchandise Attributes

Information quality refers to the relevance, accuracy, and comprehensiveness of data provided to

consumers, and indicators of information quality include clarity, accuracy, and timeliness, which collectively influence consumer trust and satisfaction (Holloway and Beatty 2008; Blut 2016). In the complex and uncertain commercial environment, information quality has become increasingly influential during the decision-making process (Gao et al., 2020). High-quality information enhances consumer knowledge and reduces uncertainty, particularly in the online fresh food market, where accurate and detailed product descriptions and reviews play a critical role (Ghasemaghaei and Hassanein, 2015; Gao et al., 2020). Therefore, extensive and high-quality information will directly result in higher customer satisfaction (Liu et al. 2008). As such, the following hypothesis is proposed:

H1: During periods of uncertainty, high-quality information reduces uncertainty and enhances consumer trust, leading to higher satisfaction levels.

Website design encompasses the visual appeal, navigability, and functionality of an online platform (Rita et al. 2019). A well-designed website facilitates seamless navigation and quick access to information satisfaction (Zhou et al., 2018). Some studies have found a relationship between website design and consumer satisfaction; well-designed websites will enhance customer satisfaction towards online fresh food purchases and their perceived service quality (Lee et al. 2020). In addition, a well-designed website, such as layout, responsiveness, and ease of use, facilitates an enjoyable shopping experience, thereby enhancing consumer satisfaction (Duarte et al., 2018). Therefore, it's important to increase e-commerce platforms' adaptability in providing relevant information and optimizing website interfaces to cater to consumer expectations (Savastano et al., 2024). Thus:

H2: A well-designed website improves usability and creates a seamless shopping experience, therefore contributing to consumer satisfaction by making the shopping process more enjoyable and efficient.

Merchandise attributes refer to the quality, variety, and availability of products offered on an e-commerce platform. In the context of fresh food e-commerce, attributes such as freshness, packaging, and product descriptions are particularly important and play a significant role in shaping customer satisfaction with their online shopping experiences. These attributes can be evaluated through various aspects, including product variety, price, quality, and safety (Hwang 2013; Duarte et al. 2018). Among these, wider assortments of products have been shown to attract customers and result in higher satisfaction (Rita et al. 2019). Although some

scholars argue that customers are becoming less price-sensitive with the growth of the online food market (Mutum 2014), price remains one of the most frequently cited reasons for online shopping, as noted by respondents in earlier studies (Chen and Chang 2003). Alongside pricing, the importance of product quality has been growing in the context of the online food market, particularly due to the rising preference for healthy and organic products (Lee 2020). Product quality has been identified as a critical determinant of customer satisfaction, with Hwang (2013) emphasizing its significance as a core satisfaction construct. Moreover, product safety, an essential component of quality, is particularly important in the agricultural food sector, where it has been shown to significantly influence customer satisfaction and their likelihood of continued purchasing behavior (Gwon et al. 2015). Drawing upon these studies, the following hypothesis can be proposed:

H3: High-quality products that meet or exceed consumer expectations play a vital role in shaping consumer perceptions and satisfaction.

### **2.3 Security and Payment Systems as Drivers of Satisfaction**

Security is referred to as protecting the customers' personal information collected from e-transaction and avoiding unauthorized use or disclosure (Blut 2016). Compared with traditional shopping, online consumers lay more emphasis on the need for security (Wang et al. 2016). Basically, customers' concerns about security can be divided into several dimensions such as user authorization, transaction security and personal information privacy (Blut 2016). Previous research revealed that the perception of security risk has a negative relationship between satisfaction with the information service of the online platform (Guo et al. 2012). In other words, consumers will be more satisfied with their online shopping experience when they feel secure with the transaction process and their personal information. Thus, the following hypothesis is posited:

H4: Consumers are more satisfied with their online shopping experience when they feel confident that their data is secure and protected from unauthorized access.

In addition to security, convenience is another significant advantage recognized by customers in online shopping (Seiders et al. 2000). Among the various aspects of convenience, payment convenience stands out as a key feature (Duarte et al. 2018). E-payment, defined as a financial exchange facilitated by electronic means, has become a critical

component of online shopping (Roozbahani et al. 2015). When selecting a payment method, consumers prioritize both speed and ease of use (Beauchamp and Ponder 2010). Research has shown that customers are more satisfied when online platforms enhance transaction capabilities and design convenient, flexible payment mechanisms that save operation time (Liu et al. 2017). Moreover, the integration of e-payment systems into online shopping platforms not only streamlines the payment process but also raises customer expectations through rapid responses and seamless transactions (Roozbahani et al. 2015). Accordingly, the following hypothesis is proposed:

H5: Consumers are more likely to feel satisfied when the payment process is smooth, reliable, and free from complications.

### **2.4 Delivery and Customer Service: Enhancing Consumer Trust and Satisfaction**

Delivery refers to the process of transporting commodities from the distribution center to the customer. It is widely recognized that delivery issues have become one of the most common challenges faced during online shopping (Guo et al. 2012). In online purchases, after making the payment, customers must wait for their goods to be shipped and delivered. This waiting period is considered a non-monetary cost associated with online shopping (Beauchamp and Ponder 2010). Consequently, delays in delivery can negatively impact customer satisfaction (Gawor and Hoberg 2019). To ensure superior service quality and better meet customer expectations, companies are encouraged to enhance delivery timeliness and optimize delivery conditions (Rita et al. 2019). Based on this, the following hypothesis is proposed:

H6: Efficient delivery services that meet consumer expectations significantly enhance satisfaction and trust in the retailer.

Customer service contains service level and returning handling within and after the purchase (Blut 2016). In traditional purchase, there is always staff for helping when customers meet any difficulty. On the contrary, there are some purchases that happen online without any assistance (McLean and Wilson 2016). There are also some online businesses that provide online assistance in form of web-based synchronous media such as live chat facilities (Turel and Connelly 2013). Poor customer service is one root for common complaints of the online transaction (Chen and Chang 2003). There is evidence suggests that there can be a positive correlation between



customer service and customer satisfaction (Blut 2016). Hence:

H7: High-quality customer service is a key determinant of consumer satisfaction, especially in uncertain environments.

## 2.5 Consumer Satisfaction and Post-Purchase Behavior

Word-of-mouth (WOM) refers to the information about products that one individual shares with others and is recognized as a highly effective and powerful form of communication (Yang et al., 2024). Behavioral intention, on the other hand, represents a consumer's willingness to make another purchase from the same company based on their prior experience (Cheung et al., 2021). Consumer satisfaction serves as a key precursor to behavioral intentions, influencing outcomes such as increased repurchase rates and the spread of positive electronic WOM (e-WOM) (Savastano et al., 2024). Satisfied consumers are more likely to continue purchasing fresh food online and recommend it to others, highlighting the strong link between satisfaction and positive behavioral intentions. This relationship has been supported by various empirical studies (Blut, 2016; Gao et al., 2020; Savastano et al., 2024; Komara and Fathurahman, 2024).

The integration of big data analytics and grounded theory has further advanced our understanding of consumer behavior in online contexts, which is particularly relevant in the post-COVID-19 era, where digital transformation has significantly altered consumer expectations and behaviors (Yang et al., 2024). In contrast with offline shopping, the role of electronic WOM becomes even more critical as consumers heavily rely on the experiences of others to make informed purchasing decisions (Yang et al., 2024). Satisfied consumers are more likely to share positive experiences online, promoting e-commerce adoption among others, particularly as a safer alternative to physical stores, which highlights the role of satisfaction in driving e-WOM during times of uncertainty (Gao et al., 2020). Per the above review:

H8: High satisfaction levels foster trust and confidence, encouraging consumers to continue engaging with the retailer.

H9: A satisfying shopping experience increases the likelihood of positive e-WOM, enhancing the retailer's reputation and attracting new customers.

## 3 METHODOLOGY

### 3.1 Research Design

This study adopts a quantitative research approach to investigate the factors influencing consumer satisfaction in purchasing fresh food online, particularly in the context of uncertainty. A conceptual framework was developed based on prior literature (Liu et al., 2008; Zhou et al., 2018; Rita et al., 2019; Komara and Fathurahman, 2024), identifying key determinants of consumer satisfaction. These determinants include information quality (IQ), website design (WD), merchandise attributes (MA), security (SEC), payment (PAY), delivery (DEL), and customer service (CSE). Furthermore, the framework explores the relationship between consumer satisfaction (CSA), e-WOM, and behavioral intentions (BI). To comprehensively evaluate these relationships, a hierarchical model was proposed, offering insights into the consumer acquisition process.

The survey instrument used in the study was designed to measure the constructs identified in the conceptual framework. It consisted of two main sections: 1. Demographic Information: This section collected basic details about respondents, including age, gender, education level, and frequency of online shopping for fresh food. 2. Construct Measurement: This section utilized five-point Likert scales (ranging from 1 = strongly disagree to 5 = strongly agree) to assess respondents' perceptions of the factors influencing consumer satisfaction. Each construct was measured using multiple items adapted from validated scales in existing literature (e.g., Zhou et al., 2018; Fu et al., 2020; Komara and Fathurahman, 2024).

To ensure content validity, the survey items were reviewed by academic experts and practitioners in the e-commerce field. A pilot test was conducted with 30 respondents to refine the questionnaire and ensure clarity and relevance.

Table 1: Sample Demographics (n=266).

		n	%
Gender	Male	94	35.34
	Female	172	64.66
Age	Under 16	5	1.88
	16-24	74	27.82
	25-34	92	34.59
	35-44	56	21.05
	45-60	24	9.02
	Above 60	15	5.64
	≤High school	45	16.92
Education	Undergraduate	181	68.05
	≥Master	40	15.04

### 3.2 Data Collection

The data for this study were collected through an online survey targeting consumers in China who had prior experience purchasing fresh food online. The survey was distributed via social media platforms and e-commerce forums to reach a diverse audience. To ensure relevance, participants were required to have made at least one online fresh food purchase within the past month, and made purchases during a period of heightened uncertainty, characterized by economic instability and supply chain disruptions (e.g. Covid 19), ensuring the relevance of the findings to the study's context as well. A total of 266 valid responses were obtained, representing a sample of major consumers aged 16 to 44. This age range captures a significant portion of online shoppers, despite it may not fully represent older demographics or those in rural areas. The data comprises two sub-samples: one from consumers who primarily shop online and another from those who also engage in offline shopping. This dual-sample approach provided a more comprehensive understanding of consumer behavior across different shopping preferences.

### 3.3 Data Analysis

The collected data were analyzed using path analysis with simple linear regression, utilizing SPSS and AMOS software to test the proposed hypotheses. Confirmatory Factor Analysis (CFA) was conducted with maximum likelihood estimation to evaluate the measurement model, while regression analysis was

applied to test the hypothesized relationships within the structural model.

#### 3.3.1 Reliability and Validity Testing

Reliability of the constructs was assessed using Cronbach's alpha, with values ranging from 0.774 to 0.897, as presented in Table 2. These values exceed the recommended threshold of 0.70, indicating a high level of internal consistency (Nunnally, 1978). To evaluate validity, CFA was performed, and the model fit indices demonstrated an acceptable fit, as shown in Tables 3 and 4 (Bentler and Bonett, 1980; Hu and Bentler, 1999). Furthermore, all factor loadings ( $\lambda$ ) were statistically significant at  $p < 0.001$ , providing evidence of strong construct correlations (Fornell and Larcker, 1981).

Table 2: Reliability Results.

Constructs	Cronbach's alpha	AVE	CR
IQ	0.897	0.559	0.898
WD	0.792	0.564	0.794
MA	0.823	0.538	0.822
SEC	0.792	0.569	0.797
PAY	0.845	0.646	0.845
DEL	0.774	0.542	0.778
CSE	0.797	0.57	0.798
CSA	0.808	0.596	0.814
BI	0.788	0.651	0.789
e-WOM	0.840	0.575	0.843

Table 3: Statistics of Measurement Model

Constructs	Indicator	Std. Error	P-value	Std. Factor Loading	Constructs	Indicator	Std. Error	P-value	Std. Factor Loading
IQ	IQ1	-	-	0.744	WD	WD1	-	-	0.789
	IQ2	0.079	0.000	0.792		WD2	0.064	0.000	0.713
	IQ3	0.08	0.000	0.785		WD3	0.063	0.000	0.741
	IQ4	0.081	0.000	0.733	MA	MA1	-	-	0.798
	IQ5	0.084	0.000	0.718		MA2	0.07	0.000	0.696
	IQ6	0.086	0.000	0.771		MA3	0.066	0.000	0.692
	IQ7	0.081	0.000	0.682		MA4	0.063	0.000	0.741
SEC	SEC1	-	-	0.706	PAY	PAY1	-	-	0.812
	SEC2	0.095	0.000	0.729		PAY2	0.069	0.000	0.778
	SEC3	0.105	0.000	0.813		PAY3	0.071	0.000	0.819
DEL	DEL1	-	-	0.803	CSE	SCE1	-	-	0.797
	DEL2	0.069	0.000	0.742		SCE2	0.073	0.000	0.748
	DEL3	0.065	0.000	0.645		SCE3	0.07	0.000	0.715
CSA	CSA1	-	-	0.827	e-WOM	EW1	-	-	0.771
	CSA2	0.062	0.000	0.794		EW2	0.083	0.000	0.776
	CSA3	0.063	0.000	0.677		EW3	0.074	0.000	0.768
BI	BI1	-	-	0.824		EW4	0.071	0.000	0.706
	BI2	0.062	0.000	0.789					

Convergent validity was confirmed as the Average Variance Extracted (AVE) values exceeded the recommended threshold of 0.5, with values ranging from 0.538 to 0.651. Discriminant validity was also established by comparing the square root of the AVEs with the inter-construct correlations, as presented in Table 5, in accordance with the criteria proposed by Fornell and Larcker (1981). These findings confirm the reliability and validity of the measurement model, ensuring the constructs are both internally consistent and distinct from one another.

Table 4: Fit Statistics of CFA.

$\chi^2$	df	p	$\chi^2/df$	IFI
756.897	515	<0.01	1.47	0.963
RMSEA	RMR	CFI	NNFI	SRMR
0.042	0.044	0.963	0.957	0.037

### 3.3.2 Hypothesis Testing

Path analysis was used to explore the relationships between the key determinants of consumer satisfaction and their influence on e-WOM and behavioral intentions. The significance of each path coefficient was assessed to evaluate the strength and direction of the hypothesized relationships, as outlined in Table 6 (Lleras, 2005).

The results revealed that all standardized path coefficients were statistically significant at  $p < 0.01$ , confirming the hypothesized relationships. These findings provide strong support for the proposed model, demonstrating that the identified determinants of consumer satisfaction have meaningful and significant impacts on both e-WOM and behavioral intentions. In summary, all proposed hypotheses were supported by the analysis.

## 4 RESULTS DISCUSSION

### 4.1 The Role of Information Quality in Reducing Uncertainty

Information quality emerged as the most influential determinant of consumer satisfaction, consistent with previous studies (Gao et al., 2020). During periods of uncertainty, consumers rely heavily on accurate, reliable, and relevant information to make informed purchasing decisions (Cheung et al., 2021; Gao et al., 2020). The findings suggest that online retailers should prioritize providing detailed product descriptions, real-time inventory updates, and transparent sourcing information to alleviate consumer concerns.

Table 5: Pearson Correlations Matrix and Square Roots of AVEs.

	IQ	WD	MA	SEC	PAY	DEL	CSE	CSA	BI	EW
IQ	0.747									
WD	0.843	0.751								
MA	0.879	0.781	0.733							
SEC	0.731	0.645	0.714	0.754						
PAY	0.776	0.774	0.719	0.54	0.804					
DEL	0.817	0.777	0.806	0.638	0.762	0.736				
CSE	0.792	0.75	0.78	0.655	0.714	0.761	0.755			
CSA	0.812	0.781	0.785	0.619	0.746	0.764	0.753	0.772		
BI	0.786	0.761	0.754	0.619	0.71	0.736	0.704	0.782	0.807	
EW	0.826	0.708	0.771	0.703	0.63	0.735	0.705	0.724	0.76	0.758

Table 6: Hypotheses Results.

Proposed Effect		Std. Coefficient	t-value	R <sup>2</sup>	Result	F
IQ→CSA	+	0.809	22.623	0.66	H1 Supported	511.793
WD→CSA	+	0.76	20.322	0.61	H2 Supported	412.979
MA→CSA	+	0.79	20.594	0.616	H3 Supported	424.093
SEC→CSA	+	0.544	12.796	0.383	H4 Supported	163.749
PAY→CSA	+	0.72	18.184	0.556	H5 Supported	330.641
DEL→CSA	+	0.759	19.236	0.584	H6 Supported	370.006
CSE→CSA	+	0.753	18.584	0.567	H7 Supported	345.367
CSA→BI	+	0.841	20.407	0.612	H8 Supported	416.46
CSA→e-WOM	+	0.725	17.031	0.524	H9 Supported	290.065

## **4.2 Website Design and Its Impact on Consumer Experience**

Website design, including navigation capability, aesthetic appeal, and transaction efficiency, was found to significantly influence consumer satisfaction (Liu et al. 2008). In uncertain environments, where consumers may feel heightened stress or urgency, a well-designed website can enhance the shopping experience by reducing cognitive load and facilitating seamless transactions. This finding highlights the need for online retailers to invest in user-friendly interfaces and mobile-optimized platforms to cater to the growing demand for online grocery shopping during uncertain times.

## **4.3 Merchandise Attributes and Consumer Expectations**

Merchandise attributes, such as freshness, quality, and variety, play a critical role in shaping consumer satisfaction (Lee et al. 2020). The perishable nature of fresh food makes it particularly sensitive to consumer expectations, especially during periods of uncertainty when supply chain disruptions may impact product availability and quality. The results suggest that online retailers should establish robust quality control measures and communicate these efforts to consumers to maintain satisfaction and loyalty.

## **4.4 Security and Payment Systems: Building Consumer Trust**

Security and payment systems were identified as significant determinants of consumer satisfaction (Rita et al. 2019). In uncertain contexts, consumers are particularly concerned about the safety of online transactions and the protection of their personal information (Guo et al. 2012). The findings emphasize the importance of implementing secure payment gateways, offering multiple payment options, and clearly communicating privacy policies to build consumer trust and encourage repeat purchases.

## **4.5 Delivery and Customer Service: Meeting Consumer Expectations**

Delivery and customer service were also found to have a strong impact on consumer satisfaction. Timely and reliable delivery is especially critical for fresh food, as delays can compromise product quality.

During uncertain times, logistical challenges such as transportation disruptions or labor shortages may exacerbate delivery issues. The findings suggest that online retailers should adopt innovative solutions, such as real-time tracking systems and flexible delivery options, to address these challenges. Additionally, responsive and empathetic customer service can help resolve issues promptly and enhance overall satisfaction (Holloway and Beatty 2008).

## **4.6 Behavioral Intentions and e-WOM: The Ripple Effect of Satisfaction**

The study further demonstrates that consumer satisfaction positively influences behavioral intentions, such as repurchase intentions and e-WOM (Cheung et al., 2021). Satisfied consumers are more likely to recommend the platform to others, creating a ripple effect that can enhance the retailer's reputation and attract new customers. This finding underscores the strategic importance of prioritizing consumer satisfaction as a means of fostering long-term loyalty and growth, particularly in competitive and uncertain markets.

# **5 CONCLUSION**

While prior research has laid a foundation for understanding consumer satisfaction in online shopping, there is a growing need to incorporate emerging perspectives on post-purchase experiences and product-level uncertainty. In the context of online fresh food shopping, perishability and quality sensitivity amplify the importance of factors, information quality, website design, merchandise attributes, security, payment, delivery, and customer service, and the findings confirm that they positively influence consumer satisfaction. These results align with prior research (Liu et al. 2008; Rita et al. 2019) but extend the understanding of these factors by situating them within the unique challenges posed by uncertainty, such as economic instability and supply chain disruptions. The hierarchical model tested in this study provides a comprehensive framework for evaluating consumer satisfaction across the entire acquisition process, from pre-purchase to post-purchase stages. These dimensions enrich our understanding of consumer satisfaction and provide actionable insights for businesses seeking to enhance their e-commerce strategies in uncertain and dynamic environments.



### 5.1 Implications for Online Retailers in the Context of Uncertainty

The results of this study provide valuable insights for online retailers operating in uncertain environments. By addressing the seven key determinants of consumer satisfaction, retailers can better meet consumer needs and differentiate themselves in a highly competitive market. For example:

- **Information Quality:** Retailers should leverage technology, such as AI and big data analytics, to provide personalized recommendations and real-time updates.
- **Website Design:** Investing in intuitive and visually appealing interfaces can improve user experience and reduce cart abandonment rates.
- **Delivery and Customer Service:** Building resilient supply chains and training customer service teams to handle uncertainty can enhance consumer trust and satisfaction.

### 5.2 Theoretical Contributions

This study contributes to the theoretical body of knowledge on e-commerce by extending existing models of consumer satisfaction to the context of uncertainty. The hierarchical model developed in this research integrates multiple determinants across the entire consumer acquisition process, providing a more holistic understanding of consumer behavior in uncertain environments. The findings also highlight the dynamic interplay between satisfaction, behavioral intentions, and e-WOM, offering a foundation for future research on consumer behavior in volatile markets.

### 5.3 Limitations and Future Research Directions

While this study provides valuable insights, it has several limitations that should be addressed in future research. First, the sample was limited to consumers aged 16 to 44 with prior experience purchasing fresh food online, which may not fully represent the views of all online shoppers in China. Future studies should include a more diverse sample in terms of age, location, and education level. Second, this research focused on the direct effects of each determinant without exploring potential interrelationships or moderating factors. Future research could examine the intricate correlations between these variables and their impact on consumer satisfaction. Finally, the study applied the model to general fresh food

products without considering specific food categories. Future research could investigate whether the findings are consistent across different product segments or industries.

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