Main Factors Affecting Consumer Purchase Intention of Freshippo Application in China

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Abstract

The purpose of this study is to explore how e-service quality (efficiency, fulfulment, and privacy)influence consumer purchase intentions through e-satisfaction and e-trust. And to understand the mediating role between customer satisfaction and customer trust in the purchase intention of China Freshippo APP. Data were collected from 421 active Freshippo users in first and second-tier Chinese cities through a structured questionnaire. Structural equation modeling results reveal that: (1) efficiency, fulfillment, and privacy positively influence both e-satisfaction and e-trust; (2) e-satisfaction and e-trust significantly affect purchase intention; and (3) both e-satisfaction and e-trust mediate the relationships between e-service quality dimensions and purchase intention. The findings contribute to understanding consumer behavior in integrated retail environments and provide practical implications for retailers developing online-offline strategies. Specifically, the results suggest that retailers should focus on enhancing platform efficiency, ensuring reliable fulfillment, and strengthening privacy protection to build customer trust and satisfaction, ultimately driving purchase intention in the evolving retail landscape.

Keywords: Online Shopping; Consumer Behavior; New Retail; Freshippo APP; E-Satisfaction; E-Trust; Purchasing Intentions

Introduction

The retail industry has undergone significant transformation with the advent of digital technology, particularly in China's fresh food e-commerce sector. Despite the post-pandemic decline in online fresh food platform usage, the COVID-19 pandemic has accelerated the adoption of fresh e-commerce platforms, cultivating new consumer habits (Liu et al., 2022; Wang & Somogyi, 2020). Major players like Alibaba, JD, and various start-ups have entered this market, implementing diverse business models including O2O platforms, pre-warehouse systems, and community retail approaches (Zhai et al., 2020).

Recent studies have highlighted several challenges in the fresh food e-commerce sector, including quality consistency issues, last-mile delivery efficiency, and consumer trust concerns (Zhang & Zhao, 2019; Li et al., 2020). The integration of online and offline channels has emerged as a potential solution to these challenges, yet research indicates that consumers still experience significant hesitation when making fresh food purchases through integrated platforms (Zhao et al., 2021). This phenomenon raises important questions about the factors influencing consumer behavior in the new retail environment and the effectiveness of current business models.

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While existing literature has extensively examined traditional e-commerce adoption factors, the unique characteristics of fresh food e-commerce, particularly in the context of online-offline integration, remain understudied (Song et al., 2019). Previous research has primarily focused on either pure online or offline retail channels, leaving a significant gap in understanding consumer behavior within integrated retail environments (Yang et al., 2020). Additionally, the role of service quality dimensions in building electronic trust and satisfaction in the fresh food sector requires further investigation.

Research Objectives

This objective can be further delineated into the following specific aims:

1) To study customer purchase intention and it's related factors of Freshippo Application in China.

2) To investigate the impact on customer purchase intention of Freshippo Application in China.

3) To introduce the practical ways to increase the customer purchase intention of Freshippo Application in China.

Literature Review

The rapid evolution of digital retail has fundamentally transformed consumer behavior and shopping experiences. This transformation has sparked considerable academic interest in understanding the factors that influence consumer purchase intentions in online environments (Wang et al., 2015; Liu et al., 2022). Previous research has identified electronic service quality (e-SQ) as a critical determinant of online retail success, with particular emphasis on its key dimensions: efficiency, fulfillment, and privacy (Parasuraman et al., 2005).

The concept of e-SQ has evolved significantly from traditional service quality metrics to address the unique characteristics of digital commerce. Parasuraman et al. (2005) developed the E-S-QUAL scale, which has become a foundational framework for understanding online service quality. Subsequent research has refined this framework, identifying efficiency, fulfillment, and privacy as particularly crucial dimensions in the online retail context (Bauer et al., 2006; Loiacono et al., 2007).

Efficiency, defined as the platform's ability to facilitate user access to desired information and services with minimal effort (Zeithaml et al., 2002), has been shown to significantly influence user satisfaction and trust formation (Kim et al., 2009). Studies indicate that efficient online platforms enhance user satisfaction by reducing cognitive effort and improving the shopping experience (Swaid & Wigand, 2009). This suggests that efficiency plays a crucial role in shaping both satisfaction and trust in online retail environments, leading to our first hypothesis:

H1: The efficiency of online retail platforms positively influences both e-satisfaction and e-trust.

Fulfillment, encompassing the accuracy and reliability of order processing and delivery systems (Morganosky, 1997), directly affects customer satisfaction and trust, particularly through inventory accuracy and delivery timeliness (Jones, 2002; Cai & Jun, 2003). Research consistently demonstrates that successful order fulfillment strengthens customer confidence and satisfaction with online retailers, supporting our second hypothesis:

H2: Fulfillment quality positively influences both e-satisfaction and e-trust.

Privacy protection has emerged as a fundamental aspect of e-SQ (Lee & Lin, 2005; Parasuraman et al., 2005). While some studies suggest privacy may not directly influence satisfaction (Cristóbal et al., 2007), research consistently demonstrates its significant impact on trust formation and long-term customer relationships (Ribbink et al., 2004). This leads to our third hypothesis:

H3: Privacy protection positively influences both e-satisfaction and e-trust.

The relationship between e-SQ and purchase intention is complex, often mediated by factors such as e-satisfaction and e-trust. E-satisfaction, conceptualized as the cumulative effect of a series of online service experiences (Anderson & Srinivasan, 2003), serves as a crucial mediator between service quality and purchase intention. Research indicates that satisfied customers are more likely to develop purchase intentions and demonstrate loyalty behaviors (Oliver, 1999; Harris & Goode, 2004). This observation forms the basis for our fourth hypothesis:

H4: E-satisfaction positively influences consumer purchase intention.

Similarly, e-trust plays a vital mediating role in online retail environments. Studies demonstrate that privacy and security significantly impact e-trust formation (Ribbink et al., 2004), which in turn positively influences purchase intention (Kim et al., 2009). The mediating role of e-trust becomes particularly important in contexts where consumers face uncertainty or risk in their purchase decisions, leading to our fifth hypothesis:

H5: E-trust positively influences consumer purchase intention.

Freshippo represents an innovative case in China's retail market, integrating online and offline retail experiences through advanced digital technology and modern logistics. Established in 2015, the platform has focused on fresh food delivery and targets middle to high-income urban consumers. This context provides an ideal setting for examining how e-SQ dimensions influence purchase intention through satisfaction and trust mechanisms.

The integrated nature of these relationships suggests that e-satisfaction and e-trust serve as crucial mediating mechanisms between e-SQ dimensions and purchase intention. This forms the basis for our final set of hypotheses:

H6: E-satisfaction and e-trust mediate the relationship between e-SQ dimensions (efficiency, fulfillment, and privacy) and consumer purchase intention.

Research Methodology

1. Research Design and Sample

This study employs a quantitative research design to investigate the relationships between e-service quality dimensions and purchase intention in the context of Freshippo's online retail platform. The research framework builds upon the methodological foundations established by Frederic M. et al. (2009) and Chao-Min Chiu et al. (2012), incorporating validated scales and structured analytical approaches.

The study population comprises active Freshippo APP users in China, which numbered 10.274 million as of December 2023. Given the platform's strategic focus on urban markets, the sampling frame concentrated on first and second-tier Chinese cities, where Freshippo has established a significant presence. Following established sampling principles (Hair et al., 2010), and considering the study's 40 measurement items, a minimum sample size of 400 respondents was determined to ensure adequate statistical power and model stability.

2. Measures and Data Collection

Data collection utilized a structured questionnaire measuring six key constructs through established scales:

1. Efficiency (7 items): Measures platform usability and response speed
2. Fulfillment (6 items): Assesses order processing and delivery reliability
3. Privacy (3 items): Evaluates data protection and security measures
4. E-satisfaction (5 items): Measures overall user satisfaction
5. E-trust (6 items): Assesses user confidence and trust
6. Purchase intention (5 items): Evaluates future purchase likelihood

All items were measured using a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5). The measurement scales were adapted from established literature, with efficiency, fulfillment, and privacy measures derived from Frederic M. et al. (2009), e-satisfaction and e-trust measures from Emi M. et al. (2018), and purchase intention measures from Chao-Min Chiu et al. (2012).

Prior to full deployment, the questionnaire underwent expert review and pilot testing to ensure content validity and clarity. The survey was administered through multiple channels, including direct app notifications (in cooperation with Freshippo), email invitations, and social media platforms. Data collection occurred during August 2024, avoiding major promotional periods to minimize potential response bias.

3. Analytical Approach

The data analysis employed a systematic two-stage approach. The first stage involved preliminary analyses examining data quality and measurement properties:

- Descriptive statistics for sample characterization
- Reliability assessment using Cronbach's alpha (threshold > 0.7)
- Validity testing through Item-Objective Congruence (IOC)

The second stage utilized structural equation modeling (SEM) with AMOS software to test the hypothesized relationships. Model fit assessment employed multiple indices following current best practices (Hair et al., 2010; Kline, 2010):

- Chi-square to degrees of freedom ratio ($\chi^2/df < 3.00$)
- Comparative fit index (CFI > 0.90)
- Goodness of fit index (GFI > 0.80)
- Normalized fit index (NFI > 0.90)
- Tucker-Lewis index (TLI > 0.90)
- Root mean square error of approximation (RMSEA < 0.08)

This comprehensive analytical approach allows for thorough examination of both direct and indirect effects among study variables, while controlling for potential measurement error and complex interrelationships. The methodology aligns with current best practices in structural equation modeling and provides a robust framework for testing the study's theoretical propositions regarding the relationships between e-service quality dimensions, satisfaction, trust, and purchase intention in the online retail context.

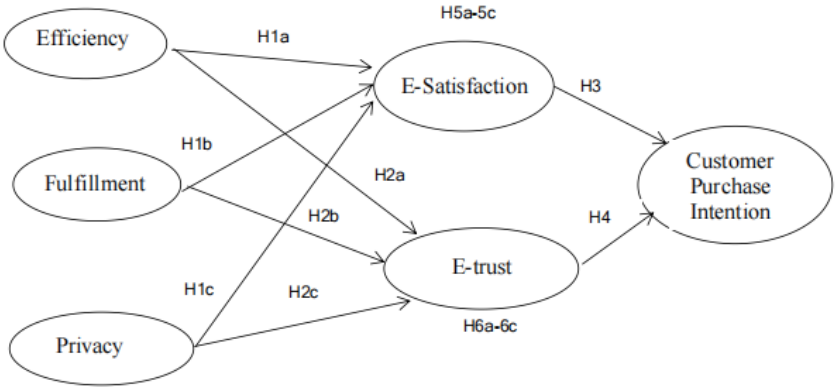

Figure 1 Theoretical framework

This theoretical framework addresses current gaps in understanding how e-SQ dimensions influence purchase intention in integrated retail environments, while accounting for the mediating roles of satisfaction and trust. Understanding these relationships is crucial for developing effective strategies to enhance consumer purchase intention in online retail environments.

Research Findings

1.Descriptive Statistics

This paper uses SPSS 27.0 data analysis software to conduct mean analysis on the sample data collected from the six dimensions of Efficiency (EFF), Fulfillment (FUL), Privacy (PRI), E-Satisfaction (E-SAT), E-Trust (E-TUR), and Customer Purchase Intention (CPI). The analysis results are shown in Table 1. From the perspective of mean distribution, each dimension is above the median of 3, and the variable means are ranked from high to low as follows: Efficiency (EFF) (4.19), Privacy (PRI) (4.17), E-Satisfaction (E-SAT) (4.02), Fulfillment (FUL) (3.98), Customer Purchase Intention (CPI) (3.85) and E-Trust (E-TUR) (3.72). Secondly, from the perspective of standard deviation distribution, the standard deviations of the corresponding four dimensions are all greater than 0.8, which is close to 1, indicating that the degree of dispersion is general and the variable stability is good.

Table1 Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
EFF	421	1.00	5.00	4.19	0.78
FUL	421	1.00	5.00	3.98	0.82
PRI	421	1.00	5.00	4.17	0.85
ESAT	421	1.00	5.00	4.02	0.98
ETUR	421	1.33	5.00	3.72	0.82
CPI	421	1.00	5.00	3.85	0.90

2. Correlation Analysis

This paper uses SPSS27.0 to perform correlation analysis on the data. Correlation analysis refers to the analysis of two or more correlated variable elements to measure the degree of correlation between the two variable factors. This paper mainly uses Pearson correlation analysis.

From the analysis of Table 4.2, we can see that correlation analysis is used to study the correlation between Efficiency (EFF), Fulfillment (FUL), Privacy (PRI), E-Satisfaction (E-SAT), E-Trust (E-TUR), and Customer Purchase Intention (CPI), and the Pearson correlation coefficient is used to indicate the strength of the correlation. The specific analysis is shown in Table 2:

Table2 Correlations analyasis

	EFF	FUL	PRI	ESAT	ETUR	CPI
EFF	1.000					
FUL	0.379**	1.000				
PRI	0.397**	0.494**	1.000			
E-SAT	0.249**	0.406**	0.317**	1.000		
E-TUR	0.301**	0.540**	0.407**	0.338**	1.000	
CPI	0.317**	0.387**	0.328**	0.256**	0.374**	1.000

Note:**. Correlation is significant at the 0.01 level (2-tailed).

There is a significant positive correlation between efficiency and execution (r=0.379, P<0.05), privacy (r=0.397, P<0.05), electronic satisfaction (r=0.249, P<0.05), electronic trust (r=0.301, P<0.05), and customer purchase intention (r=0.317, P<0.05).

There is a significant positive correlation between execution and privacy (r=0.494, P<0.05), electronic satisfaction (r=0.406, P<0.05), electronic trust (r=0.540, P<0.05), and customer purchase intention (r=0.387, P<0.05).

Privacy has a significant positive correlation with e-satisfaction (r=0.317, P<0.05), e-trust (r=0.407, P<0.05), and customer purchase intention (r=0.328, P<0.05).

E-satisfaction has a significant positive correlation with e-trust (r=0.338, P<0.05) and customer purchase intention (r=0.256, P<0.05); e-trust has a significant positive correlation with customer purchase intention (r=0.374, P<0.05).

3. Hypothesis Testing

After conducting correlation analysis, this study tested the model through structural equation modeling, and the test results are shown in Tables 4.3-4.10 and Figures 1-3.

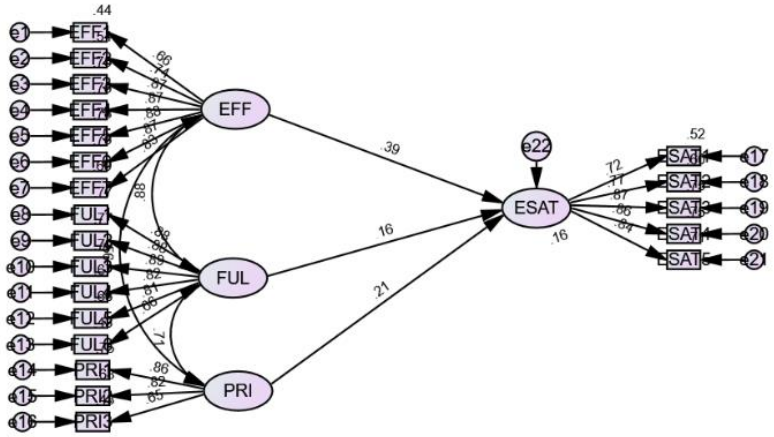

Figure 1 Basic path analysis structure

Table3 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	2245.371	-
df	-	813.54	-
X^2/df	＜3.00	2.76	Yes
RMSEA	＜0.08	0.03	Yes
GFI	＞0.90	0.95	Yes
NFI	＞0.90	0.94	Yes
RFI	＞0.90	0.96	Yes
IFI	＞0.90	0.92	Yes
TLI	＞0.90	0.91	Yes
CFI	＞0.90	0.92	Yes

According to the fitting results of confirmatory factor analysis in Table 3, the fitting index X^2/df=2.76, RMSEA=0.03, GFI=0.95, NFI=0.94, RFI=0.96, IFI=0.92, TLI=0.91, CFI=0.92. The fitting indexes all meet the required standards, indicating that the data fit is good.

Table 4 Path Analysis Results

Path			β	S.E.	C.R.	P
ESAT	<---	EFF	0.39	0.13	2.76	＜0.01
ESAT	<---	FUL	0.16	0.10	1.89	＜0.01
ESAT	<---	PRI	0.21	0.06	2.31	＜0.01

The analysis results are shown in Table 4 Efficiency (β=0.39, P<0.05) significantly positively affects e-satisfaction, and hypothesis H1a that efficiency significantly positively affects e-satisfaction of online supermarket apps is established. Execution (β=0.16, P<0.05) significantly positively affects e-satisfaction, and hypothesis H1b that execution significantly positively affects e-satisfaction of online supermarket apps is established. Privacy (β=0.21, P<0.05) significantly positively affects e-satisfaction, and hypothesis H1c that privacy significantly positively affects e-satisfaction of online supermarket apps is established.

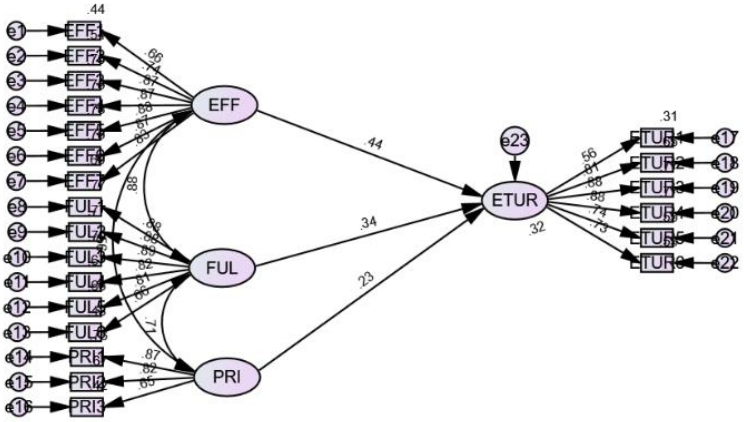

Figure 2 Basic path analysis structure

Table 5 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	2426.422	-
df	-	974.46	-
X^2/df	＜3.00	2.49	Yes
RMSEA	＜0.08	0.04	Yes
GFI	＞0.90	0.92	Yes
NFI	＞0.90	0.96	Yes
RFI	＞0.90	0.94	Yes
IFI	＞0.90	0.93	Yes
TLI	＞0.90	0.93	Yes
CFI	＞0.90	0.96	Yes

According to the fitting results of confirmatory factor analysis in Table 5, the fitting index X^2/df=2.49, RMSEA=0.04, GFI=0.92, NFI=0.96, RFI=0.94, IFI=0.93, TLI=0.93, CFI=0.96.

The fitting indexes all meet the required standards, indicating that the data fit is good.

Table 6 Path Analysis Results

Path			β	S.E.	C.R.	P
ETUR	<---	EFF	0.44	0.08	3.59	＜0.001
ETUR	<---	FUL	0.34	0.09	1.31	＜0.01
ETUR	<---	PRI	0.23	0.05	2.93	＜0.01

The analysis results are shown in Table 6. Efficiency (β=0.44, P<0.05) significantly positively affects e-trust, and hypothesis H2a is established that efficiency significantly positively affects e-trust in online supermarket apps. Execution (β=0.34, P<0.05) significantly positively affects e-trust, and hypothesis H1b is established that execution significantly positively affects e-trust in online supermarket apps. Privacy (β=0.23, P<0.05) significantly positively affects e-trust, and hypothesis H2c is established that privacy significantly positively affects e-trust in online supermarket apps.

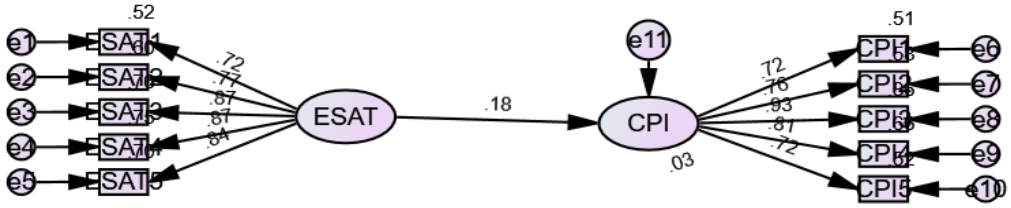

Figure 3 Basic path analysis structure

Table 7 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	227.41	-
df	-	86	-
X^2/df	＜3.00	2.64	Yes
RMSEA	＜0.08	0.05	Yes
GFI	＞0.90	0.91	Yes
NFI	＞0.90	0.92	Yes
RFI	＞0.90	0.91	Yes
IFI	＞0.90	0.92	Yes
TLI	＞0.90	0.91	Yes
CFI	＞0.90	0.93	Yes

According to the fitting results of confirmatory factor analysis in Table 7, the fitting index X^2/df=2.64, RMSEA=0.05, GFI=0.91, NFI=0.92, RFI=0.91, IFI=0.92, TLI=0.91, CFI=0.93. The fitting indexes all meet the required standards, indicating that the data fit is good.

Table 8 Path Analysis Results

Path			β	S.E.	C.R.	P
CPI	<---	ESAT	0.18	0.05	3.26	＜0.01

The analysis results are shown in Table 8. Electronic satisfaction (β=0.18, P<0.05) significantly and positively affects customer purchase intention. Hypothesis H3 that electronic satisfaction significantly and positively affects customer purchase intention is established.

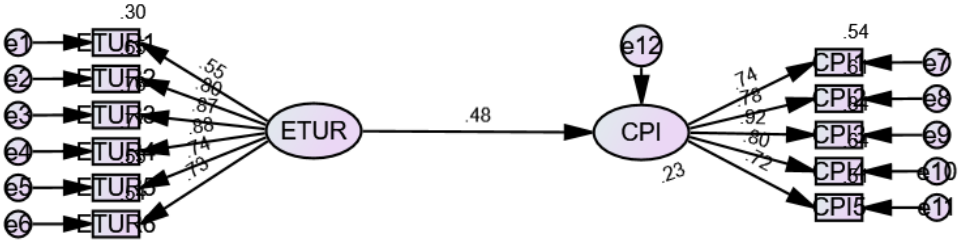

Figure 4 Basic path analysis structure

Table 9 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	333.23	-
df	-	118	-
X^2/df	＜3.00	2.82	Yes
RMSEA	＜0.08	0.03	Yes
GFI	＞0.90	0.96	Yes
NFI	＞0.90	0.93	Yes
RFI	＞0.90	0.91	Yes
IFI	＞0.90	0.95	Yes
TLI	＞0.90	0.95	Yes
CFI	＞0.90	0.94	Yes

According to the fitting results of confirmatory factor analysis in Table 9, the fitting index X^2/df=2.82, RMSEA=0.03, GFI=0.96, NFI=0.93, RFI=0.91, IFI=0.95, TLI=0.95, CFI=0.94. The fitting indexes all meet the required standards, indicating that the data fit is good.

Table10 Path Analysis Results

Path			β	S.E.	C.R.	P
CPI	<---	ETUR	0.48	0.09	7.55	＜0.001

The analysis results are shown in Table 10. Electronic trust (β=0.71, P<0.05) significantly and positively affects customers' purchase intention. Hypothesis H4 Electronic trust significantly and positively affects customers' purchase intention.

4. The mediating role of e-satisfaction

This paper uses the structural equation model to measure the mediating role of e-satisfaction between efficiency, execution and privacy and customer purchase intention, as shown in Table 4.18 and Table 4.19 and Figure 5.

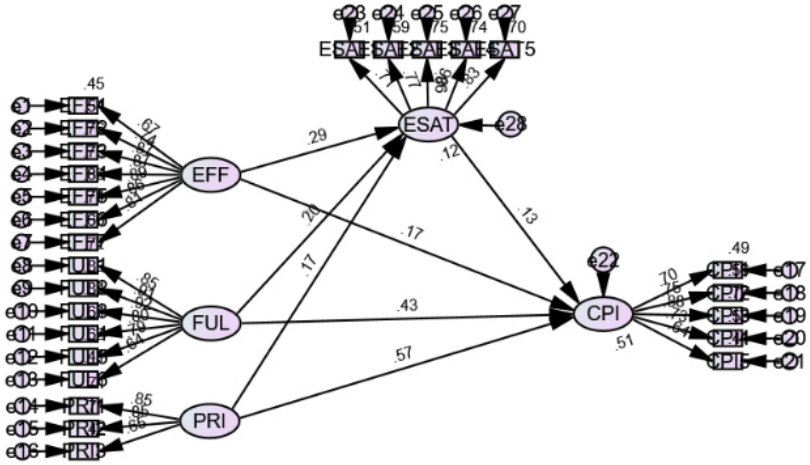

Figure 5 Mediating path analysis of e-satisfaction

Table 11 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	12038.72	-
df	-	427.46	-
X^2/df	＜3.00	2.43	Yes
RMSEA	＜0.08	0.03	Yes
GFI	＞0.90	0.95	Yes
NFI	＞0.90	0.93	Yes
RFI	＞0.90	0.94	Yes
IFI	＞0.90	0.92	Yes
TLI	＞0.90	0.93	Yes
CFI	＞0.90	0.96	Yes

According to the fitting results of confirmatory factor analysis in Table 11, the fitting index X^2/df=2.43, RMSEA=0.03, GFI=0.95, NFI=0.93, RFI=0.94, IFI=0.92, TLI=0.93, CFI=0.96. The fitting indexes all meet the required standards, indicating that the data fit is good.

Table 12 Path Analysis Results

Path	Value	Lower95%CI	Upper95%CI
EFF→E-SAT→CPI	0.154	0.021	0.097
FUL→E-SAT→CPI	0.126	0.004	0.107
PRI→E-SAT→CPI	0.168	0.020	0.098

The results of the mediation analysis are shown in Table 12. Electronic satisfaction has a mediating effect between efficiency and customer purchase intention, with an effect value of 0.154 and a confidence interval of [0.021, 0.097] that does not include 0. Therefore, the hypothesis H5a that electronic satisfaction has a mediating effect between efficiency and customer purchase intention is established. Electronic satisfaction has a mediating effect between execution and customer purchase intention, with an effect value of 0.126 and a confidence interval of [0.004, 0.107] that does not include 0. Therefore, the hypothesis H5b that electronic satisfaction has a mediating effect between execution and customer purchase intention. Electronic satisfaction has a mediating effect between privacy and customer purchase intention, with an effect value of 0.168 and a confidence interval of [0.020, 0.098] that does not include 0. Therefore, the hypothesis H5c that electronic satisfaction has a mediating effect between privacy and customer purchase intention is established.

5. The mediating role of e-trust

This paper uses a structural equation model to measure the mediating role of e-trust between efficiency, execution, and privacy and customer purchase intention, as shown in Tables 13 and 14 and Figure 6.

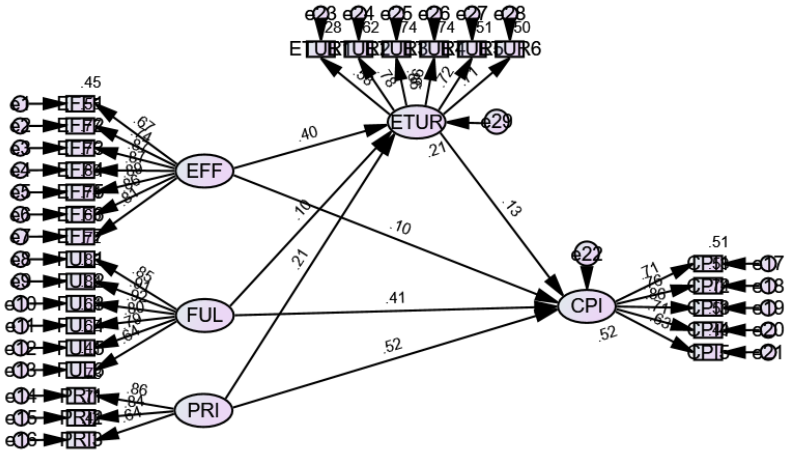

Figure 6 Mediating path analysis of e-trust

Table 13 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	1247.44	-
df	-	517.61	-
X^2/df	＜3.00	2.41	Yes
RMSEA	＜0.08	0.04	Yes
GFI	＞0.90	0.94	Yes
NFI	＞0.90	0.96	Yes
RFI	＞0.90	0.94	Yes
IFI	＞0.90	0.95	Yes
TLI	＞0.90	0.93	Yes
CFI	＞0.90	0.91	Yes

According to the fitting results of confirmatory factor analysis in Table 13, the fitting index X^2/df=2.41, RMSEA=0.04, GFI=0.94, NFI=0.96, RFI=0.94, IFI=0.95, TLI=0.93, CFI=0.91. The fitting indexes all meet the required standards, indicating that the data fit is good.

Table 14 Path Analysis Results

Path	Value	Lower95%CI	Upper95%CI
EFF→E-TUR→CPI	0.106	0.057	0.175
FUL→E-TUR→CPI	0.138	0.069	0.217
PRI→E-TUR→CPI	0.124	0.070	0.182

The results of the mediation analysis are shown in Table 14. E-trust has a mediating effect between efficiency and customer purchase intention, with an effect value of 0.106 and a confidence interval of [0.057, 0.175] that does not include 0. Therefore, hypothesis H6a that e-trust has a mediating effect between efficiency and customer purchase intention is established. E-trust has a mediating effect between execution and customer purchase intention, with an effect value of 0.138 and a confidence interval of [0.069, 0.217] that does not include 0. Therefore, hypothesis H6b that e-trust has a mediating effect between execution and customer purchase intention. E-trust has a mediating effect between privacy and customer purchase intention, with an effect value of 0.124 and a confidence interval of [0.070, 0.128] that does not include 0. Therefore, hypothesis H6c that e-trust has a mediating effect between privacy and customer purchase intention.

Discussion

This study provides comprehensive insights into the factors influencing consumer purchase intention in China's integrated online-offline retail environment, specifically in the context of Freshippo APP. The findings extend existing e-service quality literature by validating the significance of efficiency, fulfillment, and privacy in integrated retail platforms. Notably, efficiency showed the strongest influence ($\beta=0.39$, $P<0.01$) on e-satisfaction, suggesting that the ease and speed of using the platform are paramount in the Chinese fresh food e-commerce context.

Our findings reveal a complex mediating mechanism where both e-satisfaction and e-trust serve as significant mediators between e-service quality dimensions and purchase intention. This dual mediation effect extends previous research that typically focused on single mediator models (Harris & Goode, 2004; Ribbink et al., 2004). The results suggest that building both satisfaction and trust is crucial for converting service quality improvements into actual purchase behavior. The strong influence of efficiency ($\beta=0.44$, $P<0.001$) on e-trust particularly highlights the importance of streamlined user interfaces, quick loading times, and efficient search functions.

The significant impact of fulfillment on both e-satisfaction ($\beta=0.16$, $P<0.01$) and e-trust ($\beta=0.34$, $P<0.01$) emphasizes the necessity for accurate inventory management and reliable delivery systems. Similarly, the substantial effect of privacy on user trust ($\beta=0.23$, $P<0.01$) underscores the importance of enhanced data security measures and transparent privacy policies in building consumer confidence.

While this study provides valuable insights, several limitations should be noted. The focus on first and second-tier Chinese cities and the specific context of Freshippo APP may limit the generalizability of findings to other market contexts. Future research could examine these relationships in different cultural contexts, conduct longitudinal studies to understand temporal effects, and investigate additional variables such as product quality and price perception.

This research advances our understanding of consumer behavior in integrated retail environments by demonstrating the complex relationships between e-service quality dimensions, e-satisfaction, e-trust, and purchase intention. For practitioners, these findings suggest prioritizing platform efficiency, fulfillment reliability, and privacy protection while developing comprehensive customer relationship management strategies. As the retail landscape continues to evolve, understanding these relationships becomes increasingly crucial for business success in the digital age.

Conclusion

(1) Efficiency, execution and privacy significantly and positively affect the e-satisfaction of online supermarket apps

Efficiency. Users expect fast and barrier-free access to the information they need. If the app can meet these needs, such as easy to find products, fast transaction completion, and fast page loading, it can significantly improve user satisfaction. These are the basis of user experience and directly affect users' overall evaluation of the app. Execution. Users have clear expectations for the accuracy and timeliness of order processing and product delivery. If the app can ensure that orders are delivered on time as promised and inventory information is accurate, it can improve user satisfaction. This shows that the reliability and efficiency of the

app are the key to users' satisfaction. Privacy. In the digital age, users are very concerned about the security and privacy protection of their personal information. If the app can effectively protect users' online shopping behavior and financial payment information and does not share personal information with other websites, it can improve users' trust and satisfaction. This reflects the security of the app and its respect for user privacy.

(2) Efficiency, execution and privacy significantly and positively affect the e-trust of online supermarket apps

An efficient online supermarket app can save users time and energy. When users shop on an APP, if they can quickly find the products they need, the ordering process is simple and fast, and the delivery is timely and accurate, their trust in the APP will be enhanced. For example, clear product classification and search functions allow users to quickly locate the target products; a smooth payment system ensures that transactions proceed smoothly; and an efficient logistics and distribution system ensures that the products are delivered to users within the promised time.

Execution is mainly reflected in the APP's accurate execution of user needs and the fulfillment of promises. If the online supermarket APP can strictly provide products and services in accordance with the order requirements, such as ensuring that the quality, quantity and description of the products are consistent, and complying with the delivery time commitment, users will feel that the APP is reliable, thereby enhancing electronic trust. In addition, the execution of after-sales service is also crucial, such as promptly handling user return and exchange requests and resolving user complaints.

(3) Electronic satisfaction significantly positively affects the consumption intention of consumers of online supermarket APPs

Electronic satisfaction plays a key role in influencing consumers' purchasing intention. When consumers experience a high degree of satisfaction when using online supermarket APPs such as Hema, they are more likely to make repeat purchases and recommend the APP. E-satisfaction includes satisfaction with the ease of use of the APP interface, the convenience of the shopping process, and the timeliness and correctness of order processing. This sense of satisfaction promotes consumers' trust in the brand, thereby increasing their loyalty and purchase frequency. Therefore, improving e-satisfaction can not only enhance consumers' immediate purchase decisions, but also promote their willingness to consume in the long term, bringing continuous business value to enterprises. The impact of e-satisfaction on consumption intention can be specifically illustrated by practical examples in daily life. For example, when a busy office worker uses the Hema Fresh APP for online shopping, if he finds that the APP is smooth to operate, the variety of goods is rich, the price is reasonable, and he can receive the purchased goods quickly and accurately, his satisfaction will be significantly improved. This positive shopping experience will prompt him to continue to use the APP for shopping in the future, and may even recommend it to friends. Similarly, if the APP can guarantee user privacy security, such as protecting payment information through encryption technology, users will feel more at ease, thereby enhancing their trust and loyalty to the APP. This trust and satisfaction are key factors that motivate consumers to use the APP repeatedly and generate continuous purchasing behavior.

(4) E-trust significantly and positively affects the consumption intention of consumers of online supermarket APPs

When consumers have a high degree of e-trust in online supermarket APPs, they will feel more at ease shopping on the platform. Because trust means that they believe that the APP can protect their rights and provide reliable goods and services. For example, consumers do not have to worry about buying counterfeit and inferior goods, nor do they have to worry about personal information being leaked or encountering payment risks. This sense of security will prompt them to consume more actively and increase the frequency and amount of purchases.

High e-trust will also make consumers more willing to try new products or services launched by online supermarket APPs. They believe that the platform's recommendations and introductions are authentic and will not be misled by false propaganda. If consumers are interested in a newly launched special product or exclusive product, they will be more likely to place an order to try it out because of their trust in the platform. This not only helps the platform expand its business, but also enriches consumers' shopping choices.

E-trust can help online supermarket APPs establish long-term and stable relationships with consumers. When consumers trust a platform, they are more inclined to continue shopping on the platform rather than frequently changing shopping channels. This loyalty will bring stable income and good reputation to the platform. At the same time, the platform can also further consolidate consumers' trust by continuously improving service quality and user experience, forming a virtuous circle.

(5) Efficiency, execution and privacy have a mediating effect on the relationship between consumer consumption intention

In this study, the phenomenon that efficiency, execution and privacy have a partial mediating effect on consumer consumption intention is not only in line with common sense, but also verified by data analysis. For example, when the Hema Fresh APP provides efficient service (efficiency), accurate and fast order processing (execution) and strong privacy protection (privacy), these factors work together to improve users' e-satisfaction and e-trust. High e-satisfaction and e-trust further stimulate consumers' willingness to buy. This process shows that although efficiency, execution and privacy directly affect consumption intention, their impact on consumption intention is also partially mediated by the variables of e-satisfaction and e-trust. This finding is of great significance for understanding and optimizing the user experience and marketing strategies of e-commerce platforms.

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