

Research on the Impact of Privacy Information Sensitivity on Consumers' Purchase Intention in E-commerce Livestreaming

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Abstract. Against the backdrop of rapid development in digital and network technologies, privacy issues in e-commerce live streaming have gradually drawn consumers' attention. How to effectively use consumers' personal information to promote the high-quality development of e-commerce live streaming is a key issue of concern in academia. Based on sample data, this study summarizes the current status of consumers' privacy sensitivity when watching e-commerce live streaming, explores the impact of privacy sensitivity on consumers' purchase intention, and finds that privacy concerns negatively affect consumers' purchase intention, while privacy protection and privacy fatigue positively affect consumers' purchase intention. Perceived trust and perceived risk play a mediating role in the relationship between consumers' privacy sensitivity and purchase intention. Based on these findings, it is recommended that e-commerce live streaming platforms actively formulate and improve privacy protection policies to further protect consumers' privacy information, while establishing joint credit evaluation standards to enhance consumer trust. Merchants should comply with privacy policies and strengthen brand building. Government departments should enhance the diversity and effectiveness of privacy protection education and use innovative technologies to create a good social environment for consumers' purchasing behavior on e-commerce live streaming platforms.

Keywords: Privacy Information Sensitivity; Perception of Trust; Perception of Risk; Willingness to Buy; Model of Structural Equations.

1. Introduction

Live streaming e-commerce has evolved as a new type of electronic commerce as a result of the quick development of social media and big data technologies. It is now a successful method for businesses to attract customers and for consumers to make purchases. On the one hand, the concept of "data being an asset" has been widely recognized, and the release of the "Opinions of the Central Committee of the Communist Party of China and the State Council on Building a Data-based System and Better Utilizing Data Elements" has further strengthened the importance of individual and public data values in society. On the other hand, digitized personal information in online environments can be easily stored, copied, transmitted, and integrated, resulting in the easy leakage of user personal information on live streaming e-commerce platforms[1], and user privacy and data security facing many risks. Therefore, how to protect user privacy and data security has become an urgent problem to be solved. Based on this, this study explores the impact path of privacy information sensitivity on consumers' purchase intentions in different dimensions, starting from the sensitivity of consumers' privacy information and combining the mediating role of perceived trust and perceived risk.

2. Literature Review

Many scholars have conducted research on the factors that influence consumers' purchase intentions in e-commerce live streaming, including the e-commerce platforms themselves, the e-commerce live streaming attributes, the e-commerce hosts, and the consumers. In terms of the influence of e-commerce platforms, research shows that e-commerce platforms, as the carrier of e-commerce live streaming, have features such as visibility, interactivity, authenticity, and entertainment [2]. Factors such as technological feasibility, high-quality content, and incentive mechanisms have an important impact on consumers' purchase intentions. The behavior and feelings

of e-commerce hosts and consumers, two important entities in e-commerce live streaming, have been widely discussed. Research shows that professional explanations from e-commerce hosts are conducive to indirectly enhancing consumers' comprehensive understanding of product performance, materials, and functions, strengthening their awareness of the product, improving their perceptual experience, and thereby increasing their purchase intention. From the perspective of consumer behavior, the academic community mainly explores the impact of external environmental stimuli on consumers' purchase intentions. Consumers form substitute learning behavior during the process of watching e-commerce live streaming, that is, the audience learns from the behavior of e-commerce hosts, and generate a remote sense of presence through real-time interaction with the live streaming, which affects consumers' purchase decisions and product recognition [3,4].

Different parties have different perceptions of the process of merchants collecting privacy information, leading to the key variable of privacy sensitivity. In this paper, privacy sensitivity refers to consumers' perception of the harm that may be caused by merchants or platforms using their personal privacy data in various ways in the context of e-commerce live streaming[5]. Typically, consumers' privacy sensitivity varies. The study shows that consumers will perceive a loss of privacy in the process of controlling, collecting, and using personal privacy information, which leads to privacy concern. After perceiving the harm caused by the loss of privacy, consumers are inevitably inclined to have privacy protection and reduce their willingness to purchase; however, some consumers may still choose to disclose their personal privacy information even after perceiving the risks, indicating that some consumers will suffer from privacy fatigue[6]. Few scholars have incorporated privacy fatigue into the mechanism of consumer purchasing intentions in previous studies. This paper will further explore the impact of privacy fatigue on consumers in e-commerce live streaming in an innovative way.

Currently, there has been little research on the role of privacy information, and some studies only focus on the analysis of privacy information and its effect on consumer purchase intentions in traditional e-commerce platforms, there has been little discussion on this topic in the context of live-streaming e-commerce, a new form of e-commerce.

Therefore, this paper constructs a research model to explore the impact of privacy information sensitivity on consumers' perceived trust and purchase intentions, and empirically analyzes the influence path and effect using an empirical analysis method known as structural equation modeling (SEM) based on the SOR theory. This study effectively supplements the relevant theoretical exploration on the impact of privacy information on consumers' purchase intentions in the context of live-streaming e-commerce. It also expands the application scenarios of the SOR theory, providing a reference for the optimization of live-streaming e-commerce platforms.

3. Theoretical Model and Research Hypothesis

3.1 Variable Definition

3.1.1 Privacy Concern

Privacy concern is a subjective perception of individuals' corresponding privacy situations. It can be used to measure user perception and attention [7]. In the context of live e-commerce, privacy concern is the user's perception of the risk of their private information being illegally collected, controlled, and utilized by the live e-commerce platform. In the environment of network security, privacy concerns have gradually become one of the main factors influencing consumers' willingness to buy. Consumers' privacy concerns in e-commerce live broadcasts are often driven by more important factors. For example, the privacy space of live e-commerce is ambiguous, and privacy information is easily accessible during the use of e-commerce live broadcasts.

3.1.2 Privacy Protection

Based on the support of big data, the sharing and use of consumer data in e-commerce live broadcasts can generate huge economic and social value. For example, predictive

analysis of consumers' behavior based on the shopping data they generate while using live e-commerce has become one of the key competitive strategies for today's live e-commerce companies. When consumers notice the risk of leakage of privacy information, they will increase their privacy attention, and then generate privacy protection willingness, which eventually affects consumers' willingness to buy in e-commerce live broadcasts. In this process, the role of privacy protection cannot be ignored. Consumers develop self-perception of privacy protection based on their ability to deal with privacy and security risks and personal information.

3.1.3 Privacy Fatigue

Numerous studies have shown that consumers clearly express their strong concerns about privacy and the need for privacy protection when watching live e-commerce, fearing that their privacy is not well-protected or may be misused. On the other hand, consumers often share their personal information without compensation or ignore policies that protect consumer privacy. This makes consumers' privacy attitude and behavior inconsistent. This phenomenon is called "the privacy paradox". Supported by the privacy paradox, researchers have found that consumer perceptions of the uncontrollability of personal information and consumer fatigue and weariness with issues such as privacy breaches have become widespread, and this fatigue caused by the complexity of data breaches and privacy controls is known as privacy fatigue. Existing literature studies have shown that when online users feel weak and in vain, they will adopt a disregard of the phenomenon of infringement of privacy and no longer actively protect their privacy information, which is known as privacy-out behavior [8].

3.1.4 Perceived Trust

Scholars have summarized and analyzed the definition of various trusts. On the basis of psychology and sociological views, the trust in e-commerce live broadcast is divided into three levels of structure: ability trust, integrity trust, and goodwill trust [9]. Ability trust shows that consumers believe that e-commerce live broadcast platforms can protect user privacy. Goodwill indicates that consumers believe that e-commerce live broadcast platforms will start from users' interests. Honesty shows that consumers believe that e-commerce live broadcast platforms will abide by the privacy statement on privacy statements promise. The perception trusts in this article means that users believe that e-commerce live sellers will fulfill their transaction obligations in accordance with the understanding of consumers.

3.1.5 Perceived Risk

Perceived risk was first introduced into consumer behavior in the 1960s. Later, some scholars divided perceived risk into six dimensions: functional risk, financial risk, social risk, time risk, physical risk, and psychological risk [10]. With the continuous development of e-commerce, consumers' shopping places have shifted from offline physical channels to online platform channels, resulting in consumers' perception of risks in the shopping process becoming more and more complex. In the context of e-commerce live streaming, perceived risk is defined as "the uncertainty consumers feel when purchasing goods or services through e-commerce live streaming platforms and the negative consequences caused by such uncertainty." If consumers pay more attention to negative content, it indicates that their perceived risk is higher.

3.2 Research Hypothesis

3.2.1 Privacy Concern and Perceived Trust and Perceived Risk

Privacy concern is an important antecedent that affects consumer behavior. Privacy concerns will have an impact on consumers' purchasing behavior through certain psychological activities or states [11]. Many studies have shown that consumers' privacy concerns will affect their perceived information benefits in the context of e-commerce live broadcasting. Perceived information privacy benefits refer to the personal benefits that consumers receive when they disclose their personal information. When the consumer's perceived information benefits increase, the perceived trust will

be enhanced; when the consumers' perceived information benefits decrease, the perceived risk will be increased. In other words, when consumers' privacy concerns increase, it is easier for consumers to generate perceived trust and perceived risk of private information. The stronger consumers' privacy concerns, the lower their perceived trust and the higher their perceived risk will be. The lower consumers' privacy concerns, the higher their perceived trust and the lower their perceived risk. Accordingly, this paper puts forward the following hypothesis:

H1a: Consumers' privacy concern in e-commerce live broadcast negatively affects consumers' perceived trust

H1b: Consumers' privacy concern in e-commerce live broadcasts positively affects consumers' perceived risk

3.2.2 Privacy Protection and Perceived Trust and Perceived Risk

Research results at home and abroad have found that there is an inseparable relationship between privacy protection and consumers' perception: consumers who believe that they have the ability to use privacy measures will pay more attention to information privacy, and their awareness of privacy information will be higher [12]. Perception will also be stronger. At the same time, it has been shown that privacy protection intention refers to the behavior of consumers to adopt various privacy protection measures in order to achieve the desired level of privacy, through their perception of the use of privacy information and privacy policies. Therefore, when consumers' willingness to protect privacy increases, their perceived trust in using e-commerce live broadcasts will increase. At the same time, increased awareness of user privacy protection and the implementation of privacy protection methods will improve consumers' perceived risk of live online transactions in e-commerce, thus increasing consumers' security and confidence when shopping online. Accordingly, this paper puts forward the following hypothesis:

H2a: Consumers' privacy protection in e-commerce live broadcasts positively affects consumers' perceived trust

H2b: Consumer privacy protection in e-commerce live streaming positively affects consumers' perceived risk

3.2.3 Privacy Fatigue and Perceived Trust and Perceived Risk

Privacy fatigue is specifically manifested in this study scenario as the negative emotions that consumers have about the privacy protection issues of live e-commerce, which are influenced by a combination of personal, platform, and environmental factors. Negative privacy fatigue leads to a decrease in users' perception of privacy issues, resulting in different levels of privacy fatigue such as tolerance, ignoring, and even withdrawal [13]. In the process of privacy fatigue, users' fatigue about privacy protection continues to emerge, which in turn produces negative subjective perceptions. Privacy fatigue, as a negative emotion, can lead to negative perceptions or negative usage behaviors in the use of live e-commerce by consumers. Some scholars have also shown that when users' negative emotions are stronger, they are more likely to have negative emotion-oriented perceptions and negative behavioral strategies, i.e., consumers are more likely to develop perceived risk. Accordingly, this paper puts forward the following hypothesis:

H3a: Consumers' privacy fatigue in e-commerce live broadcasts positively affects consumers' perceived trust

H3b: Consumers' privacy fatigue in e-commerce live streaming positively affects consumers' perceived risk

3.2.4 Perceived Trust and Purchase Willingness

Studies on privacy sensitivity have shown that if a user's perceived trust is high, they will trust that the live e-commerce platform is capable enough to prevent cyber risks, or that the live e-commerce platform will not engage in illegal use of privacy information to the detriment of the user [14]. Some scholars have also found that in online shopping, trust is conducive to reducing various transaction costs, and at the same time can reduce users' perceived risks and uncertainties about the use of private

information on e-commerce live broadcast platforms, enabling them to actively participate in e-commerce live broadcast network transactions. Based on perceived trust, consumers tend to make purchasing decisions in a short period and under the premise of bounded rationality. Accordingly, this paper puts forward the following hypothesis:

H4: The perceived trust of consumers in e-commerce live broadcasts positively affects consumers' willingness to purchase in e-commerce live broadcasts

3.2.5 Perceived Risk and Purchase Willingness

Consumers' perceived trust and perceived risk have opposite effects on their purchase intention. Consumers generate perceived trust because live e-commerce platforms have the ability to protect privacy, the goodwill to protect the vital interests of users, and the willingness to buy. Consumers' perceived risk is a result of reduced participation in live e-commerce purchases due to fear of harm to their property, person, performance, or privacy if they use live e-commerce. Accordingly, this paper puts forward the following hypothesis:

H5: The perceived risk of e-commerce live broadcast consumers negatively affects consumers' willingness to purchase in e-commerce live broadcasts

3.3 Model Construction

Considering the above hypotheses, Figure 1 presents our research framework.

SOR theory explains the phenomenon of consumer psychological cognition and emotional changes under the stimulus of the external environment. In the context of e-commerce live broadcast, consumers are stimulated by a series of external factors such as the use of the privacy information of e-commerce live broadcast platforms through watching e-commerce live broadcasts, and then they will have perception trust and perception risks, which will enhance or weaken their willingness to buy. Therefore, based on the SOR theory, we use privacy concerns, privacy protection, and privacy fatigue as the antecedent variables to build two intermediary paths based on perception trust and perception risks exploring the sensitivity of privacy information in e-commerce live broadcast and its influence mechanism.

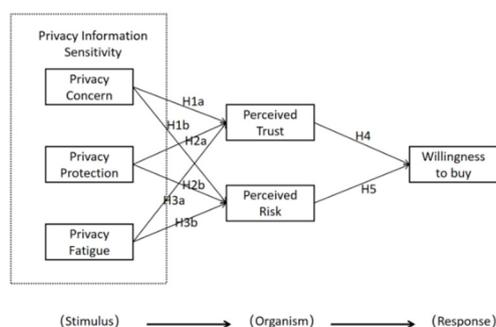


Fig 1. Theoretical Framework

4. Study Design

In this study, we consider live streaming commerce platforms in China as the research targets, specifically live streaming embedded in commerce platforms (e.g., Taobao live, JD live, etc.) and e-commerce integrated into live streaming platforms (e.g., Douyin, Kuaishou, etc.) are considered. We adopted the survey method to obtain sample data. The questionnaire involves two parts: the first part is the research purpose and the respondents' basic information, including information such as consumers' online shopping years, e-commerce live broadcast platform preferences, and the importance of platform privacy clauses; the second part is specific questions about influencing factors items, mainly covering six core dimensions of privacy concern, privacy protection, privacy fatigue, perceived trust, perceived risk, and purchase intention. To ensure the reliability and validity of the questionnaire, this scale adopts mature scales at home and abroad and adjusts it according to

the specific situation. The items are measured by 5-point Likert scale, and each latent variable is estimated by multi-index. The definitions of the final variables and the design of the measurement items are shown in Table 1.

Table 1. Variable measurement question items

Variables	Indicator number	Measurement question items	Title Source
Privacy Concern	PI1	I am worried that the private information provided to the live e-commerce platform may be compromised	Smith[15], Malhotra[16]
	PI2	I am worried about unauthorized "secondary use" of my private information by live e-commerce platforms	
	PI3	I'm worried that the precise push of e-commerce live streaming will expose my online whereabouts	
	PI4	I think I lack control over my personal private information when watching live e-commerce	
Privacy Protection	YB1	I am proficient in assessing the privacy policies of live e-commerce platforms	JEONG Y[17]
	YB2	I am proficient in privacy settings and setting security options on live e-commerce platforms	
	YB3	In order to protect privacy, I will not provide all real personal information when registering for a live e-commerce platform account	
	YB4	To protect privacy, I will stop browsing and purchasing when asked to provide personal information while watching live e-commerce	
Privacy fatigue	PF1	I'm no longer active in protecting private information in live e-commerce	Choi H[8]
	PF2	I'm not as interested in privacy issues in live e-commerce	
	PF3	I'm starting to doubt the importance of privacy issues in live e-commerce	
	PF4	I am increasingly skeptical of the usefulness of my efforts to protect private information in live e-commerce	
Perceived Trust	PT1	I believe that the e-commerce live platform provides a robust and secure privacy environment, and I can spend money on the platform with confidence	Zhou[18]etc.
	PT2	I believe that E-Commerce Live will inform me of the access rights to my privacy information before I use it	
	PT3	I believe that the e-commerce live platform will provide reasonable access to my private information when I use it	
	PT4	I believe that the privacy protection measures of the live e-commerce platform I am watching are already perfect	
	PT5	I believe that the live e-commerce platform will not disclose my private information	
Perceived Risk	PR1	I am concerned that the e-commerce live platform may use my private information in an unsecured manner	K.Y.Lin[19]etc.
	PR2	I am concerned that the e-commerce live platform may use my information without getting my permission	
	PR3	I am concerned that the e-commerce live platform may use my information for other purposes, such as analyzing my daily activities to obtain information about me	
	PR4	I am concerned that I will experience frequent spam calls, emails, and text messages after providing my private information to the e-commerce platform	
	PR5	I am concerned that after providing my private information to the e-commerce live streaming platform, I may pose a threat to my health and property safety or that of my family	
Purchase Willingness	PW1	Live e-commerce has stimulated my desire to buy	TONG J H[2]
	PW2	Live e-commerce has helped me a lot in my buying behavior	
	PW3	Live e-commerce has a great influence on my purchase decision	
	PW4	If there is still a need to buy, I will consider live e-commerce as a way to buy	

5. Data Collection and Sample Statistics

The study targeted consumers with e-commerce live shopping experience, using the research method of issuing electronic questionnaires on social platforms, in the pre-research phase, issued 55 questionnaires as a test sample set (about 20% of the total sample number), of which the effectiveness was 87%. After conducting a multi-statistical factor analysis, measurements were changed based on aggregation and differentiation. For example, issues with semantic ambiguity like "I believe I lack control over personal privacy information" were eliminated. Additionally, combining questions with formats like variable privacy concerns, variable perception confidence, and "I believe" begins to make the questionnaire more logical. A total of 350 questionnaires were distributed during the formal research phase, and 296 of them were recycled, yielding an 84.6% recycling rate. The following criteria were used to exclude the 296 questionnaires: Answer times of less than 425 milliseconds, repeated IP addresses, and options with more consistent answers—such as choosing all or nearly all measurement options with the same value or making a clear regular choice like "1234"—are all considered acceptable. Eventually, 277 valid questionnaires were obtained with an efficiency of 93.6%.

6. Model Test Results

6.1 Descriptive Statistical Analysis

Results showed that the ratio of men to women is approximately 3:7, and the research sample is dominated by users aged 19-30, with an average monthly expenditure of RMB 1,000-5,000 and 3 or more years of online shopping, which indicates that most of the respondents have long years of online shopping experience and are knowledgeable in online shopping, thus improving the accuracy and credibility of the research findings to a certain extent. Although Tiktok (82%), Taobao (57%) and JD (43%) are the main e-commerce live broadcast platforms, about half of the users do not read their privacy policies, and only 20% of users spend 1 minute or more to read the e-commerce platform privacy policy. Some studies have shown that the behavior of live e-commerce users who neglect to read the platform's privacy policy is significantly associated with the privacy fatigue that users experience, and the longer it takes to read the e-commerce platform's privacy policy, the more likely users are to have privacy concerns, which in turn will reduce their willingness to purchase [20].

In terms of the degree of concern about privacy information on live e-commerce platforms, users pay more attention to personal information (personal name, ID number, phone number, home address, etc.) and payment information (payment password, payment method, etc.), and less attention to information about items viewed, items purchased, and friend status. The research found that when users face the problem of privacy information leakage, more users will choose to defend their rights by legal means and seek help from platform managers, while some users will adopt an indifferent attitude due to privacy fatigue. The vast majority of respondents believe that consumer privacy security should be maintained by different entities: live e-commerce platforms should pay more attention to protecting consumer privacy, the government and relevant regulatory authorities should strengthen management, and individual consumers should improve their own privacy protection awareness and skills.

6.2 Scale Reliability and Validity Tests

This article mainly uses SPSS26.0 to test the KMO and Bartlett sphericity of the scale to judge whether it is appropriate for factor analysis. The test demonstrates that the KMO value is 0.821, which is greater than 0.5, and the correlation is high, and it passes the Bartlett spherical significance test, which is suitable for factor analysis. This study mainly uses Corrected-Item Total Correlation (CITC) to judge the reliability of a single item, and the CITC value generally needs to be greater than 0.4; Cronbach's α coefficient and combined reliability (CR) are used to determine the reliability of a single item. Test the reliability of the model. These two values are more important than 0.7, indicating that

the model has good reliability. Reliability test results of each variable are shown in Table 2. CITC values of privacy concern, privacy fatigue, privacy protection, perceived trust, perceived risk, and purchase intention range from 0.489 to 0.877, all greater than 0.4. Cronbach's α coefficients are all between 0.7 and 0.93, indicating that there is a high internal consistency among the variables. CR values of the six variables are all between 0.7 and 0.95, indicating that the combination validity is good, and the comprehensive indication scale has good reliability.

Validity testing mainly includes convergent validity and discriminant validity. The convergent validity is assessed by the factor loads of each item and the average variation extraction (AVE) of the variables. Factor loads of most variables are greater than 0.6, and the AVE of most variables are greater than 0.5. The AVE value of privacy protection is also close to 0.5, indicating that the scale has good convergent validity. The criterion of discriminant validity is possible that the square root of the variable's AVE value is greater than the correlation coefficient with other variables. The square root of the variable's AVE value is greater than the correlation coefficient with other variables, indicating that the scale has a relatively high effective discriminant validity.

6.3 Model Road Test

The structural model can not only determine the relationship between indicators and latent variables, but also measure the causal relationship between variables in the model. This study uses AMOS 24.0 software to test the structural equation model, and conducts path analysis by establishing a structural equation model of private information sensitivity-consumer perception-purchase intention.

The results of the structural equation model test in this paper are shown in table 2, where the seven hypotheses H1a, H1b, H2a, H2b, H3a, H3b, and H4 are all valid. Among them, hypothesis H1b, hypothesis H2a, hypothesis H2b, and hypothesis H4 are extremely significant, indicating that the hypothetical model in this paper has superior explanatory validity for consumers' perceived trust, perceived risk, and purchase intention.

It is worth noting that hypothesis H5 is not supported, indicating that the negative effect of perceived risk on consumers' purchase intention is not significant, and that the study by Reijonen and Laukkanen also reported non-significant results, with the possible explanation being the presence of special factors such as product characteristics, differences in consumer needs and trust, which make it possible that even if there is some perceived risk, it does not affect consumers' purchase intention[21].

Table 2. The results of structural equation modeling analysis

Assumption	Path Relationship	Estimate	SE	C.R.	P-value	β	Hypothesis testing results
H1a	PI→PT	-0.087	0.043	-2.026	0.043	-0.101	Support
H1b	PI→PR	0.363	0.050	7.253	***	0.389	Support
H2a	YB→PT	0.583	0.053	11.029	***	0.658	Support
H2b	YB→PR	0.268	0.051	5.222	***	0.279	Support
H3a	PF→PT	0.086	0.046	1.873	0.061	0.098	Support
H3b	PF→PR	0.120	0.052	2.329	0.020	0.127	Support
H4	PT→PW	0.445	0.050	8.868	***	0.536	Support
H5	PR→PW	0.180	0.039	4.605	***	0.235	No support

6.4 Bootstrap Mediated Effects Test

In this study, AMOS software was used to select the non-parametric percentile bootstrap method in the test process to calculate the significance and coefficient of the product of mediation coefficients, and to test multiple mediation effects of alternative learning. Set the sampling of 5000 times, and set the confidence interval to 95% level. If the confidence interval does not include 0, it indicates that

the coefficient product is significant and the chain mediation effect exists. The results of the mediation effect test are presented in table 3.

Table 3. Results of the intermediary effect test

Assumption	Path Relationship	Lower limit of 95% confidence interval	Upper 95% confidence interval	P-value	Hypothesis testing results
H6a	PI-PT-PW	-0.082	-0.004	0.029	Support
H6b	YB-PT-PW	0.178	0.445	***	Support
H6c	PF-PT-PW	-0.049	0.088	n	No support
H7a	PI-PR-PW	0.016	0.090	0.002	Support
H7b	YB-PR-PW	0.016	0.103	0.003	Support
H7c	PF-PR-PW	0.001	0.065	0.041	Support

Note: “***” indicates significant level $p < 0.001$, “n” indicates not significant

The results of the mediating effect test in this paper are summarized in Table 3. The confidence intervals of hypothesis H6a, hypothesis H6b, hypothesis H7a, hypothesis H7b, and hypothesis H7c do not contain 0, indicating that the impact paths of all five hypotheses are significant, with the impact of privacy protection affecting purchase intention through perceived trust being highly significant. The confidence interval for hypothesis H6c contains 0, indicating that hypothesis H6c is not valid, and Yu and Li's study suggests that mediated perceived trust is not always significant in the effect of privacy fatigue on purchase intentions, and that in some cases the negative effects of privacy fatigue may be offset by other factors, such as brand awareness or perceived value of purchase intentions[22].

7. Discussion and Conclusion

7.1 Research Findings

In the dual context of multiplying the value of data elements and frequent information leakage, this study constructs a structural equation model based on SOR theory to explore the mechanism of privacy information sensitivity on consumer purchase intention through consumer perception, and draws the following core conclusions: First, from the perspective of privacy information sensitivity, privacy protection and privacy fatigue positively affect consumers' perceived trust, with privacy protection having the most significant positive effect; while privacy concern negatively affects consumers' perceived trust. Privacy concern, privacy protection, and privacy fatigue all have positive effects on consumers' perceived risk, with the positive effects of both privacy concern and privacy protection being extremely significant.

Second, from the perspective of consumer perception, perceived trust positively affects consumers' purchase intention and is significant, while the negative effect of perceived risk on consumers' purchase intention is not significant, probably due to the existence of special factors such as product characteristics and trust, which make the effect of perceived risk on consumers' purchase intention uncertain. Finally, privacy concern, privacy protection, and privacy fatigue all has indirect effects on consumers' willingness to purchase. Among them, the indirect effects of privacy concern and privacy protection are realized through two mediating paths of perceived trust and perceived risk, and privacy fatigue has an effect on consumers' willingness to purchase through perceived trust, but the indirect effect of privacy fatigue on consumers' willingness to purchase through perceived risk is not significant, probably because the effect of privacy fatigue on willingness to purchase is offset by factors such as brand awareness.

7.2 Managerial Implications

Built on the above research findings, this paper proposes the following countermeasures from three levels: live e-commerce platform, merchants and government departments.

Since privacy protection has the most significant impact on consumers' willingness to purchase, the live e-commerce platform should establish and maintain trust with consumers, for example, it can establish a joint reputation system with other live e-commerce platforms, and enhance consumers' trust in the live e-commerce platform by issuing third-party and state-certified privacy credit evaluation standards, which will in turn reduce consumers' perceived risk and improve consumers' willingness to purchase in the live e-commerce platform.

Due to the time lag of laws and regulations and related policies. They do not provide timely control of network data security risks. Therefore, self-management by merchants is also an essential means of consumer privacy protection. Businesses should focus on brand building, and strive to build a "security awareness" of high product brands or corporate brands, so that consumers can eliminate information leakage and other concerns, reduce the perceived risk of consumers, and thus improve consumer willingness to buy.

From the government level, the government can use innovative technological tools, such as promoting the canonization of personal information in live e-commerce platforms, to reduce the perceived risks incurred by consumers during the data collection and data use processing stages, and thus increase consumers' willingness to purchase.

7.3 Limitations and Future Directions

There is no consideration of the possible differences between different types of live e-commerce platforms. For example, traditional e-commerce platforms (e.g., Taobao, etc.) and live e-commerce streams developed by short video platforms (e.g., Tiktok, etc.) are somewhat different in terms of private information types and privacy protection means. Future research can examine how different types of e-commerce live streaming platforms affect consumers' intent to buy.

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