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# The Impact of Consumer Trust and Consumer Loyalty on Sustainable Development of Cross-border E-commerce

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**Abstract:** The purpose is to provide a reference for the sustainable development of cross-border e-commerce (Electric-Commerce) through theoretical and empirical analysis of consumer behavior and consumer psychology. First, the influence of consumer trust on e-commerce is discussed, a consumer trust index system is proposed, and a theoretical model of trust on purchase intention is constructed. The model analysis proves that consumer trust can determine purchase intention. To observe consumer trust from multiple dimensions, trust is decomposed into four dimensions: privacy protection, information quality, security protection, and platform reputation. Then, the key factors of consumer loyalty are determined for cross-border e-commerce platforms, and a corresponding theoretical model is established. Further, consumers aged between 20~40 years are sampled for empirical analysis from a typical cross-border e-commerce platform, and their basic information, consumer trust, consumer loyalty, and purchase intention are investigated through QS (Questionnaire Survey). Finally, 210 valid QSs are collected and analyzed. SPSS correlation analysis suggests that consumer trust is positively correlated with consumer loyalty and purchase intention. In the trust variables, privacy protection, security protection, and platform reputation have a significant impact on consumer purchase intention. Among the factors of consumer loyalty, the coefficient of commodity perception is the largest, and commodity perception and consumer trust are positively correlated. Therefore, to maintain the sustainable development of cross-border e-commerce, consumer trust should be strengthened, together with consumer privacy protection. Meanwhile, the information quality of the platform should be enhanced, and consumer loyalty should be upheld at a high level. The results have some practical significance for improving consumers' purchase intention and promoting the sustainable development of cross-border e-commerce platforms.

**Keywords:** consumer trust; consumer loyalty; e-commerce; purchase intention

## 1. Introduction

Economic globalization and rapid information transmission and integration have seen continuous improvement of people's life quality, resulting in a surging demand for cross-border goods for higher quality life [1]. Cross-border e-commerce is an overseas diffusion of online shopping. Nowadays, the traditional and modern channels of communication are being combined with the Internet for an Internet+ re-entrepreneurship. Under the Belt and Road initiative and the national strategy of the pilot free trade zone, cross-border e-commerce has become the focus of China's foreign trade industrial development [2-4]. Incomplete statistics show that over 5,000 cross-border e-commerce platforms are booming in China, upon which more than 200,000 foreign trade enterprises are transacting cross-border e-commerce operations. Trading modes, such as B2B (Business to Business), B2C (Business to Customer), and C2C (Customer to Customer) coexist, complement each other, and successively heating the market activities. Thanks to policy support and the gradual establishment of e-commerce platforms, China's cross-border e-commerce industry presents a stable and rapid development trend [5]. Cross-border e-commerce is the outcome of deeper industrial transformation and accelerated economic restructuring. In 2019, the total import and export of cross-border e-commerce in China has reached 186.21 billion RMB,

the total retail export of cross-border e-commerce has reached 944 billion RMB, and the total import is 91.81 billion RMB [6-8]. In terms of the scale of cross-border e-commerce retail import and export, the eastern coastal areas are in a leading position.

Cross border e-commerce is facing global consumers, while consumer behaviors may vary with age, nationality, region, and country. Foreign consumers' commodity preferences, goods delivery modes, and online payment modes should all be mastered for the healthy and sustainable development of the cross-border e-commerce platform. Meanwhile, the competition among cross-border e-commerce platforms is increasingly fierce, each of them wants to obtain sustained profits under good government policies and a sound social environment [9]. Presently, the market of cross-border e-commerce platforms is not standardized due to a lack of laws, regulations, and international agreements. In recent years, with the constant occurrence of leakage or illegal collection of financial and consumer behavior data, online shopping risks have become the concerns for consumers, negatively impacting consumer trust and thereby, threatening the sound and sustainable development of e-commerce platforms [10,11]. Because of the distance and time disparities, consumer trust will be much reduced without an effective real-time communication mechanism for cross-border e-commerce platforms. Once consumer doubts have been raised, consumer loyalty and trust in the platform may fall irretrievably [12-14]. Therefore, the cross-border e-commerce platform should maintain a long-term competitive advantage through an accurate understanding of consumer demand and scientific consumer loyalty management and attention.

The importance of cross-border e-commerce in the future import and export trade can never be overestimated, and cross-border e-commerce will progress greatly with the popularization of network technology, improvement of logistics efficiency, and perfection of the network payment environment. Moreover, due to the advantages of globalization, networking, convenience, and directness, cross-border e-commerce is expected to become a new growth point of domestic and foreign trade development, thus playing a very important role in smooth trade and financing. Presently, there are few pieces of research on cross-border e-commerce consumer loyalty in academic circles. Therefore, based on the cross-border e-commerce platform and the theory of perceived risk, a structural model is constructed for consumer trust and purchase intention. Afterward, the correlation between consumer trust and consumer loyalty is explored based on a clear explanation of consumer loyalty factors, combined with the QS (Questionnaire Survey) data. Then, some targeted countermeasures and suggestions are put forward to promote the construction and development of cross-border e-commerce platforms. The innovation point is the introduction of the variable: consumer perception, which is new research directions, namely, the influence of consumer trust and consumer loyalty on purchase intention of cross-border e-commerce.

## **2. Development of consumer-based cross border e-commerce platform**

### **2.1 Characteristics and development modes innovation of cross border e-commerce platform**

Today, the main targeted consumers of the Chinese cross-border markets are from developed western countries, such as the United States, the United Kingdom, Germany, and France. At the same time, many new markets are emerging, such as Brazil, India,

Russia, and particularly, the transaction volume of the Middle East, Africa, and Southeast Asia is also growing. The benefits of cross-border e-commerce have been gradually realized by these countries, so many of them have made improvements or adjustments in customs, logistics, and taxes, which in turn promotes the development of e-commerce platforms [15]. The IT (Internet Technology) provides fundamental technical support for every cross-border e-commerce platform, facilitating and maximizing information sharing among different parties (consumers, sellers, manufacturers, and distributors). Thanks to omnipresent IoT, no geographical space can limit sellers to complete cross-border trade liberally, so buyers are also benefiting more than ever. Different from the traditional trade model, the trade structure of cross-border e-commerce is not a linear structure between the two countries in the transaction process, but a multilateral model in many aspects, such as logistics and capital flow [16,17]. Due to the decentralized and global characteristics of cross-border e-commerce, consumer identification and positioning are very difficult. Online consumers are often disguised under a false identity and fake geographical location out of many concerns, such as security, which does not affect the transaction at all. Even if under the current global economic and network environment, consumers are allowed to act anonymously, the convenience of hiding identity has also led to the asymmetry of freedom and responsibility, causing series of unpredictable issues.

The innovation of cross-border e-commerce enterprises is distinct according to the targeted consumer needs and enterprise advantages. Representative innovation modes include overseas direct supply modes, overseas preferred modes, global buyer modes, and online and offline integration modes, as shown in figures 1 (a)~(d). The overseas direct supply modes are B2C platform modes, which are based on the aggregation degree of buyers and sellers and directly connect overseas dealers with domestic consumers through the cross-border e-commerce platform [18-20]. The platform formulates rules and consumption processes suitable for cross-border e-commerce import transactions and profits by charging entry fees and transaction commissions. In overseas direct supply modes, suppliers are required of overseas retail qualification, authorization, and local after-sales services. The overseas direct supply mode is an efficient shopping experience for consumers, with high consumer trust, and it can be further optimized through strict brand control and a shorter supply chain. In overseas preferred modes, the platform is directly involved in the organization, logistics, and sales of goods sources. The platform will purchase goods on a large scale and store them as bonded stock, which can provide a better user experience. The global buyer mode is a typical C2C platform mode. The platform does not charge the buyer's entry fee while gains profits by providing transshipment logistics services and platform value-added services [21,22]. Online and offline integration modes are innovative O2O modes, which display imported goods offline, and then completes online transactions through code scanning.

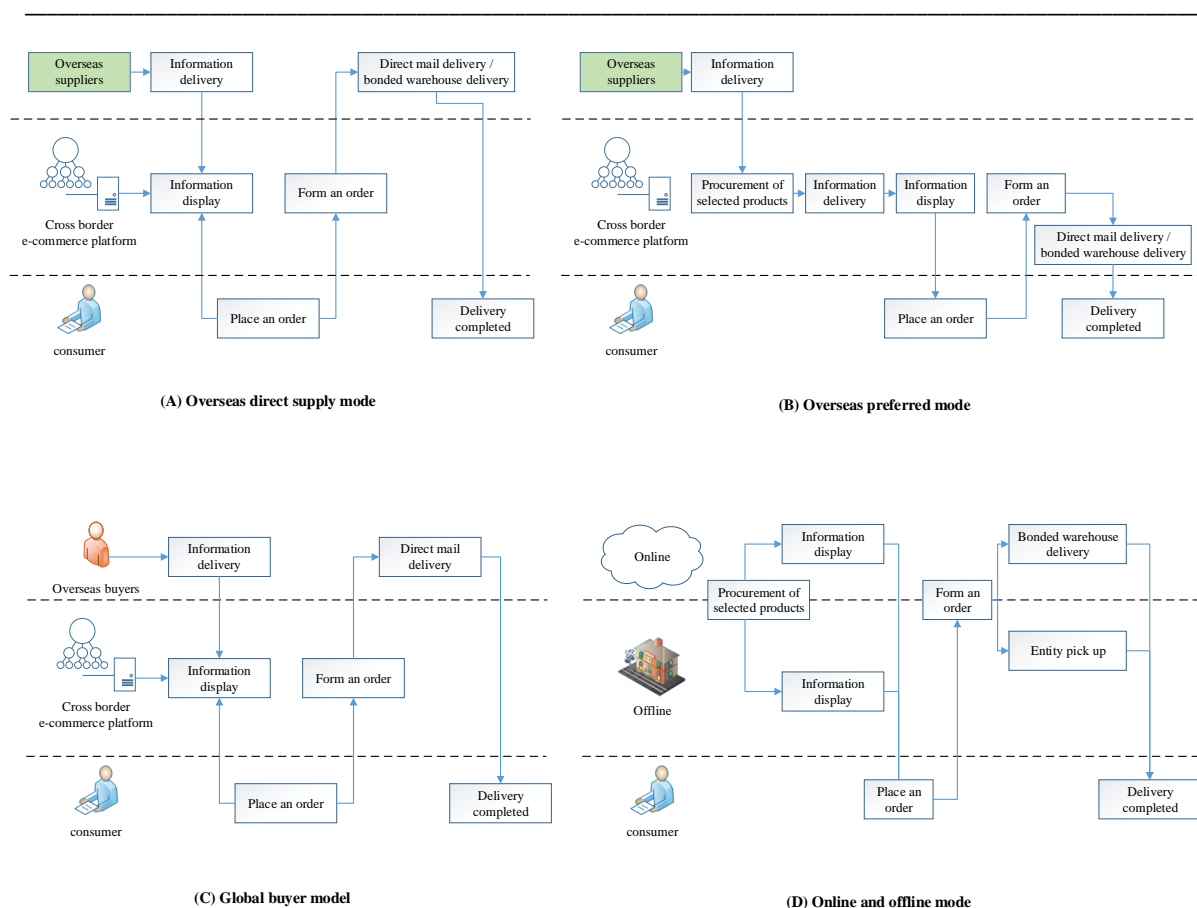


Figure 1: Innovative modes of cross border e-commerce development

Nowadays, B2C cross-border e-commerce platforms are most common. Here, the main factors of B2C cross-border e-commerce platforms are chosen as payment, logistics, and after-sales. Generally, the withdrawal fee of the third-party payment platform is higher, increasing the transaction cost and posing potential risks, such as capital security and payment. Cross border retail is mostly distributed in small packages, which are scattered, and the international trade process is complex, so the current logistics and customs clearance mode cannot adapt well, resulting in a low logistics efficiency. Therefore, the B2C cross-border e-commerce platform focuses on building warehouses and collecting goods overseas as much as possible, and shorten the distribution cycle.

## 2.2 Consumer trust and perception

The research on trust has been first conducted in sociology, and then definitions of trust in different fields, such as management, marketing, and psychology have come along. Here, in the e-commerce field, consumer trust is defined as consumers' trust in the e-commerce platform, and specifically, consumers are willing to buy goods through the platform even if they are aware of the potential risks involved in consumer behaviors. Compared with the consumer trust in the traditional trading environment, consumer trust in cross-border e-commerce is different in risk type, trust object, trading mode, and location. In the online transaction scenario, the trustor is usually the consumer browsing the goods, while the trustee is the seller in the e-commerce platform or the platform itself. Meanwhile, due to the anonymity of e-commerce, consumer behaviors may not be accurately predicted in the Internet environment. Yet,

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consumer behaviors besides purchase, such as browsing may be recorded without consent, violating consumer privacy [23]. The more consumer trust a seller gains, the more money consumers are willing to spend on each order. Consumer trust is essential for e-commerce platform survival and can bring huge returns, becoming one of the core competitiveness of e-commerce enterprises [24]. In terms of e-commerce platform indexes, trust improvement is the core to enhancing e-commerce website conversion rate.

Trust links between consumer and online platforms and enterprises are often hard to establish: online products are all displayed in the form of texts and messages, while the real objects cannot be felt or touched [25]. Once purchased, products cannot be checked immediately and need delivery and logistics. The consumer trust of e-commerce platforms can be improved from the following three aspects: (1) to promote purchase behavior upon the first experience, many measures can be taken, including a commitment to the information security and reliability, and fund security, commodity security, and return and exchange services should be guaranteed. (2) To improve the initial trust of the e-commerce platform, brand advertising can be chosen to create an e-commerce brand. (3) The threshold of first purchase trust can be reduced to attract new users to purchase for the first time through special preferential activities. (4) The overall consumer trust should be improved for the shopping process, such as browsing, ordering, payment, logistics, and after-sales. Consumer choice tendency determines which e-commerce platform consumers will choose [26-28]. The subjective cognition and objective understanding of the e-commerce platform determine the consumer choice tendency. Usually, the more powerful the comprehensive strength of the platform is, the more likely consumers will choose the platform.

Consumer satisfaction is not determined by the product experience but by the differentiated experience between their expectation and perceived product experience. From the consumers' point of view, product quality is the main concern in online shopping, as well as various risks, such as pre-sales, in-sale, after-sales risks, and privacy security risks. The perceived value of online shopping consumers involves the overall perception of the above problems. Perceived risk is a psychological concept. Consumer behavior in shopping activities is unpredictable, so behavioral risks are commonly found. For example, when choosing a product, consumers often don't have a clear understanding of the product's actual applicability, which can be considered as a risk. Moreover, consumer purchase is a process of risk reduction and avoidance. The purchase decision is the direct performance of product identification and acceptance. On the contrary, if consumers postpone or cancel the purchase decision, the perceived risks are magnified.

The perceived risks can be divided into six aspects: wealth, society, body, psychology, function, and time. Wealth risk refers to the possible economic loss caused by pricing or product quality; social risk is an assumption that consumers are alienated by others because of their wrong purchase behavior; physical risk means the risk that the product may physically harm consumers and participants; psychological risk refers to the risk of emotional frustration caused by consumers' wrong decisions, such as self-blame and depression; function risk is a risk due to product failure and performance failure, and time risk refers to the risk of time cost on product repairment or replacement. In terms of perceived risk on specific products or services, consumers perceive different risks for various products or services. In online services, from the perspective of consumers, cross-border e-commerce platforms should actively analyze their advantages and disadvantages. In the aspects of secure payment, financial security,

website reputation, and consumer experience, more targeted operation strategies should be designed to reduce the perceived risk of consumers and improve their purchase intention.

### **2.3 Consumer loyalty and factor analysis**

Consumer loyalty is the trust and emotional dependence of consumers on enterprises, brands, or services. The ultimate goal of consumer service is to create consumer loyalty. The more experiences a consumer gets from a specific product or service, the more likely he will feedback product perception. At the same time, the stronger the consumer satisfaction is, the higher the consumer loyalty to the enterprise is. Consumer loyalty is mainly manifested through the following aspects: (1) When making purchase decisions, consumers show multiple biased purchase behaviors. (2) Consumers are willing to recommend the products to others. (3) Consumers can resist the temptation of the same type of competitive enterprises [29,30]. In particular, the consumer's reaction to the trial products or promotional products can not be classified as loyalty. Besides, some products or services may have a high market share due to price advantage or fewer competitors, which also can not be regarded as consumer loyalty. Once the price advantage is lost or a better competitor appears, the original market share will drop sharply. Usually, a small increase in consumer loyalty brings a substantial increase in corporate profits. Therefore, the establishment of consumer loyalty is the most effective way to achieve sustained growth of profits.

Consumer loyalty is usually affected by five factors: service quality, service experience, relationship interaction, concept identity, and value-added feeling. The service quality perceived by consumers is the real value of products and services obtained by consumers, including product quality, service level, and delivery ability [31]. In addition to product quality, service quality is manifested through service level and delivery ability, which are the practical actions of the enterprises. Service experience is the psychological feeling and satisfaction of consumers in the process of accepting products and services. With the advancement of information technology, consumer contact points have been diversified, thus increasing the influence of service experience on consumer loyalty. Relationship interaction is a two-way communication process between enterprises and consumers, which includes service communication and relationship maintenance actions initiated by enterprises, as well as service communication requests initiated by consumers [32,33]. Concept identity is reflected in the consumer's product design and production concept, as well as in the enterprise's brand concept and service concept. To sum up, to maintain consumer loyalty, a genuine long-term value-added feeling should be brought to consumers, which is the decisive factor for enterprises to realize long-term pricing optimization.

## **3. Theoretical model and research hypothesis**

### **3.1 Model construction**

Here, consumer loyalty factors in cross-border e-commerce are summarized into two aspects, namely, indirect perception of goods and direct perception of goods. The indirect perception of goods includes logistics and platform technology factors, while the direct perception of goods includes goods and business services. Specifically, the

factors of indirect perception of goods are analyzed. Finally, a theoretical model is constructed for product perception to consumer loyalty, as shown in figure 2.

Up to now, there is still no universal agreement on the relationship between consumer trust and perceived risk. Most commonly, the impact of only one of the two factors (consumer trust and perceived risk) on purchase intention is considered, and the impact of coexistence on purchase intention is not considered in the single impact model. Therefore, the mediating relationship model is chosen here to analyze the mediating role of perceived risk in the impact of consumer trust on purchase intention. First, relevant research on consumer trust factors are reviewed, four variables are selected for consumer trust factors: privacy protection, security protection, information quality, and platform reputation, and a purchase intention model based on the consumer trust factors are constructed for cross-border e-commerce platform, as shown in figure 3.

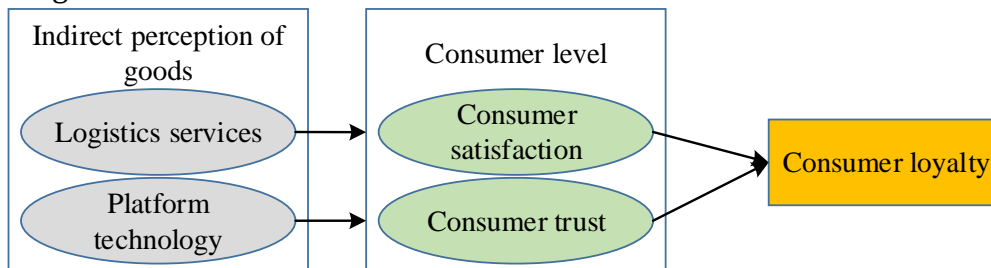


Figure 2: A theoretical model of indirect perception of goods to consumer loyalty based on consumer trust

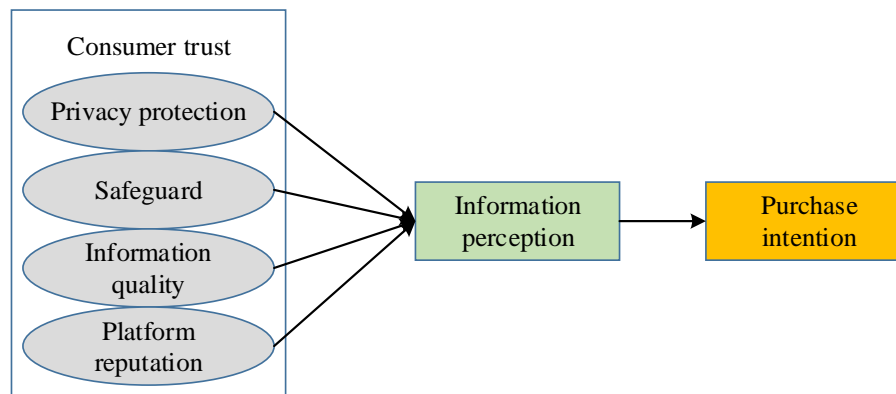


Figure 3: Theoretical model of consumer trust to consumer loyalty

### 3.2 Research hypothesis

Feelings and perceptions are the primary stages of cognition activities, and feelings are people's reflections of the attributes of things. Consumer satisfaction is a positive emotion. Generally, the higher the consumer satisfaction, the less likely they will switch to the other shopping platforms, and the greater the possibility of repeated selection of the same platform, meaning higher the consumer loyalty. Product is the critical factor affecting consumer perception of online shopping. Consumers often assess risks through product quality and platform security before placing an order and make final decisions. The perceived platform security directly affects consumers' platform choice: the higher the technical guarantee on security is, the stronger consumer's perceived security is, the greater the possibility of consumer purchase behavior, and the higher the consumer loyalty to the platform. Moreover, logistics also plays an important role in

ensuring consumer loyalty. After the online transaction is completed, the product enters the logistics link, in which many cross-border e-commerce platforms rely on third-party logistics companies and often ignore the delivery and logistics services. In actual situations, consumer complaints on logistics services constantly occur, including slow logistics speed, untimely information updates, and product damage during transportation. Under untimely product delivery caused by the default of third-party logistics companies, consumers are most likely to blame and give up the e-commerce platform. To sum up, the impact of consumer loyalty factors is analyzed from the perspective of indirect perception of goods, and the following hypotheses are proposed.

H1: The indirect perception of goods has a positive impact on consumer loyalty in cross-border e-commerce platforms.

Trust is the primary factor determining the social and economic behavior of individuals. Under a complicated Internet environment, the interaction between people and things and between people and people arouse various psychological reactions, among which trust is extracted as a simplified and complex mechanism. The cross-border e-commerce platform is featured as a virtual environment. Consumers, suppliers, and platform operations are mostly strangers to one another in online shopping. Meanwhile, compared with traditional physical stores, during online shopping (especially, cross-border shopping) payment and receipt do not occur concurrently, giving rise to consumers' concerns about potential online risks. Thus, the establishment of the trust relationship between consumers and platforms should be emphasized in cross-border e-commerce platforms, thereby enhancing consumer loyalty. In cross-border e-commerce platforms, goods and products are not directed available for consumers' sense, so consumer purchase intention depends on the consumer trust on the platform. Consumers with a comfortable shopping experience, such as the well value-price match, high information reliability, and better privacy protection, often show high purchase intention and are most likely to place an order. In conclusion, the following assumptions are proposed:

H2: Consumer trust has a positive impact on consumer loyalty in the cross-border e-commerce platform.

H3: The consumer trust has a positive impact on purchase intention in cross-border e-commerce platforms.

## **4. Empirical analysis**

### **4.1 Research subject and QS**

Most of the cross-border buyers are between 23-45 years old and often possess a high position, education, and salary, who are the middle class of a country or region, are not too sensitive to the price but are very concerned about the shopping experience and product quality. Thus, their cross-border online consumption can mostly attribute to product upgrades, and they are more inclined to buy goods with reasonable prices, excellent quality, and practical functions. Based on the above analysis, an empirical analysis is conducted on the cross-border e-commerce platform. A QS is designed and distributed to consumers aged 20-40 who have used the cross-border e-commerce platform at least once a year. A total of 283 QSs are distributed through the Internet platform. Afterward, 260 valid QSs are collected, with an effective rate of 91.9%. SPSS21.0 software is used for data statistics and correlation analysis.



The measurement dimensions of the QS include four aspects: user basic information, consumer trust, consumer loyalty, and purchase intention. Consumer trust is analyzed from 4 dimensions, 8 items in total, and consumer loyalty is surveyed with 5 items, as shown in table 1. The Likert 7-grade scale is adopted here, and 1-point to 7-points represents a different degree of agreement, from very disagree to very agree, respectively. The reliability and validity analysis of the QS suggests that the Cronbach  $\alpha$  coefficient of the scale is greater than 0.7, and the KMO value is greater than 0.8, proving that the scale can be used for factor analysis.

Table 1: QS items on consumer trust and consumer loyalty

Variables	Dimensions	Questions	Cronbach $\alpha$	KMO
Consumer trust	Security protection	Do you think the platform can ensure safe transactions?	0.872	0.880
		Do you think the transaction system of the platform is safe?		
	Privacy protection	Do you think your basic information will be used by the platform without your permission?		
		Do you think hackers will steal your basic information from the platform?		
	Information quality	Do you think the platform has provided the correct information about the goods you need?		
		Do you think the information quality of the platform is generally high?		
	Platform reputation	Do you think the popularity of the platform is very high?		
		Do you think the platform has a good reputation?		
Consumer loyalty		Do you think you prefer the platform when you need to buy goods cross-border goods?	0.886	0.853
		Do you think you are willing to pay a higher price on the platform?		
		Do you think you will stick to the platform even if it has some minor issues?		
		Do you think you often buy services on the platform?		
		Do you think you would like to recommend the platform to your friends and relatives?		

To clarify the impact of consumer indirect perception of goods on consumer loyalty, the indirect perception of goods is evaluated from two dimensions. The consumer purchase intention is evaluated from two aspects, as shown in table 2. The reliability

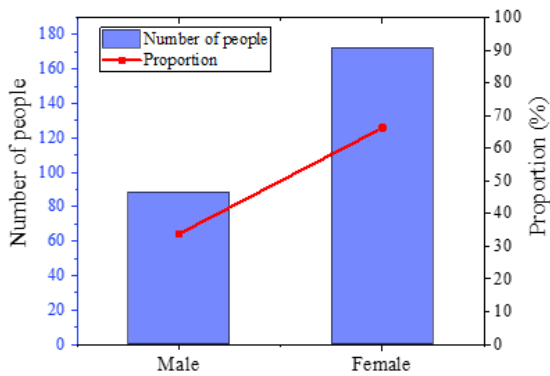
and validity of the scale meet the requirements of factor analysis, so the scale can be used for subsequent hypothesis testing.

Table 2: QS items on consumer indirect perception of goods and purchase intention

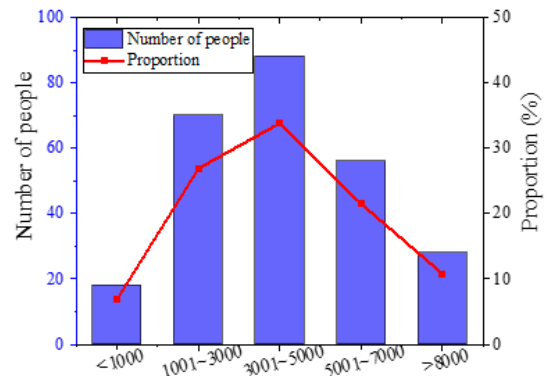
Variables	Dimensions	Questions	Cronbach $\alpha$	KMO
Consumer indirect perception of goods	Platform technology	Do you think the user-friendly interface of the platform facilitates your goods selection?	0.783	0.833
		Do you think the platform has sufficient security features?		
	Logistics services	Do you think the packaging of the goods is reasonable, and logistics distribution is timely?		
		Do you think the logistics distribution is consistent with the expected time?		
Purchase intention		Do you think you will rechoose the platform next time you buy similar imported products?	0.822	0.818
		Do you think you will rechoose the platform when you need other products?		

#### 4.2 QS descriptive statistics

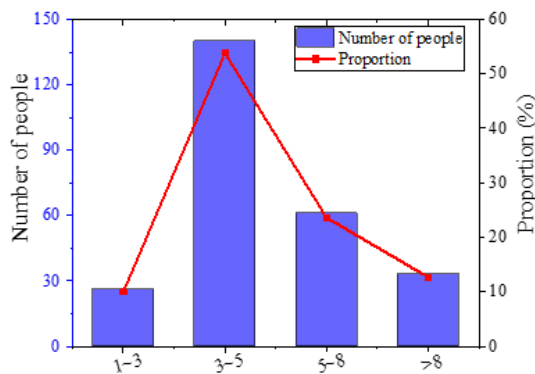
The QS illustrates that there are 172 females (66.2%) and 88 males (33.8%) in 260 subjects. Thus, the majority of cross-border shoppers are females. From the perspective of monthly income, the group with a monthly income of 3,001-5,000 RMB accounts for the most, 33.8%; and people with a monthly income of 1,001-3,000 RMB accounts for the second most, 26.9%. In terms of the frequency of cross-border e-shopping, the number of consumers with 3 to 5 times cross-border e-shopping per year is the largest, accounting for 53.8%. In terms of the cross-border e-shopping experience, 44.2% of the shoppers have 3-5 years of shopping experience. Product types statistics of cross-border e-shopping reveal that cosmetics and clothing are most welcomed, accounting for about 40% of all product types. The specific QS results are illustrated in figure 4.



(A) Gender



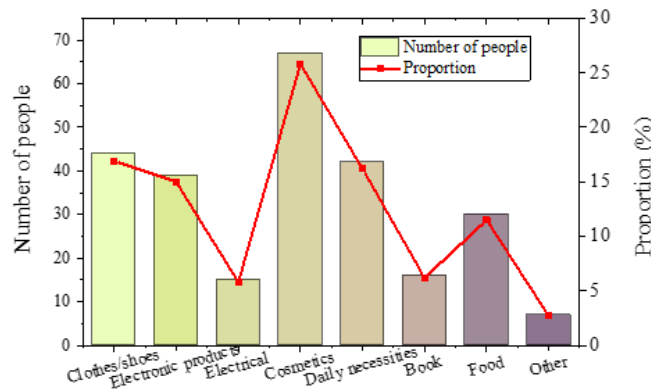
(B) Monthly income (Yuan)



(C) Shopping frequency (per year)



(D) Shopping experience



(E) Type of goods purchased

Figure 4: Statistics of subjects' basic information

### 4.3 Correlation analysis

Further, a correlation analysis is conducted to understand the correlation between indirect perception of goods and consumer loyalty, between the indirect perception of goods and purchase intention, and between consumer loyalty and purchase intention,

as shown in table 3. Thus, there is a significant positive correlation between indirect perception of goods and consumer loyalty (unilateral,  $r=.521$ , and  $P<0.01$ ); there is a significantly positive correlation between consumer loyalty and purchase intention (bilateral,  $r=.565$ , and  $P<0.01$ ); and there is a significantly positive correlation between indirect perception of goods and purchase intention (unilateral,  $r=.475$ ,  $P<0.01$ ). These provide preliminary evidence to test hypotheses H1 and H3. Hong and cha mentioned in their research that, under the mediating effect of perceived risk on purchase intention, to reduce perceived risk, e-commerce platforms should first improve consumer trust and then improve consumer purchase intention [34]. This is consistent with the results of the correlation analysis.

Table 3: The correlation analysis of indirect perception, consumer loyalty, and purchase intention of goods

Correlation analysis		Indirect perception	Consumer loyalty	Purchase intention
Indirect perception	Pearson correlation	1	-	-
	Significant (Bilateral)	-	-	-
Consumer loyalty	Pearson correlation	.521	1	-
	Significant (Bilateral)	.000	-	-
Purchase intention	Pearson correlation	.475	.565	1
	Significant (Bilateral)	.000	.000	-

Table 4 shows the analysis results of the correlation among the dimensions of consumer trust, purchase intention, and consumer loyalty. Thus, all dimensions of consumer trust have positive effects on consumer loyalty and purchase intention. Among them, perceived information quality and platform reputation have a stronger positive effect on consumer loyalty and purchase intention, proving the hypotheses H2 and H3.

Table 4: The correlation analysis between the dimensions of consumer trust and purchase intention

Correlation analysis		Security protection	Privacy protection	Information quality	Platform reputation	Consumer loyalty	Purchase intention
Security protection	Pearson correlation	1	-	-	-	-	-
	Significant (Bilateral)	-	-	-	-	-	-
Privacy protection	Pearson correlation	.665	1	-	-	-	-

n	on						
	Significant (Bilateral)	.000	-	-	-	-	-
Information quality	Pearson correlation	.572	.687	1	-	-	-
	Significant (Bilateral)	.000	.000	-	-	-	-
Platform reputation	Pearson correlation	.618	.674	.681	1	-	-
	Significant (Bilateral)	.000	.000	.000	-	-	-
Consumer loyalty	Pearson correlation	.422	.208	.646	.682	1	-
	Significant (Bilateral)	.000	.000	.000	.000	.000	-
Purchase intention	Pearson correlation	.213	.172	.802	.717	.565	1
	Significant (Bilateral)	.000	.000	.000	.000	.000	-

## 5. Conclusion

The rapid development of cross-border e-commerce platforms in recent years has brought a rich shopping experience to consumers all over the world. Based on the cross-border e-commerce shopping mode, the factors of development of cross-border e-commerce platforms are analyzed from the perspective of consumer perception. Here, the theoretical model is constructed through consumer trust factors and consumer loyalty, and research hypotheses are put forward. In terms of variable measurement, here, consumer trust is comprehensively evaluated from four dimensions: security protection, privacy protection, information quality, and platform reputation. The QS analysis reveals that, in cross-border e-commerce platforms, indirect perception of goods has a positive impact on consumer loyalty, and consumer trust has a positive impact on consumer loyalty and purchase intention.

The results of the empirical analysis indicate that consumer support is essential for

the healthy and sustainable development of the e-commerce platform. To win consumer trust and consumer loyalty to the e-commerce platform, purchase intention must be improved. To sum up, firstly, cross-border e-commerce platform should focus on the performance of suppliers and ensure product quality; secondly, the supply chain should be optimized to ensure the quality of logistics service; thirdly, in terms of platform security, the protection of consumers privacy and payment security should be further emphasized, such as the combination of blockchain technology with payment. Meanwhile, a unique membership mechanism can be implemented to meet the needs of various consumers and raise consumer loyalty to the cross-border e-commerce platforms. Here, the development factors of cross-border e-commerce platforms are discussed from the perspective of consumers, which is of great reference value for improving the market competitiveness of the platform. However, among multiple modes of cross-border e-commerce, the mainstream B2C modes are analyzed here, and in the next research, more cross-border e-commerce modes, such as C2C and special sale fair can be further discussed.

## References

1. Gomez-Herrera E, Martens B, Turlea G. The drivers and impediments for cross-border e-commerce in the EU. *Information Economics and Policy*, 2014, 28, pp. 83-96.
2. Valarezo Á, Pérez-Amaral T, Garín-Muñoz T, et al. Drivers and barriers to cross-border e-commerce: Evidence from Spanish individual behavior. *Telecommunications Policy*, 2018, 42(6), pp. 464-473.
3. Zhu W, Mou J, Benyoucef M. Exploring purchase intention in cross-border E-commerce: A three-stage model. *Journal of Retailing and Consumer Services*, 2019, 51, pp. 320-330.
4. Li G, Li N. Customs classification for cross-border e-commerce based on text-image adaptive convolutional neural network. *Electronic Commerce Research*, 2019, 19(4), pp. 779-800.
5. Wang Y, Lee S H. The effect of cross-border e-commerce on China's international trade: An empirical study based on transaction cost analysis. *Sustainability*, 2017, 9(11), pp. 2028.
6. Ai W, Yang J, Wang L. Revelation of cross-border logistics performance for the manufacturing industry development. *International Journal of Mobile Communications*, 2016, 14(6), pp. 593-609.
7. Fan Q. An exploratory study of cross-border e-commerce (CBEC) in China: opportunities and challenges for small to medium-size enterprises (SMEs). *International Journal of E-Entrepreneurship and Innovation (IJEEL)*, 2019, 9(1), pp. 23-29.
8. He Y, Wang J. A Panel Analysis on the Cross Border E-commerce Trade: Evidence from ASEAN Countries. *The Journal of Asian Finance, Economics, and Business*, 2019, 6(2), pp. 95-104.
9. Wang Y, Jia F, Schoenherr T, et al. Cross-border e-commerce firms as supply chain integrators: The management of three flows. *Industrial Marketing Management*, 2020, 89: 72-88.
10. Qi X, Chan J H, Hu J, et al. Motivations for selecting cross-border e-commerce as a foreign market entry mode. *Industrial Marketing Management*, 2020, 89, pp. 50-60.

11. Valarezo Á, Pérez-Amaral T, Garín-Muñoz T, et al. Drivers and barriers to cross-border e-commerce: Evidence from Spanish individual behavior. *Telecommunications Policy*, 2018, 42(6), pp. 464-473.
12. Xiao L, Guo F, Yu F, et al. The effects of online shopping context cues on consumers' purchase intention for cross-border E-Commerce sustainability. *Sustainability*, 2019, 11(10), pp. 2777.
13. Strzelecki A. Key Features of e-tailer shops in adaptation to cross-border e-commerce in the EU. *Sustainability*, 2019, 11(6), pp. 1589.
14. Chen N, Yang Y. The impact of customer experience on consumer purchase intention in cross-border E-commerce—Taking network structural embeddedness as mediator variable. *Journal of Retailing and Consumer Services*, 2021, 59, pp. 102344.
15. Ren S, Choi T M, Lee K M, et al. Intelligent service capacity allocation for cross-border-E-commerce related third-party-forwarding logistics operations: A deep learning approach. *Transportation Research Part E: Logistics and Transportation Review*, 2020, 134, pp. 101834.
16. Mou J, Ren G, Qin C, et al. Understanding the topics of export cross-border e-commerce consumers feedback: an LDA approach. *Electronic Commerce Research*, 2019, 19(4), pp. 749-777.
17. Fang Y. Current situation, obstacles, and solutions to China's cross-border e-commerce. *Open Journal of Social Sciences*, 2017, 5(10), pp. 343-351.
18. Giuffrida M, Mangiaracina R, Perego A, et al. Cross-border B2C e-commerce to China: an evaluation of different logistics solutions under uncertainty. *International Journal of Physical Distribution & Logistics Management*, 2020, 50(3), pp. 355-378.
19. Miao Y, Du R, Li J, et al. A two-sided matching model in the context of B2B export cross-border e-commerce. *Electronic Commerce Research*, 2019, 19(4), pp. 841-861.
20. Zhang X X, Cao G H. Analysis on competition strategy of B2C import cross-border E-commerce seller: As an example of www Tmall hk. *Journal of Chongqing University (Social Sciences Edition)*, 2018, 1(1), pp. 46-57.
21. Hsiao Y H, Chen M C, Liao W C. Logistics service design for cross-border E-commerce using Kansei engineering with text-mining-based online content analysis. *Telematics and Informatics*, 2017, 34(4), pp. 284-302.
22. Lin A J, Li E Y, Lee S Y. Dysfunctional customer behavior in cross-border e-commerce: A justice-affect-behavior model. *Journal of Electronic Commerce Research*, 2018, 19(1), pp. 36-54.
23. Smith R, Shao J. Privacy and e-commerce: a consumer-centric perspective. *Electronic Commerce Research*, 2007, 7(2), pp. 89-116.
24. Greiner M E, Wang H. Building consumer-to-consumer trust in e-finance marketplaces: An empirical analysis. *International Journal of Electronic Commerce*, 2010, 15(2), pp. 105-136.
25. Abyad A. Importance of Consumer Trust in e-commerce. *Middle East Journal of Business*, 2017, 55(4182), pp. 1-5.
26. McKnight D H, Choudhury V, Kacmar C. Developing and validating trust measures for e-commerce: An integrative typology. *Information systems research*, 2002, 13(3), pp. 334-359.
27. Hawlitschek F, Stofberg N, Teubner T, et al. How corporate share washing practices undermine consumer trust. *Sustainability*, 2018, 10(8), pp. 2638.

28. Sullivan Y W, Kim D J. Assessing the effects of consumers' product evaluations and trust on repurchase intention in e-commerce environments. *International Journal of Information Management*, 2018, 39, pp. 199-219.
29. Othman A K, Hassan L F A, Ibrahim M A M, et al. Factors that influence customer loyalty in using e-commerce. *Journal of Islamic Management Studies*, 2020, 2(2), pp. 43-58.
30. Santoso A S, Erdaka A. Customer loyalty in collaborative consumption model: Empirical study of CRM for product-service system-based e-commerce in Indonesia. *Procedia computer science*, 2015, 72, pp. 543-551.
31. Bhaskar P P, Kumar D P. Customer loyalty on e-commerce. *International Journal of Management Research and Reviews*, 2016, 6(12), pp. 1661.
32. Abumalloh R A, Ibrahim O, Nilashi M. Loyalty of young female Arabic customers towards recommendation agents: A new model for B2C E-commerce. *Technology in Society*, 2020, 61: 101253.
33. Al-Adwan A S, Al-Horani M A. Boosting customer e-loyalty: an extended scale of online service quality. *Information*, 2019, 10(12), pp. 380.
34. Hong I B, Cha H S. The mediating role of consumer trust in an online merchant in predicting purchase intention. *International Journal of Information Management*, 2013, 33(6), pp. 927-939.