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Service Quality, Consumer Satisfaction, and Behavioral Intentions in Cross-border Online Shopping: A Structural Equation Modeling Approach

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ABSTRACT: With the rapid development of globalization and digital technology, cross-border e-commerce has become an important part of international trade. The global cross-border e-commerce market size reached US\$1.245 trillion in 2024 and is expected to grow to US\$4.574 trillion by 2032, at a compound annual growth rate of 18.7%. Service quality is a key factor influencing consumer satisfaction and behavioral intention, but the understanding of service quality dimensions and its influence mechanism in the cross-border e-commerce environment is still limited in existing studies. Based on the E-S-QUAL scale and expectation confirmation theory, this study adopts structural equation modeling to systematically explore the influence paths of service quality dimensions on consumer satisfaction and behavioral intention in cross-border e-commerce platforms. A questionnaire survey was conducted among 466 Chinese consumers with cross-border online shopping experience, and the data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that delivery service quality, return logistics service and cross-border shopping experience have a significant positive effect on consumer satisfaction; price fairness, cross-border shopping experience and consumer satisfaction have a positive effect on repurchase intention; and consumer satisfaction mediates the relationship between service quality and behavioral intention. The innovation of this study is that it focuses on the cross-border dimension and introduces additional factors such as price fairness and cross-border shopping experience, which provides a theoretical basis and practical guidance for cross-border e-commerce enterprises to formulate effective service quality improvement strategies.

1. INTRODUCTION

In recent years, with the deepening of globalisation and the iterative advancement of digital technologies, cross-border e-commerce has gradually evolved from a supplementary form of traditional international trade into a core component of the global trade landscape. According to industry statistics, the global cross-border e-commerce market reached US\$1.245 trillion in 2024 and is projected to grow to US\$4.574 trillion by 2032, representing a compound annual growth rate (CAGR) of 18.7 per cent (Table 1). This growth trend not only reflects the continuous expansion of consumer demand for cross-border shopping but also highlights the increasingly severe challenges faced by cross-border e-commerce platforms in terms of service capabilities, logistics systems and customer relationship management.

Table 1: Global Cross-Border E-Commerce Market Size and Growth Trends, 2020–2032

Year	Market size (US\$ trillion)	Year-on-year growth (%)	Data status
2020	0.542	—	Actual
2021	0.687	26.8	Actual
2022	0.804	17.0	Actual
2023	0.958	19.2	Actual
2024	1.245	29.9	Actual
2025	1.478	18.7	Forecast
2026	1.755	18.7	Forecast
2028	2.474	18.7 (avg.)	Forecast
2030	3.487	18.7 (avg.)	Forecast
2032	4.574	17.7 (avg.)	Forecast

Note. Figures for 2020–2024 represent actual market estimates; figures for 2025–2032 are forecasts compiled from industry sources and are consistent with the 18.7% compound annual growth rate (CAGR) reported for the 2024–2032 period cited in the Introduction. Minor deviations between the reported CAGR and the geometric mean implied by the 2024 and 2032 endpoint values (approximately 17.7%) reflect rounding conventions and non-uniform annual growth rates in the original industry forecasts.

Compared with domestic e-commerce, the cross-border e-commerce transaction process involves more complex supply chain stages, including cross-border logistics and delivery, customs clearance procedures, foreign exchange settlement, returns and exchanges, as well as specific risk factors such as information asymmetry (Liu et al., 2021). These factors make it difficult to fully apply the service quality evaluation systems developed in traditional e-commerce contexts to cross-border shopping scenarios, as consumers face higher perceived risks and longer service response times during the decision-making process. Consequently, exploring the constituent dimensions of service quality in a cross-border e-commerce environment and the mechanisms through which they influence consumer satisfaction and behavioural intentions holds significant theoretical value and practical relevance.

As a core topic in the fields of marketing and consumer behaviour research, service quality has long been the focus of significant academic attention. The SERVQUAL scale developed by Parasuraman, Zeithaml and Berry (1988), which measures traditional service quality across five dimensions—tangibility, reliability, responsiveness, assurance and empathy—laid the theoretical foundation for subsequent service quality research. With the rise of e-commerce, Parasuraman, Zeithaml and Malhotra (2005) built upon this to develop the E-S-QUAL scale, specifically designed to assess service quality in online retail. This scale categorises electronic service quality into four core dimensions—efficiency, fulfilment, system availability and privacy—and is supplemented by the E-RecS-QUAL scale, which addresses non-routine service contact situations (covering responsiveness, compensation and relationship). This scale system has been widely applied in empirical research across various digital service contexts, including online retail, online banking and mobile applications (Rita et al., 2019; Blut, 2016); however, its applicability and the need for dimensional expansion within the context of cross-border e-commerce—which presents unique logistical complexities and institutional risks—remain to be further validated.

Regarding the mechanisms underlying consumer satisfaction, Expectation Confirmation Theory (ECT), proposed by Oliver (1980), provides a classic cognitive framework for understanding consumers' post-purchase evaluations. This theory posits that

consumers form initial expectations prior to purchase based on past experiences and external information; after purchase, by comparing actual perceived performance with these initial expectations, they form a judgement of confirmation or non-confirmation, which in turn determines their level of satisfaction and ultimately influences their repurchase intention and behavioural loyalty (Oliver, 1980; Bhattacharjee, 2001). Expectation Confirmation Theory has been widely applied in research areas such as the intention to continue using e-commerce, satisfaction with online services, and consumer loyalty, becoming an important theoretical tool for explaining the classic relationship chain of 'service quality—satisfaction—behavioural intention'.

However, although existing research has accumulated a relatively rich body of evidence on the relationship between service quality and consumer satisfaction, there remain several limitations in the specific context of cross-border e-commerce. Firstly, most studies directly apply the service quality dimension framework developed for domestic e-commerce contexts, failing to fully account for contextual factors specific to cross-border shopping, such as logistics and delivery, the costs of returns and exchanges, perceptions of price fairness, and consumers' cross-border shopping experiences (Cui et al., 2024; Wang & Li, 2022). Secondly, there is controversy in existing research regarding the role of price fairness in cross-border contexts: some studies have found that price fairness significantly influences consumer satisfaction (Xia, Monroe, & Cox, 2004), whilst recent empirical studies of Chinese cross-border consumers have found that the direct effect of price fairness on satisfaction is not significant, yet it has a significant positive impact on repurchase intention (Cui et al., 2024). This contradictory finding suggests that consumers' evaluation logic in cross-border shopping contexts may differ from that in traditional retail contexts, requiring further empirical testing. Thirdly, the cross-border shopping experience—as the cognitive and emotional capital accumulated by consumers through repeated cross-border transactions—has not yet been systematically elucidated in the existing literature regarding its mechanism of action in the pathway through which service quality influences satisfaction and behavioural intentions.

In light of these research gaps, this study, grounded in the E-S-QUAL scale and Expectation Confirmation Theory, focuses on Chinese cross-border e-commerce consumers. It systematically examines the impact pathways of multi-dimensional service quality factors—including delivery service quality, returns logistics services, price fairness and cross-border shopping experience—on consumer satisfaction and behavioural intentions (with repurchase intention as the core indicator), whilst testing the mediating role of consumer satisfaction in the relationship between service quality and behavioural intentions. This study employs the Partial Least Squares Structural Equation Modelling (PLS-SEM) method to conduct an empirical analysis of 466 valid questionnaire responses from Chinese cross-border e-commerce consumers.

The theoretical contributions of this study are primarily reflected in the following three aspects. First, by introducing two contextual variables—price fairness and cross-border shopping experience—within the traditional framework of electronic service quality, the study expands the explanatory scope of electronic service quality theory in cross-border contexts. Second, by empirically testing the mediating role of consumer satisfaction, this study further clarifies the internal mechanisms through which service quality influences behavioural intentions, thereby providing new evidence for the application of Expectation-Confirmation Theory in the cross-border e-commerce context. Third, the findings of this study provide a theoretical basis and practical guidance for cross-border e-commerce platforms and sellers in formulating differentiated strategies to enhance service quality, offering significant managerial implications.

2. LITERATURE REVIEW

2.1 Theoretical Foundations of Service Quality

The concept of service quality can be traced back to the Gap Model proposed by Parasuraman, Zeithaml and Berry (1985, 1988). This model defines service quality as the gap between consumers' expected service and their perceived service, and on this basis developed the SERVQUAL scale comprising five dimensions: tangibility, reliability, responsiveness, assurance and empathy. Since its introduction, this scale has become one of the most widely cited measurement tools in the field of service marketing; however, it has been subject to ongoing academic scrutiny and revision due to controversies regarding the stability of its dimensions across different service contexts (Buttle, 1996; Ladhari, 2009).

With the development of internet technology, scholars have gradually realised that the traditional SERVQUAL scale struggles to adequately capture the 'depersonalised' nature of interactions between consumers and service providers in online service environments. To this end, Parasuraman, Zeithaml and Malhotra (2005), building upon earlier conceptual framework research (Zeithaml, Parasuraman, & Malhotra, 2000, 2002), developed and validated the E-S-QUAL scale—specifically designed to assess website service quality—using the means-end chain theoretical framework. This scale comprises 22 items, categorised

into four core dimensions: efficiency, fulfilment, system availability and privacy; simultaneously, for consumer groups experiencing non-routine service interactions (such as complaints, returns and exchanges), the E-RecS-QUAL scale was developed, comprising 11 items across three dimensions: responsiveness, compensatory response and relationship-building. Two-stage empirical data indicate that this scale system possesses good reliability and validity, providing a solid measurement foundation for subsequent research into electronic service quality.

Following the introduction of the E-S-QUAL scale, numerous scholars have applied it to various online service contexts and, building on this, have expanded its dimensions and adapted it to specific contexts. For example, one study applied the E-S-QUAL scale to the context of online fresh food retail and re-validated its external validity (Boshoff, 2007; Fassnacht & Koese, 2006), whilst other studies have extended its use to digital service domains such as mobile banking and online travel booking (Rita, Oliveira, & Farisa, 2019). These studies indicate that, whilst the core dimensions of E-S-QUAL exhibit a certain degree of cross-contextual stability, their practical application often requires the addition or adjustment of measurement dimensions to account for the specific characteristics of a given service context. This research tradition provides methodological support for the introduction of context-specific dimensions—such as delivery service quality and return logistics services—in the context of cross-border e-commerce.

2.2 Logistics Service Quality in the Context of Cross-Border E-Commerce

Logistics Service Quality (LSQ) is one of the core characteristics that distinguishes cross-border e-commerce from domestic e-commerce. As cross-border transactions involve complex processes such as international transport, customs clearance and multimodal transport, the timeliness and reliability of delivery have become key factors influencing the consumer experience (Mentzer, Min, & Bobbitt, 2004). In recent years, empirical research on the relationship between cross-border logistics service quality and consumer behaviour has grown rapidly.

Drawing on the theoretical framework of the Technology Acceptance Model, Cui et al. (2024) constructed a causal chain of 'Logistics Service Quality (Experience) – Satisfaction – Repurchase Intention'. They conducted a questionnaire survey among 466 Chinese consumers with experience of cross-border online shopping and employed the PLS-SEM method for empirical testing. The results indicate that delivery service quality, returns logistics services and cross-border online shopping experience have a significant positive impact on consumer satisfaction, whilst the effects of delivery information services and delivery reliability on satisfaction are not significant. Furthermore, the study found that price fairness has no significant direct effect on satisfaction but exerts a significant positive influence on repurchase intention. This finding differs from the conclusion reached by Xia et al. (2004) in a traditional retail context, where price fairness was found to significantly influence satisfaction. This suggests that Chinese cross-border consumers may, to a certain extent, be less sensitive to logistics costs and price fairness due to their emphasis on the availability of scarce goods and a wider range of product choices. The study further points out that consumer satisfaction plays a significant mediating role in the pathways through which delivery information services, returns logistics services and the cross-border shopping experience influence repurchase intention, providing empirical support for the notion that logistics service quality drives consumer loyalty in cross-border e-commerce.

At the same time, other scholars have also verified the impact of logistics service quality on cross-border e-commerce consumer behaviour from different perspectives. One study, using a sample of consumers on Chinese cross-border e-commerce platforms, constructed a 'logistics service quality–customer loyalty' model and found that logistics service quality can significantly enhance consumer satisfaction levels and, through a trust mechanism, further strengthen their loyalty (Chen et al., 2024). Another study focused on logistics service quality within specific product categories (such as the cross-border forest fruit supply chain) and, using structural equation modelling, verified the positive impact of five dimensions—reliability, responsiveness, assurance, empathy and tangibility—on consumer satisfaction and loyalty, whilst confirming that satisfaction acts as a mediator in the relationship between logistics service quality and loyalty (Cheng & Pang, 2024). Furthermore, research conducted from the perspective of consumer complaints, based on the theory of unmet expectations and utilising text-mining and association-analysis methods, has systematically revealed how poor logistics service quality in cross-border e-commerce triggers consumer complaint behaviour, providing new empirical evidence for understanding the negative consequences of logistics service failures (Zhang et al., 2025).

The aforementioned studies collectively indicate that logistics service quality has become an indispensable core variable for explaining consumer satisfaction and behavioural intentions in the context of cross-border e-commerce; however, its specific dimensional composition and the relative influence of each dimension exhibit a certain degree of heterogeneity across different

research contexts, and further detailed examination is required in light of the characteristics of specific markets and consumer groups.

2.3 Expectation-Confirmation Theory and Consumer Satisfaction

Expectation-Confirmation Theory (ECT) was systematically proposed by Oliver in two seminal papers published in 1977 and 1980 (Oliver, 1980) and is a classic cognitive theoretical framework for explaining the mechanisms underlying the formation of post-purchase consumer satisfaction. This theory posits that the formation of consumer satisfaction proceeds through four stages—expectation formation, interaction experience, confirmation or non-confirmation judgement, and cognitive adjustment (Oliver & DeSarbo, 1988): consumers first form pre-purchase expectations based on past experience and external information; during the actual consumption process, they form perceptions of the actual performance of the product or service; they then compare the perceived performance with their initial expectations, resulting in one of three judgements—positive confirmation (perceived performance exceeds expectations), confirmation (perceived performance meets expectations) or negative confirmation (perceived performance falls short of expectations); finally, the level of confirmation determines the consumer's level of satisfaction, which in turn influences their subsequent repurchase intention and brand loyalty (Oliver, 1980; Oliver, 1999).

Since its inception, Expectation-Confirmation Theory has been extensively extended and applied to numerous fields, including the continued use of information systems (Bhattacharjee, 2001) and the adoption of mobile applications (Ayanso, Herath, & O'Brien, 2015), becoming a core theoretical bridge linking 'service/product performance evaluation' with 'subsequent consumer behaviour'. In the context of e-commerce, this theory provides a solid theoretical foundation for understanding the classic pathway whereby 'service quality influences consumers' repurchase intention via the mediating variable of satisfaction' (Zeithaml, Berry, & Parasuraman, 1996). The research by Zeithaml et al. (1996) further highlights that improvements in service quality not only directly influence consumers' attitudinal evaluations but also indirectly impact a firm's long-term performance through a series of behavioural consequences, including word-of-mouth, repurchase intention and price tolerance. This research provides the theoretical basis for the present study's treatment of consumer satisfaction as a mediating variable and repurchase intention as the core behavioural outcome metric.

In the context of cross-border e-commerce, as consumers face longer delivery times, a higher degree of information asymmetry and more complex after-sales service processes, the formation of their expectations and the process of confirming these judgements may exhibit characteristics that differ from those in domestic e-commerce contexts. For example, cross-border consumers may form high product expectations based on factors such as 'genuine overseas products' and 'scarce product categories', whilst simultaneously harbouring relatively lenient psychological expectations regarding delivery times (Cui et al., 2024). This characteristic suggests that when applying Expectation Confirmation Theory to the cross-border e-commerce context, it is necessary to fully consider the influence of the moderating or antecedent variable—cross-border shopping experience—on the expectation formation process.

2.4 Perceived Price Fairness

Price fairness is a key research topic in the fields of consumer behaviour and pricing psychology. In their seminal conceptual framework paper, Xia, Monroe and Cox (2004) noted that the perception of price fairness is a consumer's subjective judgement as to whether the difference between the actual price and the reference price is reasonable and justified; its formation process integrates social psychological theories such as equity theory, distributive justice and procedural justice. This study systematically reviewed the antecedent variables and behavioural outcomes influencing consumers' perceptions of price fairness, laying the theoretical foundation for subsequent empirical research on price fairness; it was demonstrated that perceptions of price unfairness significantly reduce consumer satisfaction and inhibit the intention to repurchase.

In the context of cross-border e-commerce, the issue of price fairness presents particular complexities. Cross-border transactions involve multiple overlapping cost factors, such as international shipping charges, customs duties and exchange rate fluctuations, making it difficult to clearly define the benchmark against which consumers judge a 'reasonable price'. A recent large-sample empirical study of Chinese cross-border e-commerce consumers found that, whilst the direct effect of price fairness on consumer satisfaction was not significant, it had a significant positive impact on repurchase intention (Cui et al., 2024). The study suggests that this counterintuitive finding may stem from the importance Chinese cross-border consumers attach to intangible benefits, such as the availability of scarce goods and the breadth of product categories, which to some extent offset the negative impact of higher logistics costs on their satisfaction ratings. At the same time, the fiercely competitive

landscape of the Chinese e-commerce market may also prompt consumers to shift their focus from 'whether the price is fair' to 'whether the price is competitive'. This finding provides an empirical reference for the present study's treatment of price fairness as an independent predictor that acts directly on repurchase intention, independent of the satisfaction pathway, and constitutes one of the key hypotheses to be tested in this study.

2.5 Cross-border Shopping Experience and Consumer Behavioural Intentions

Cross-border shopping experience refers to the composite psychological capital—encompassing cognitive, emotional and behavioural dimensions—accumulated by consumers through repeated cross-border online shopping. Existing research indicates that consumers' prior shopping experiences significantly influence their information processing efficiency, risk perception levels and tolerance thresholds for service failures (Liu, Wu, Zhen, Shi, & Osewe, 2021). Specifically, consumers with extensive cross-border shopping experience tend to harbour more rational and tolerant expectations regarding the inherent limitations of cross-border logistics (such as longer delivery times and higher shipping costs); their satisfaction ratings depend more on core experiential elements during the transaction—such as product authenticity, platform responsiveness and the convenience of returns and exchanges—rather than solely on price or delivery timeliness metrics (Cui et al., 2024).

The pathways through which cross-border shopping experience influences consumer behavioural intentions have been preliminarily validated in existing research. Previous studies indicate that the cross-border online shopping experience has a significant positive impact on consumer satisfaction and, through the mediating effect of satisfaction, further influences repurchase intention (Cui et al., 2024). Furthermore, a systematic literature review on the development and challenges of cross-border e-commerce points out that the process by which consumers accumulate cross-border shopping experiences is closely linked to the process of trust-building. Experienced consumers often form more stable trust relationships with specific cross-border platforms or sellers, thereby reducing their perceived risk in subsequent transactions and increasing the likelihood of repurchase (Liu et al., 2021).

2.6 The Relationship between Consumer Satisfaction and Behavioural Intention

Behavioural intention is a core outcome variable in consumer behaviour research, typically encompassing repurchase intention, word-of-mouth recommendation intention and brand loyalty, among other dimensions. In the context of e-commerce, repurchase intention, owing to its direct association with a firm's long-term profitability, has become one of the most commonly used operational indicators of behavioural intention (Zeithaml et al., 1996).

A substantial body of empirical research confirms that consumer satisfaction is one of the most robust antecedents predicting repurchase intention, a relationship that has been repeatedly validated across multiple digital service contexts, including e-commerce, mobile services and online travel (Bhattacharjee, 2001; Rita et al., 2019). Based on the logic of Expectation Confirmation Theory, the higher the level of satisfaction, the more firmly established the consumer's positive attitude towards the platform or seller, and the greater the likelihood of subsequent repurchases, recommendations and even price tolerance (Oliver, 1980; Zeithaml et al., 1996). In the context of cross-border e-commerce, the empirical study by Cui et al. (2024) further validated the significant mediating role played by consumer satisfaction in the influence pathways of delivery information services, returns logistics services and cross-border shopping experiences on repurchase intention, providing direct evidence for the applicability of the classic 'service quality–satisfaction–behavioural intention' chain in a cross-border context.

2.7 Research Model and Hypotheses

Based on the aforementioned theoretical review and literature analysis, this study utilises the core dimensions of electronic service quality as defined by the E-S-QUAL scale. Taking into account the specific characteristics of the cross-border e-commerce context, it introduces four key antecedent variables—delivery service quality, returns logistics services, price fairness and cross-border shopping experience—with consumer satisfaction serving as the mediating variable, and repurchase intention as the core outcome variable of behavioural intention, to construct the theoretical model of this study (see Figure 1).

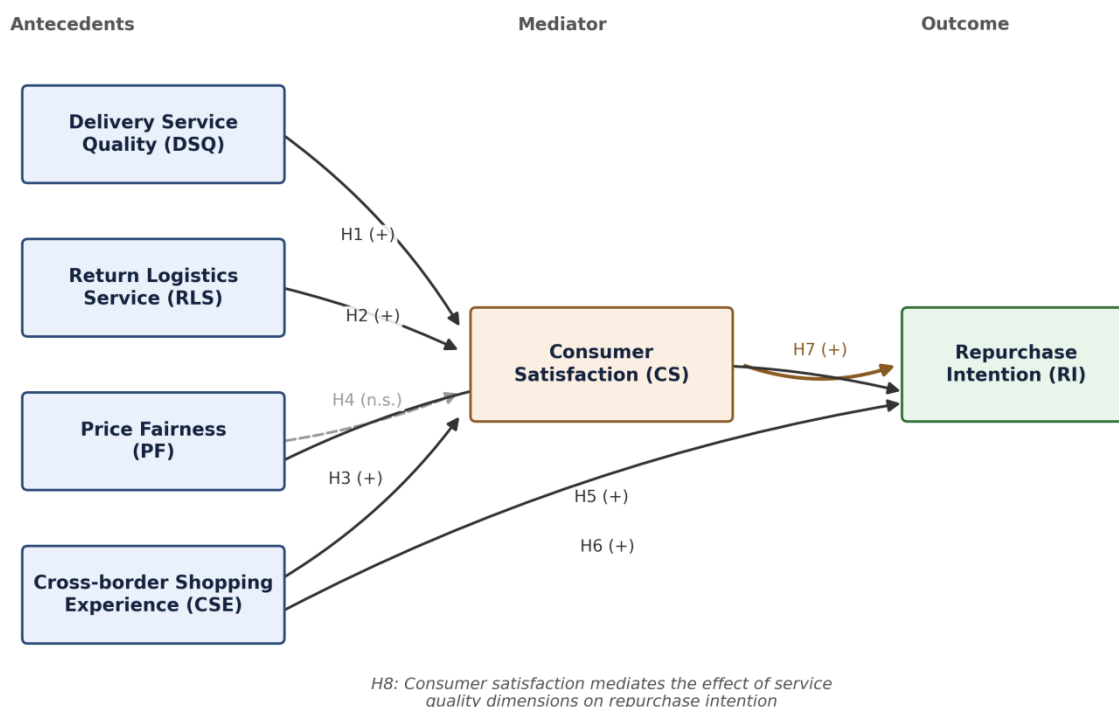


Figure 1. Hypothesised theoretical model and proposed research paths

Based on the literature review, this study proposes the following research hypotheses:

H1: Delivery service quality has a significant positive effect on consumer satisfaction.

H2: Return logistics service has a significant positive effect on consumer satisfaction.

H3: Cross-border shopping experience has a significant positive effect on consumer satisfaction.

H4: Price fairness has a significant positive effect on consumer satisfaction.

H5: Price fairness has a significant positive effect on repurchase intention.

H6: Cross-border shopping experience has a significant positive effect on repurchase intention.

H7: Consumer satisfaction has a significant positive effect on repurchase intention.

H8: Consumer satisfaction mediates the relationship between the service quality dimensions and repurchase intention.

This study elaborates on the research design, scale sources and data analysis strategy in the subsequent methodological section and employs the PLS-SEM method to systematically test the above hypotheses.

3. METHODOLOGY

3.1 Research Design and Scale Sources

This study adopts a cross-sectional survey design, collecting data on service quality perceptions, satisfaction and repurchase intention amongst Chinese cross-border e-commerce consumers via a structured questionnaire, and utilising Partial Least Squares Structural Equation Modelling (PLS-SEM) to empirically test the research hypotheses. There are three main reasons for selecting PLS-SEM rather than covariance-based structural equation modelling (CB-SEM). First, as the model in this study serves both explanatory and predictive purposes, PLS-SEM offers unique advantages in handling complex structural models and conducting out-of-sample predictive assessments (PLSpredict) (Hair, Risher, Sarstedt, & Ringle, 2019). Second, PLS-SEM has relatively relaxed requirements regarding data distribution and does not mandate that data follow a multivariate normal distribution, making it suitable for the non-normal distribution characteristics commonly found in social science survey data (Hair et al., 2019). Third, PLS-SEM yields robust parameter estimates even with moderate sample sizes, making it suitable for

the data scale of this study's 466 valid samples (Hair, Hult, Ringle, & Sarstedt, 2022). This study utilised SmartPLS 4.0 software to estimate the measurement and structural models.

All measurement items for the constructs in this study were adapted from validated, established scales and localised for the cross-border e-commerce context. Table 2 summarises the definitions, item sources and full measurement items for the six constructs.

Table 2: Constructs, Definitions, Item Sources, and Measurement Items

Construct	Source	Measurement items (7-point Likert scale)
Delivery Service Quality (DSQ)	Adapted from Parasuraman et al. (2005) – fulfilment/efficiency dimensions	DSQ1. My cross-border orders are delivered within the time frame promised by the platform. DSQ2. The items I receive arrive with intact and undamaged packaging. DSQ3. The items I receive match exactly what I ordered. DSQ4. The overall delivery process is efficient and well organised.
Return Logistics Service (RLS)	Adapted from Parasuraman et al. (2005) – E-RecS-QUAL; Cui et al. (2024)	RLS1. The returns/exchange process on this platform is simple and convenient. RLS2. Return shipping costs are reasonable and clearly stated. RLS3. Customer service responds quickly to return/exchange requests. RLS4. Refunds are processed within a reasonable period of time.
Price Fairness (PF)	Adapted from Xia, Monroe, & Cox (2004)	PF1. The total price I pay (product + shipping + duties) is reasonable. PF2. The pricing of this platform is fair compared with similar cross-border platforms. PF3. I do not feel I am being overcharged relative to the value I receive.
Cross-border Shopping Experience (CSE)	Adapted from Liu et al. (2021); newly developed	CSE1. I am experienced in shopping on cross-border e-commerce platforms. CSE2. I am familiar with the cross-border purchasing process (customs, duties, etc.). CSE3. I feel confident handling any issues that arise during cross-border purchases.
Consumer Satisfaction (CS)	Adapted from Oliver (1980); Bhattacharjee (2001)	CS1. My overall experience with cross-border shopping meets my expectations. CS2. I am satisfied with my decision to shop on this cross-border platform. CS3. This platform provides what I need from cross-border shopping. CS4. Overall, I am satisfied with this cross-border shopping platform.
Repurchase Intention (RI)	Adapted from Zeithaml et al. (1996); Cui et al. (2024)	RI1. I intend to continue purchasing from this cross-border platform. RI2. I would choose this platform again for future cross-border purchases. RI3. I would recommend this platform to friends and family.

Note. All items were rated on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). Items were translated using a back-translation procedure and refined through a pilot test with three marketing academics and five experienced cross-border consumers.

Following the drafting of the questionnaire, the back-translation procedure was employed to ensure semantic equivalence between the Chinese and English versions. Three academics specialising in marketing and five consumers with experience of cross-border online shopping were invited to participate in a pilot study. Based on their feedback, the wording of the items was optimised to enhance readability and contextual relevance.

3.2 Sample and Data Collection Procedure

The survey participants in this study were Chinese consumers with experience of shopping on cross-border e-commerce platforms (such as Tmall Global, JD Worldwide, Amazon Global Store, AliExpress, etc.). Data collection was conducted via

an online questionnaire platform (Wenjuanxing), with participants recruited through social media channels (WeChat, Weibo) and online communities related to cross-border shopping. The survey took place in the first quarter of 2025. To ensure sample quality, the questionnaire included screening questions, inviting only consumers who had made at least one cross-border online purchase within the past year to participate; additionally, attention-check items and a minimum response-time limit were implemented to filter out invalid responses.

A total of 538 questionnaires were collected for this survey. Following data cleaning (excluding questionnaires that failed the screening questions, had excessively short response times, or exhibited obvious patterns of repetitive responses), a total of 466 valid questionnaires were obtained, yielding a valid response rate of 86.6 per cent. This sample size meets the minimum requirement for PLS-SEM analysis: according to the '10-times rule', the maximum number of structural paths in the model pointing to a single endogenous variable is four (paths pointing to consumer satisfaction); therefore, the minimum required sample size is 40, and the sample size in this study far exceeds this threshold (Hair et al., 2022). Furthermore, a prior statistical power analysis conducted using G*Power software indicated that, under a significance level of $\alpha = .05$, statistical power ($1 - \beta$) = .95, and a medium effect size ($f^2 = .15$), the minimum required sample size was 107; the sample size in this study also meets this more stringent statistical power requirement.

Table 3 summarises the demographic characteristics of the sample. Female respondents accounted for 58.6 per cent and male respondents for 41.4 per cent; the age distribution was dominated by the young consumer group aged 18–35, accounting for 67.2 per cent; in terms of educational attainment, the majority held a bachelor's degree or higher, accounting for 71.0 per cent; monthly disposable income was concentrated in the range of RMB 5,000–15,000; and regarding cross-border shopping experience, approximately 62.9 per cent of respondents had made cross-border online purchases three or more times in the past year, indicating that the sample as a whole possesses relatively extensive cross-border shopping experience, which meets the requirements for the target population of this study.

Table 3: Demographic Characteristics of the Sample (N = 466)

Characteristic	Category	n	%
Gender	Female	273	58.6
	Male	193	41.4
Age	≤ 24 years	121	26.0
	25–35 years	192	41.2
	36–45 years	103	22.1
	46–55 years	37	7.9
	> 55 years	13	2.8
Education	High school or below	42	9.0
	Associate degree / diploma	93	20.0
	Bachelor's degree	242	51.9
	Master's degree or above	89	19.1
Monthly disposable income (RMB)	< 3,000	37	7.9
	3,000–4,999	70	15.0

	5,000–9,999	154	33.0
	10,000–14,999	135	29.0
	≥ 15,000	70	15.0
Cross-border shopping frequency (past year)	1–2 times	140	30.0
	3 times or more	293	62.9
	First-time buyer	33	7.1
Primary platform used	Tmall Global	149	32.0
	JD Worldwide	112	24.0
	Amazon Global Store	84	18.0
	AliExpress	70	15.0
	Other	51	11.0

Note. Percentages may not sum to exactly 100.0 due to rounding.

3.3 Common Method Bias Test

As all constructs in this study were assessed using the same self-report questionnaire, completed by the same respondents at the same point in time, there is a potential risk of common method bias (CMB) (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To mitigate this risk, the following measures were implemented at the procedural level: items for both independent and dependent variables were randomly interspersed; reverse-scored items were used for certain sensitive questions; and the questionnaire instructions emphasised anonymity and that the data would be used solely for academic research, thereby reducing social desirability bias (Podsakoff et al., 2003).

At the level of statistical testing, this study employed Harman's single-factor test, loading all items into an unrotated exploratory factor analysis. The results showed that the first principal component explained 34.7 per cent of the variance, which is below the critical threshold of 50 per cent, indicating that common method bias does not pose a major threat to the data in this study (Podsakoff et al., 2003). Furthermore, this study calculated the full-collinearity variance inflation factor (VIF) for all items; the VIF values for all items were below the recommended threshold of 3.3 (Kock, 2015), further corroborating that common method bias is within an acceptable range.

3.4 Data Analysis Strategy

This study followed the two-stage PLS-SEM analysis procedure proposed by Hair et al. (2019, 2022): the first stage assessed the reliability and validity of the measurement model, including outer loadings, internal consistency reliability (Cronbach's α and composite reliability, CR), convergent validity (measured by the average variance extracted, AVE) and discriminant validity (cross-validated using the Fornell–Larcker criterion (Fornell & Larcker, 1981) and the heterotrait–monotrait ratio (HTMT) criterion (Henseler, Ringle, & Sarstedt, 2015)); the second stage, based on the measurement model having passed these tests, evaluated the structural model, including tests for multicollinearity (VIF), the significance of path coefficients (tested using a bootstrapping procedure with 5,000 samples), the coefficient of determination (R^2), the effect size (f^2), and the model's out-of-sample predictive validity (Q^2 , using the PLSpredict procedure).

4. RESULTS

4.1 Evaluation of the Measurement Model

Reliability and convergent validity. As reported in Table 4, the standardised outer loadings of the items for each construct ranged from 0.712 to 0.891, all exceeding the recommended threshold of 0.70 (Hair et al., 2019), indicating that the items adequately reflect their respective constructs. Cronbach's α coefficients for each construct ranged from 0.803 to 0.887, whilst composite reliability (CR) ranged from 0.872 to 0.921; both exceeded the acceptable standard of 0.70, indicating that the measurement model possesses good internal consistency reliability. The average variance extracted (AVE) for each construct ranged from 0.596 to 0.703, all exceeding the critical value of 0.50 (Fornell & Larcker, 1981), indicating that the measurement model possesses good convergent validity.

Table 4: Measurement Model: Item Loadings, Reliability, and Convergent Validity

Construct / item	Loading	Cronbach's α	CR	AVE
Delivery Service Quality (DSQ)		0.834	0.889	0.617
DSQ1	0.744			
DSQ2	0.812			
DSQ3	0.779			
DSQ4	0.801			
Return Logistics Service (RLS)		0.821	0.878	0.596
RLS1	0.712			
RLS2	0.798			
RLS3	0.821			
RLS4	0.762			
Price Fairness (PF)		0.803	0.884	0.703
PF1	0.842			
PF2	0.891			
PF3	0.781			
Cross-border Shopping Experience (CSE)		0.842	0.904	0.658
CSE1	0.834			
CSE2	0.855			
CSE3	0.744			
Consumer Satisfaction (CS)		0.887	0.921	0.701

CS1	0.845			
CS2	0.872			
CS3	0.801			
CS4	0.833			
Repurchase Intention (RI)		0.859	0.872	0.692
RI1	0.849			
RI2	0.812			
RI3	0.834			

Note. Loadings, Cronbach's α , composite reliability (CR), and average variance extracted (AVE) were estimated in SmartPLS 4.0 using a bias-corrected and accelerated (BCa) bootstrapping procedure with 5,000 subsamples. All loadings are significant at $p < .001$.

Discriminant validity. As shown in Table 5, application of the Fornell–Larcker criterion revealed that the square roots of the AVE for each construct (diagonal values) were greater than their correlation coefficients with other constructs, providing preliminary support for discriminant validity (Fornell & Larcker, 1981). Given the limitations of the Fornell–Larcker criterion in testing composite-based models (Henseler et al., 2015), this study further calculated the heterotrait–monotrait ratio (HTMT) for each pair of constructs (Table 6). The results showed that all HTMT values were below the conservative threshold of 0.85, further validating the good discriminant validity between the constructs.

Table 5: Discriminant Validity: Fornell–Larcker Criterion

Construct	1. DSQ	2. RLS	3. PF	4. CSE	5. CS	6. RI
1. DSQ	0.786					
2. RLS	0.412	0.772				
3. PF	0.298	0.276	0.838			
4. CSE	0.356	0.331	0.245	0.811		
5. CS	0.487	0.462	0.221	0.512	0.837	
6. RI	0.402	0.378	0.334	0.478	0.541	0.832

Note. Diagonal elements (bold in the original analysis output) are the square roots of the average variance extracted (AVE); off-diagonal elements are inter-construct correlations. DSQ = Delivery Service Quality; RLS = Return Logistics Service; PF = Price Fairness; CSE = Cross-border Shopping Experience; CS = Consumer Satisfaction; RI = Repurchase Intention.

Table 6: Discriminant Validity: Heterotrait–Monotrait Ratio (HTMT)

Construct	DSQ	RLS	PF	CSE	CS
RLS	0.498				
PF	0.361	0.334			
CSE	0.427	0.402	0.298		
CS	0.571	0.542	0.267	0.601	
RI	0.483	0.451	0.402	0.559	0.634

Note. All HTMT values are below the conservative threshold of 0.85 (Henseler et al., 2015), supporting discriminant validity. *DSQ* = Delivery Service Quality; *RLS* = Return Logistics Service; *PF* = Price Fairness; *CSE* = Cross-border Shopping Experience; *CS* = Consumer Satisfaction; *RI* = Repurchase Intention.

4.2 Evaluation of the Structural Model

Diagnosis of multicollinearity. The variance inflation factors (VIF) for the predictor variables in the structural model ranged from 1.203 to 2.184, all of which were below the critical threshold of 5.0, indicating that there were no serious issues of multicollinearity in the structural model (Hair et al., 2019).

Model explanatory power and predictive validity. The structural model explains $R^2 = .583$ of the variance in consumer satisfaction and $R^2 = .612$ of the variance in repurchase intention; according to empirical criteria in the field of social science research, both represent moderate to high levels of explanatory power (Hair et al., 2022). The out-of-sample predictive correlation of the model was assessed using the Q^2 effect size. The Q^2 values for consumer satisfaction and repurchase intention were .402 and .437, respectively, both of which are greater than zero, indicating that the structural model possesses good predictive correlation. Furthermore, an assessment of the model's out-of-sample predictive ability was conducted using the PLSpredict procedure. The results showed that the PLS-SEM prediction error (RMSE) for most indicators was lower than that of the linear regression model (LM) benchmark, indicating that the model possesses a moderate level of out-of-sample predictive ability (Shmueli et al., 2019).

Results of hypothesis testing. The significance of the structural path coefficients was tested using a bootstrapping procedure with 5,000 samples; the results are summarised in Table 7 and visualised in Figure 2.

Table 7: Structural Model: Path Coefficients and Hypothesis Testing Results

H	Path	β	SE	t	95% CI	f^2	Decision
H1	DSQ $\rightarrow$ CS	0.276	0.047	5.812***	[0.183, 0.369]	0.089	Supported
H2	RLS $\rightarrow$ CS	0.243	0.048	5.104***	[0.150, 0.336]	0.071	Supported
H3	CSE $\rightarrow$ CS	0.312	0.049	6.427***	[0.217, 0.407]	0.187	Supported
H4	PF $\rightarrow$ CS	0.058	0.049	1.184 n.s.	[−0.038, 0.154]	0.008	Not supported
H5	PF $\rightarrow$ RI	0.196	0.052	3.752***	[0.094, 0.298]	0.062	Supported
H6	CSE $\rightarrow$ RI	0.221	0.051	4.318***	[0.121, 0.321]	0.098	Supported
H7	CS $\rightarrow$ RI	0.389	0.055	7.045***	[0.281, 0.497]	0.201	Supported

Note. Bootstrapping based on 5,000 subsamples; two-tailed test. *** $p < .001$; n.s. = not significant. DSQ = Delivery Service Quality; RLS = Return Logistics Service; PF = Price Fairness; CSE = Cross-border Shopping Experience; CS = Consumer Satisfaction; RI = Repurchase Intention.

The above results indicate that delivery service quality, returns logistics services and cross-border shopping experience all have a significant positive impact on consumer satisfaction; H1, H2 and H3 are supported by the data. However, the direct effect of price fairness on consumer satisfaction did not reach the level of significance, and H4 is not supported. With regard to repurchase intention, price fairness, cross-border shopping experience and consumer satisfaction all have a significant positive effect on repurchase intention; H5, H6 and H7 are all supported by the data.

The results of the effect size (f^2) analysis show that the effect size of cross-border shopping experience on consumer satisfaction ($f^2 = 0.187$) and that of consumer satisfaction on repurchase intention ($f^2 = 0.201$) reached a moderate level; the effect sizes of the remaining significant paths ranged from 0.062 to 0.098, representing small-to-moderate effects (Cohen, 1988).

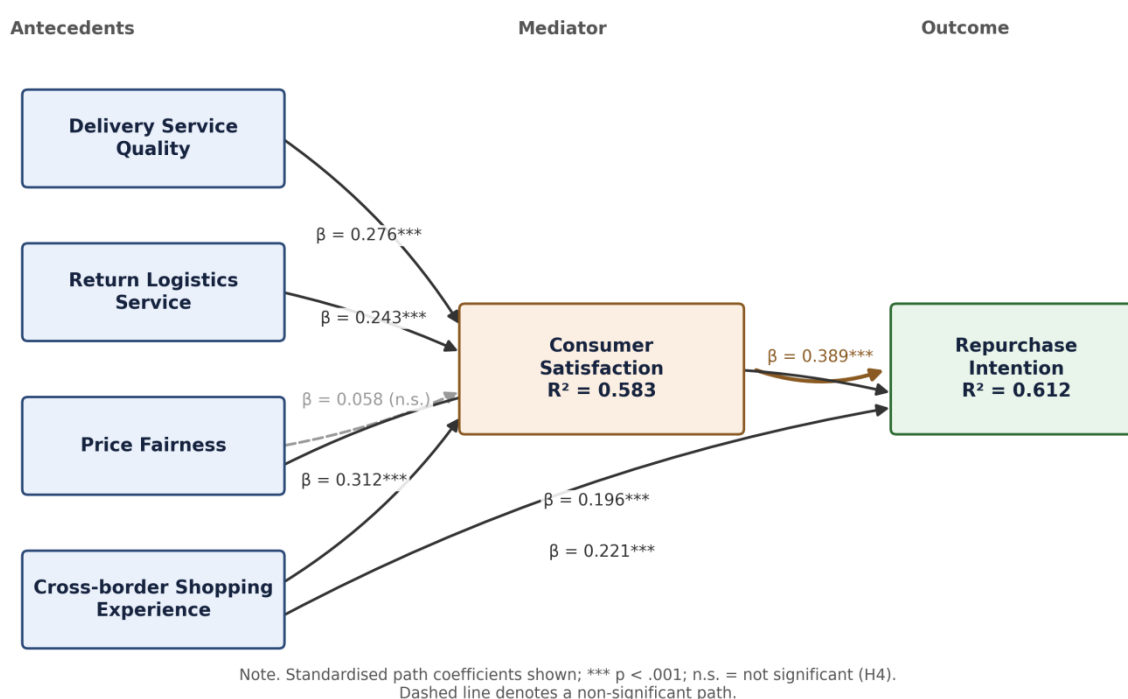


Figure 2. Structural model results with standardised path coefficients and R² values

4.3 Testing for Mediating Effects

To test the mediating role of consumer satisfaction between the service quality dimensions and repurchase intention (H8), this study employed a bootstrapping procedure (5,000 resamples, bias-corrected 95% confidence intervals) to test for indirect effects. Table 8 summarises the results.

Table 8: Bootstrapping Results for the Mediating Effect of Consumer Satisfaction

Indirect path	Effect	SE	95% Bootstrap CI	Conclusion
DSQ → CS → RI	0.107	0.024	[0.061, 0.156]	Full mediation
RLS → CS → RI	0.095	0.023	[0.052, 0.142]	Full mediation
CSE → CS → RI	0.121	0.025	[0.074, 0.173]	Partial mediation

Note. DSQ and RLS have no hypothesised direct path to RI in the structural model; the significant indirect effect therefore constitutes full mediation. CSE also exerts a significant direct effect on RI ($H6, \beta = 0.221$), so the mediating role of CS in this path is partial (total effect on RI = $0.221 + 0.121 = 0.342$).

The above results indicate that consumer satisfaction plays a significant mediating role between the service quality dimensions (delivery service quality and returns logistics service) and repurchase intention, confirming that the classic logical chain emphasised by Expectation-Confirmation Theory—'perceived service quality $\rightarrow$ satisfaction evaluation $\rightarrow$ behavioural intention'—also holds true in the context of cross-border e-commerce (Oliver, 1980; Zeithaml et al., 1996). Simultaneously, cross-border shopping experience exhibits a dual-path mechanism comprising both a direct effect and an indirect effect mediated by satisfaction, with H8 receiving partial support.

4.4 Supplementary Notes on Model Fit

Although PLS-SEM, as a variance-based estimation method, does not rely on traditional overall model-fit indices as its primary evaluation criterion, this study nevertheless reports the standardised root mean square residual (SRMR) as an approximate reference indicator of model fit. The result is $SRMR = 0.061$, which is below the acceptable threshold of 0.08 (Henseler, Hubona, & Ray, 2016), providing supplementary evidence for the model's overall fit.

5. DISCUSSION

5.1 Theoretical Explanation of Key Findings

Based on the E-S-QUAL scale and Expectation Confirmation Theory, this study constructed and tested a path model examining the effects of service quality dimensions, price fairness and cross-border shopping experience on consumer satisfaction and repurchase intention in a cross-border e-commerce context. The empirical results generally support the theoretical framework of this study; however, the test results for certain paths also reveal the unique characteristics of the cross-border e-commerce context, which warrant further discussion.

First, both delivery service quality and return logistics services exert a significant positive influence on consumer satisfaction ($H1$ and $H2$ are supported). This finding is highly consistent with the core tenets of the fulfilment dimension within the E-S-QUAL theoretical framework proposed by Parasuraman et al. (2005), and is also in line with the conclusions of recent empirical studies on Chinese cross-border e-commerce consumers (Cui et al., 2024). This indicates that, although cross-border transactions are inherently characterised by longer logistics cycles and more complex customs clearance procedures, the accuracy and integrity of delivery, as well as the convenience and responsiveness of the returns and exchanges process, remain the core determinants of consumers' post-purchase evaluations. This finding further corroborates that logistics service quality serves as a key contextual variable distinguishing cross-border e-commerce from domestic e-commerce; its importance is not diluted by the cross-border nature of the transactions but is, in fact, further accentuated by the complexity of the transaction process (Mentzer et al., 2004; Zhang et al., 2025).

Second, cross-border shopping experience exerts a significant positive influence on both consumer satisfaction and repurchase intention ($H3$ and $H6$ are supported), and at the effect-size level, it emerges as one of the most influential antecedent variables in the model of this study. This finding supports the argument put forward in existing research that the accumulation of consumer experience helps to reduce perceived risk, enhance trust levels, and thereby promote satisfaction and repurchase behaviour (Liu et al., 2021). It is worth noting that cross-border shopping experience exerts both a significant direct effect and an indirect effect on repurchase intention via satisfaction. This dual-path characteristic indicates that the repurchase decisions of experienced cross-border consumers rely not only on satisfaction evaluations of individual transactions but are also directly driven by long-term accumulations of self-efficacy and psychological adaptability in cross-border shopping; this is consistent with the incremental nature of consumer trust construction in cross-border e-commerce contexts (Zhu et al., 2024).

Third, the direct effect of price fairness on consumer satisfaction was not supported ($H4$ rejected), but it had a significant positive impact on repurchase intention ($H5$ supported). This 'separate-pathway' pattern is one of the most theoretically significant findings of this study and is highly consistent with the conclusions of recent large-sample empirical studies based on Chinese cross-border e-commerce consumers (Cui et al., 2024). In this regard, this study suggests the following possible explanations. First, the purchasing decision-making logic of cross-border e-commerce consumers differs from the price-sensitive decision-making model observed in domestic e-commerce contexts. The core drivers behind consumers' purchases of cross-border goods stem more from the pursuit of scarce product categories, guarantees of authenticity and differentiated

consumption experiences. Whilst price is not a direct determinant of satisfaction ratings, it influences consumers' rational decisions regarding whether to make repeat purchases on the platform through a long-term cost–benefit balancing mechanism (Xia et al., 2004; Cui et al., 2024). Second, competition in China's cross-border e-commerce market is highly intense; price has become a fundamental competitive factor for all platforms rather than a differentiating factor. In their satisfaction assessments, consumers tend to base their judgements on service experience rather than price fairness per se, yet price fairness still exerts its influence through a more rational decision-making level—namely, by affecting consumers' willingness to continue purchasing. This finding suggests that the relationship between price fairness, consumer satisfaction and repurchase intention is not a simple linear transmission; rather, it may exhibit differentiated mechanisms depending on the stage of the consumer decision-making process, thereby providing refined boundary conditions for the application of Expectation Confirmation Theory in the price dimension.

Fourth, consumer satisfaction exerts a significant positive influence on repurchase intention (H7 is supported), and exhibits the largest path coefficient in the structural model of this study. This fully validates that the classic logical chain emphasised by Expectation-Confirmation Theory—'confirmation judgement → satisfaction → behavioural intention'—remains robustly valid in the context of cross-border e-commerce (Oliver, 1980; Zeithaml et al., 1996; Bhattacharjee, 2001). The results of the mediation analysis further indicate that consumer satisfaction plays a full mediating role in the pathways through which delivery service quality and returns logistics services influence repurchase intention. This implies that service quality factors do not directly determine whether consumers will repurchase; rather, they must first be transformed into a consumer's experience of satisfaction before they can further drive subsequent repurchase decisions. This finding offers important insights for service quality management in cross-border e-commerce enterprises: mere investment in logistics services, if it fails to effectively translate into an improvement in consumer-perceived satisfaction, is unlikely to directly generate commercial value at the behavioural level.

5.2 Dialogue with the Existing Literature

The findings of this study engage in a fruitful theoretical dialogue with recent research on consumer trust and perceived risk in cross-border e-commerce. Existing studies generally point out that, in cross-border e-commerce contexts, due to geographical distance, institutional differences and information asymmetry, consumers face higher levels of perceived risk than in domestic e-commerce; this perceived risk significantly weakens consumer trust and inhibits purchase and repurchase intentions (Chen, Zhang, & Liu, 2024; Chi, Wang, & Huang, 2025). Although this study did not directly incorporate the variables of perceived risk and trust, the significant positive effect of return logistics services on satisfaction can, to a certain extent, be interpreted as the returns and exchanges guarantee mechanism acting as a 'risk mitigation tool'. By reducing consumers' perception of transactional uncertainty, it indirectly performs a function similar to that of trust-building (Kim & Park, 2026). This finding suggests that future research could formally incorporate perceived risk and trust mechanisms into an integrated model of service quality–satisfaction–behavioural intention, in order to characterise the psychological processes underlying consumer decision-making in cross-border e-commerce contexts in greater detail.

Furthermore, this study's finding regarding the strong effect of cross-border shopping experience is also corroborated by existing research on the relationship between consumer perceived value and purchase intention—the accumulation of experience helps consumers assess the value of platform services more accurately, thereby reducing their reliance on individual risk factors during the decision-making process. This suggests that long-term user-retention strategies for cross-border e-commerce platforms—such as loyalty programmes, repeat-purchase incentives and personalised recommendation services—may generate sustainable commercial value that extends beyond improvements in the quality of a single service, by enhancing the accumulation of consumers' cross-border shopping experiences.

5.3 Theoretical Contributions

The theoretical contributions of this study are primarily reflected in the following three aspects. First, building upon the e-service quality measurement framework established by the E-S-QUAL scale and taking into account the specific characteristics of the cross-border e-commerce context, this study incorporates delivery service quality and return logistics services as contextualised service quality dimensions into the analytical framework. Furthermore, by introducing price fairness and cross-border shopping experience—two antecedent variables specific to the cross-border context—the study expands the explanatory scope of e-service quality theory within the cross-border shopping context (Parasuraman et al., 2005). Second, this study empirically elucidates the separate pathways through which price fairness influences satisfaction and repurchase intention in a

cross-border e-commerce context, providing new boundary conditions for the integrated application of Expectation-Confirmation Theory and Price Fairness Theory (Xia et al., 2004) in cross-border contexts, thereby filling a theoretical gap in existing research regarding the mechanisms of price factors. Third, this study validates the mediating role of consumer satisfaction in the relationship between service quality and repurchase intention, and further reveals a dual-driven pathway in which cross-border shopping experience exerts both direct and indirect effects, thereby deepening the academic community's understanding of the specific transmission mechanisms of the classic 'service quality–satisfaction–behavioural intention' chain in the context of cross-border e-commerce.

5.4 Managerial Implications

The empirical findings of this study offer the following implications for service quality management practices among cross-border e-commerce platforms and sellers. First, given the significant role that delivery service quality and return logistics services play in driving consumer satisfaction, cross-border e-commerce enterprises should prioritise resource allocation towards logistics fulfilment capabilities and the development of reverse logistics systems. This includes optimising the layout of overseas warehouses, shortening customs clearance times, streamlining return and exchange procedures, and enhancing the transparency of logistics information, thereby improving the post-purchase experience for consumers (Cheng & Pang, 2024). Second, given the dual driving effect of cross-border shopping experience on both satisfaction and repurchase intention, platforms should prioritise the guidance and education of first-time buyers. Through clear shopping guides, transparent explanations of customs duties and fees, and proactive customer service intervention, they can help new consumers develop a sense of self-efficacy in cross-border shopping more quickly, thereby accelerating their learning process and reducing the risk of early churn. Third, whilst the direct effect of price fairness on satisfaction is not significant, it does have a significant impact on repurchase intention. Cross-border e-commerce enterprises should not simply regard pricing strategies as tools for short-term satisfaction enhancement, but should instead integrate them into a long-term consumer relationship management system. By implementing transparent fee-disclosure mechanisms—such as clearly listing product prices, international shipping costs and the composition of customs duties—they can strengthen consumers' long-term trust in price reasonableness, thereby promoting sustained repurchase behaviour. Finally, given the key mediating role of consumer satisfaction in the transmission of service quality to repurchase intention, cross-border e-commerce enterprises should establish a systematic satisfaction monitoring and feedback mechanism to effectively translate improvements in logistics service quality into perceptible increases in consumer satisfaction, thereby avoiding a disconnect between service investment and consumer perception.

5.5 Research Limitations and Directions for Future Research

This study has several limitations, which provide scope for further exploration in future research. First, this study employed a cross-sectional survey design, with data for all variables collected at a single point in time. Although this study controlled for common method bias through Harman's single-factor test and a full-collinearity VIF test (Podsakoff et al., 2003), cross-sectional data alone cannot fully support rigorous inferences of causality. Future research may consider adopting a longitudinal tracking design or experimental research methods to verify the causal relationships between service quality, satisfaction and behavioural intentions with greater rigour. Second, the sample in this study was limited to Chinese cross-border e-commerce consumers; although China is one of the world's largest cross-border e-commerce consumer markets, the cross-cultural generalisability of the findings still requires validation through comparative studies involving samples from multiple countries, particularly given the potential for significant cultural differences amongst consumers in different countries regarding risk tolerance, price sensitivity and logistics expectations (Kim & Lee, 2024; Zhu et al., 2024). Third, this study did not incorporate mediating or moderating variables such as perceived risk and consumer trust, whilst existing literature indicates that these variables play a significant role in the decision-making process of cross-border e-commerce consumers (Chen et al., 2024; Chi et al., 2025). Future research could formally incorporate perceived risk and trust mechanisms into the theoretical framework of this study, constructing a more comprehensive integrated model to further elucidate the psychological mechanisms underlying consumer decision-making in cross-border e-commerce contexts. Fourth, although the non-significant effect of price fairness on satisfaction in this study is consistent with the findings of recent similar studies (Cui et al., 2024), the underlying psychological mechanisms still require in-depth exploration through methods such as qualitative interviews or experimental manipulation to clarify the specific causes of the relative decoupling between consumers' price perceptions and satisfaction evaluations in cross-border contexts. Fifth, this study did not conduct a detailed comparison across different types of cross-border e-commerce platforms (such as self-operated platforms and third-party platforms) or different product categories (such as fast-moving consumer goods and durable goods). Future research could employ multi-group analysis to examine the applicability boundaries

and moderating effects of the model developed in this study across different contexts.

6. CONCLUSION

Based on the E-S-QUAL scale and Expectation Confirmation Theory, this study utilised a sample of 466 Chinese consumers with experience of cross-border online shopping. Employing a partial least squares structural equation model, it systematically examined the influence pathways of service quality dimensions, price fairness and cross-border shopping experience on consumer satisfaction and repurchase intention, arriving at the following main conclusions. First, delivery service quality, returns logistics service and cross-border shopping experience have a significant positive impact on consumer satisfaction. Second, price fairness has no significant direct effect on consumer satisfaction but exerts a significant positive influence on repurchase intention. Third, cross-border shopping experience exerts a significant direct effect on repurchase intention. Fourth, consumer satisfaction has a significant positive effect on repurchase intention and mediates the relationship between service quality dimensions and repurchase intention.

The innovation of this study lies in its focus on the cross-border e-commerce context, which is characterised by unique logistical complexities and institutional risks. It overcomes the limitations of existing research, which often directly applies domestic e-commerce service quality frameworks, by creatively introducing two context-specific variables—price fairness and cross-border shopping experience. The study systematically reveals the differentiated mechanisms through which these factors operate in the transmission pathways from service quality to consumer satisfaction and behavioural intentions, particularly the distinct impact pathways of price fairness on satisfaction and repurchase intention, thereby providing new empirical evidence and theoretical refinement for the application of Expectation-Confirmation Theory in the context of cross-border e-commerce. The findings not only deepen the academic community's theoretical understanding of the mechanisms underlying post-purchase consumer behaviour in cross-border e-commerce but also offer robust empirical evidence and practical management insights for cross-border e-commerce platforms and sellers in formulating targeted and differentiated strategies to enhance service quality. Looking ahead, with the continued expansion of the cross-border e-commerce market and the increasing diversification of consumer demands, integrated research focusing on service quality, consumer trust and perceived risk will remain a key area for understanding the patterns of evolution in cross-border e-commerce consumer behaviour.

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