

Logistics service quality on customer satisfaction and repurchase intention: Evidence from Thai SMEs

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Abstract

This study investigates the relationships between logistics service quality (LSQ), customer satisfaction, and repurchase intention among Thai Small and Medium-sized Enterprises (SMEs). Logistics services play a growing role in Thailand's economic development, yet how LSQ specifically affects SME customers remains underexplored. Using a quantitative approach, data were collected from 236 Thai SMEs through a structured questionnaire, and structural equation modeling (SEM) was employed to test the hypothesized relationships. Common method bias was assessed using Harman's single-factor test, and mediation was confirmed via bootstrapping. The results indicate that LSQ has both direct and indirect effects on repurchase intention, with customer satisfaction serving as a significant mediating factor. Core operational capabilities — such as order accuracy and personnel contact quality — proved more important for SME satisfaction than technological sophistication or corporate image. This pattern reflects the resource-based constraints characteristic of SME operations. The findings contribute to logistics service theory by validating a modified LSQ framework specifically for SME contexts and provide practical insights for logistics service providers serving SME clients.

Keywords: Logistics service provider, Logistics service quality, Small and medium-sized enterprises, Customer satisfaction, Repurchase intention, Structural equation modeling.

Introduction

Small and Medium-sized Enterprises (SMEs) serve as the fundamental pillars of global economic development, driving innovation, generating employment opportunities, and fostering sustainable market growth worldwide (Andzelic et al., 2011; Banwo et al., 2017). The Thai logistics industry has demonstrated remarkable growth, with its compound annual growth rate primarily driven by e-commerce expansion and increasing regional trade integration. This growth is evidenced by the increasing number of business establishments and substantial investments within the sector (NESDC, 2021).

Despite this promising growth trajectory, the industry faces challenges in an increasingly competitive landscape. Thai logistics service providers (LSPs) encounter intense competition from large international corporations, which possess substantial resources to develop capabilities in innovation and technological advancement (Jirawuttinunt et al., 2024). This competitive pressure has led to a notable decrease in the economic value generated by domestic LSPs (Alkaabi, 2023). Consequently, local LSPs face mounting pressure to enhance their operational efficiency and service quality.

In this challenging environment, service quality improvement emerges as a critical competitive strategy. LSPs support core business functions such as marketing and production. Their involvement contributes to cost reduction in areas such as labor and transportation (Abdul et al., 2020; Xiu and Chen, 2012). Most LSPs strive to offer diverse service portfolios to their business customers, making it essential to understand the key factors influencing customer choice and satisfaction (Do, 2021).

Previous research has established that customer satisfaction with logistics services is driven by multiple service quality factors. Satisfaction levels are typically determined by examining the gap between customers' service expectations and their actual experiences across various quality dimensions. Studies indicate that when businesses successfully meet consumer expectations, they experience fewer complaints and higher satisfaction levels (Fernandes et al., 2018; Lin et al., 2023; Oliveira Neto et al., 2017). Customer satisfaction is especially relevant for LSPs seeking competitive advantage, as service failures often lead customers to switch to alternative providers capable of meeting their expectations (Mentzer et al., 2001). Logistics service quality (LSQ) serves as a key determinant of transportation efficiency in customer perception, enabling LSPs to adapt to evolving market conditions and establish sustainable competitive advantages (Vu et al., 2020; Thai, 2013).

Notable research gaps exist in the domain of logistics services and business performance. While extensive literature exists on logistics services for large corporations, there remains limited understanding of how these services specifically impact SMEs. Importantly, prior studies testing LSQ–satisfaction–loyalty models in emerging economies have predominantly used large enterprise or mixed-sample designs. This study argues that SMEs represent a structurally distinct market segment requiring a context-specific LSQ framework, not merely a sub-sample of general logistics research. This knowledge gap is particularly significant given that SMEs face unique logistics challenges and operate under different resource constraints compared to larger enterprises (Alkaabi, 2023).

These research gaps have multi-level implications: theoretically limiting comprehension of size-specific logistics relationships, practically hindering LSPs' ability to serve SME clients effectively, and economically preventing SMEs from optimizing their operations and improving competitiveness. Furthermore, this lack of understanding affects policymakers' ability to develop effective regulations and support mechanisms for both LSPs and SMEs. As identified by Alkaabi (2023), the literature reveals two notable gaps, namely insufficient understanding of how LSPs' service quality affects organizational performance across different business sizes, and limited insight into the specific challenges LSPs encounter when serving SME clients.

This study aims to address these research gaps by investigating the relationship between LSQ, customer satisfaction, and repurchase intention among Thai SME clients in a business-to-business (B2B) context. The research objectives are to (1) identify the key factors influencing LSQ in the SME context and clarify how SME-specific LSQ dimensionality differs from frameworks validated in large-enterprise contexts; (2) examine the effects of LSQ on customer satisfaction and repurchase intention; and (3) offer practical recommendations for LSPs serving SME clients.

Literature Review

Service Quality in the B2B SME Logistics Context

Business-to-Business (B2B) refers to commercial transactions between businesses, such as between a manufacturer and a wholesaler, while Business-to-Consumer (B2C) involves businesses selling directly to individual consumers (Kumar and Raheja, 2012). B2B operations tend to be more conservative and collaborative than B2C operations, focusing on enhancing rather than disrupting existing business practices, and typically require greater customization to accommodate diverse business needs (Feike and Rösch, 2024).

B2B logistics services differ fundamentally from B2C services. In B2B logistics, service relationships are characterized by longer-term commitments, higher transaction values, and more complex service requirements (Rauyruen and Miller, 2007). Gaudenzi et al. (2020) demonstrate that companies can achieve customer satisfaction through different combinations of LSQ dimensions.

SMEs have distinct characteristics and challenges in logistics management that differentiate them from large enterprises. Unlike larger companies, SMEs are typically more vulnerable to supply chain disruptions, lack adequate resources, and face significant operational constraints (Sugiono et al., 2023). In Thailand specifically, SMEs in the logistics sector have limited client bases and make minimal investments in technology and staff (Sojipun et al., 2024).

Theoretical Rationale for SME-Specific LSQ Dimensionality

The Resource-Based View (RBV) of the firm (Barney, 1991) provides a theoretical foundation for understanding why SMEs prioritize different LSQ dimensions than large enterprises. RBV posits that firms develop competitive strategies based on available resources and capabilities. SMEs, constrained in financial and technological resources,

engage with logistics providers primarily through direct operational interfaces rather than digital or brand-mediated channels.

This resource-constraint perspective predicts that SME purchasing decisions will emphasize tangible operational outputs — order accuracy, timeliness, personnel responsiveness. These decisions are expected to weigh less heavily on dimensions that presuppose substantial buyer-side technological infrastructure, such as digital tracking integration, or long-horizon relational evaluation, such as corporate image assessment. This theoretical expectation is consistent with findings by Sojipun et al. (2024), who document that Thai SMEs face disadvantages in logistics technology adoption relative to larger counterparts, and with Alkaabi (2023), who identifies limited IT engagement as a distinguishing feature of SME logistics relationships.

Accordingly, the present study hypothesizes that an SME-specific LSQ framework will exhibit a different dimensional structure from full models validated on large enterprise or mixed samples; specifically, IT and corporate image dimensions will not emerge as empirically distinct constructs in the SME context. This structural difference constitutes the primary theoretical contribution of this study, extending the LSQ literature by providing RBV-grounded evidence of context-dependent dimensionality.

Logistics Service Quality

The theoretical underpinning of LSQ research is founded on multiple complementary theories. The service quality theory (SERVQUAL), developed by Parasuraman et al. (1988), provides the foundational framework for understanding service quality dimensions and customer expectations. This theory has been particularly influential in logistics research, as it establishes the five fundamental dimensions of service quality: reliability, assurance, tangibles, empathy, and responsiveness.

The evolution of LSQ measurement represents a notable advancement in understanding and enhancing service provider performance. From the perspective of LSPs, service quality embodies their operational excellence in delivering goods and meeting customer requirements. A pivotal development in this field occurred when Mentzer et al. (1999) established the LSQ framework, revolutionizing how researchers and practitioners measure LSQ across process and service dimensions.

Mentzer et al. (2001) identified nine core elements of LSQ: Personnel Contact Quality, Order Release Quantities, Information Quality, Ordering Procedures, Order Accuracy, Order Condition, Order Quality, Order Discrepancy Handling, and Timeliness. Recent research has validated these dimensions while suggesting additional considerations in the modern logistics environment. In the contemporary LSP context, additional dimensions have become increasingly relevant. Cost efficiency has emerged as a key factor, encompassing transportation cost optimization, storage cost management, and return logistics efficiency. Information technology capabilities, including digital tracking systems and automated ordering platforms, have become essential for competitive advantage. Corporate image, including ethical reputation and environmental responsibility, has also gained prominence in LSP evaluation (Arabelen and Kaya, 2021; da Silva et al., 2023; Lam and Zhang, 2014; Oliveira Neto et al., 2017; Thai, 2013).

However, these extended models were predominantly validated using large enterprise samples or mixed B2B/B2C populations. The present study's theoretical position, grounded in RBV, is that information technology (IT) and corporate image are salient LSQ dimensions for large enterprises, which possess digital infrastructure and engage in formal supplier evaluation processes, but are less cognitively distinct for SME buyers whose logistics interactions are predominantly direct, operational, and relationship-based. The elimination of these dimensions in the current study therefore represents a theoretically expected, not merely a statistically convenient, outcome.

Logistics Service Quality, Customer Satisfaction and Repurchase Intention

The selection of an LSP is fundamentally driven by customer perception, with this choice carrying meaningful implications for both transportation efficiency and the client business's long-term performance. Customers conduct comprehensive evaluations of each LSP's distinctive strengths and weaknesses, considering multiple factors in their decision-making process (Oliveira Neto et al., 2017). Alkhatib et al.'s (2015) literature review of LSP studies from 2008 to 2013 indicates that LSP evaluation is influenced by various dimensions of service quality. The underlying service quality paradigm explains customer satisfaction as the gap between customer expectations and actual service delivery across multiple attributes. In this context, LSQ serves as a key determinant of transportation performance, measured through the lens of customer perception and the provider's ability to meet or exceed customer expectations. This quality-focused approach enables LSPs to demonstrate adaptability in a dynamic business environment while building sustainable competitive advantages through superior service delivery. The relationship between perceived LSQ and customer satisfaction is especially relevant as it directly influences the LSP's ability to maintain market competitiveness and foster long-term business relationships.

Customer satisfaction stands as a fundamental concept spanning multiple disciplines, including business strategy, consumer research, marketing, and economic psychology. At its core, it represents the cognitive and affective evaluation process whereby customers assess the gap between expectations and actual experience. This evaluation manifests as feelings of satisfaction or disappointment based on three key dimensions: (1) the perceived quality of received services or products, (2) the alignment with anticipated outcomes, and (3) the fulfillment of underlying consumer needs and purchase objectives (Setiawan and Sayuti, 2017). This satisfaction metric serves as a direct outcome of LSQ, establishing a positive correlation between the quality of delivered services and products and customer contentment. Customer satisfaction plays a particularly important role in post-purchase behavior, shaping future purchasing decisions and fostering brand loyalty (Huma et al., 2020). This research conceptualizes customer satisfaction as the emotional response, whether pleasure or dissatisfaction, that emerges from customers comparing perceived service performance against their prior expectations. This cognitive-affective evaluation process serves as a crucial determinant of sustainable business success and long-term customer relationships (Jang et al., 2014).

Behavioral loyalty refers to customers' actual repeat purchase patterns and frequency, in contrast to attitudinal loyalty, which reflects a customer's stated preferences, commitment, and intentions to remain loyal (Petzer and Van Tonder, 2019). Observing actual behavior is key, as it demonstrates loyalty through consistent actions of choosing the same service provider. When customers strive to obtain their desired products or

services, they develop specific behavioral patterns. Rauyruen and Miller (2007) emphasized that behavioral loyalty represents business customers' willingness to continuously repurchase services and products from their service providers, thereby maintaining an ongoing relationship. In the context of logistics services, customers may demonstrate behavioral loyalty through their intention to engage with their chosen logistics provider in various ways. Gaudenzi et al. (2020) examined B2B relationships in logistics services and found that service quality attributes play different roles in facilitating customer satisfaction. A comprehensive examination of service quality dimensions enables managers to balance both service aspects (such as customer service and satisfaction) and technical elements (such as product quality), providing practical tools for continuous improvement and quality management.

Previous research has demonstrated that customer satisfaction with experience, service quality, and perceived value leads to increased repurchase likelihood, making the customer satisfaction–repurchase intention link a fundamental and well-supported relationship in services marketing (Alalwan, 2020; Curtis et al., 2011; Shen et al., 2016). According to Oliver (1999), customer satisfaction influences attitudes and subsequently creates a positive impact on future behavioral intentions, particularly repurchase intention. When customers evaluate specific products or services, their intention to repurchase is shaped by previous experiences that generate positive attitudes stemming from satisfaction. Similarly, Sivaram et al. (2019) highlight that perceptions of service quality in logistics operations are driven by customer evaluations and experiences. Customers form these perceptions based on both the tangible aspects of product quality and the efficiency of service processes, and the resulting perceptions influence their service usage decisions. Lin et al. (2023) note that research on customer satisfaction as a mediator between LSQ and reuse intention remains sparse, emphasizing that positive customer perceptions, derived from superior product quality and efficient process execution, play a pivotal role in building and maintaining customer loyalty. In the dynamic logistics sector, continuous enhancement of service quality drives customer retention and competitive advantage.

Based on this comprehensive review of contemporary literature and emerging trends, this study proposes three key hypotheses:

- H1** LSQ positively influences customer satisfaction.
- H2** LSQ positively influences repurchase intention.
- H3** Customer satisfaction mediates the relationship between LSQ and repurchase intention.

Figure 1: Proposed research framework

Methodology

Research Participants

This study was conducted in a B2B context using a quantitative approach. All respondents were SME owner-managers or decision-makers who procure logistics services. The sample consisted exclusively of logistics service users (buyers), not logistics service providers. The logistics service companies were selected for this study from SMEs registered with the Department of Business Development, Ministry of Commerce, Thailand. Major services and activities usually involve packages, parcels, pickup, warehousing, and transport services. To obtain permission and agreement to provide details of the service activities, the researchers conducted recruitment through initial telephone contact followed by questionnaire distribution.

The sampling strategy aimed to capture the diversity of SME logistics service users while ensuring representative coverage. The researchers employed a stratified random sampling approach, first categorizing SMEs by industry sector and service type, then randomly selecting participants within each stratum. This approach helped ensure that the sample reflected the broader population of SME logistics service users in Thailand.

The key informants were owners, managing directors, or managers who were representatives of companies utilizing multiple services and serving as decision-makers in the selection and use of logistics services.

The sampling process encompassed initial telephone recruitment followed by questionnaire distribution through both online and postal channels to 400 SMEs. The research yielded 236 valid responses, exceeding Anderson and Gerbing's (1988) recommended threshold of 150 cases for structural equation modeling, thus ensuring adequate statistical power for both confirmatory factor analysis and structural modeling. The demographic characteristics of the sample are detailed in Table 1.

Measurement

The data collection instrument was based on existing scales validated in prior research. The measurement of LSQ was based on Mentzer et al. (2001), who originally applied logistics activity scales in a consumer perspective with reference to postal transport, and on Oliveira Neto et al. (2017). Customer satisfaction was based on Huma et al. (2020). In this study, repurchase intention is conceptualized as a form of behavioral intention, specifically the intention to repurchase services or reuse an LSP (Kwak et al., 2020). All the variables used a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

The index of item objective congruence (IOC) for each question was assessed, with all questions meeting the criterion of an IOC greater than 0.5, indicating good validity (Turner and Carlson, 2003). All questions were designed to capture the intended constructs. The study instrument's reliability was confirmed through pilot testing with 30 logistics industry participants, with all scales demonstrating robust internal consistency (Cronbach's $\alpha > 0.7$).

Common Method Bias Assessment

Given that all variables were collected from single respondents in one survey wave, the risk of common method bias (CMB) was assessed following Podsakoff et al. (2003). Harman's single-factor test was conducted on all study items. The unrotated factor solution yielded a first factor explaining 31.4% of total variance, well below the 50% threshold, suggesting that common method variance is unlikely to account for the majority of covariation in the data. To further address the limitations of relying solely on Harman's test, a Common Latent Factor (CLF) approach was also employed. A common method factor with unconstrained paths to all observed indicators was added to the CFA model. The constrained (without CLF) and unconstrained (with CLF) models were compared. The standardized common method factor loadings were uniformly small (range: 0.01–0.09), and no substantive change in the structural path coefficients was observed ($\Delta\beta \leq 0.02$ across all paths). These results confirm that common method variance does not materially distort the findings of this study.

In addition, procedural remedies were implemented during data collection. First, respondents were assured of anonymity to reduce social desirability bias. Second, the questionnaire used varied scale formats to reduce acquiescence bias. Third, the constructs of LSQ, customer satisfaction, and repurchase intention were presented in separate, clearly labeled sections to minimize priming effects. While these measures reduce CMB risk, the single-source

design remains a limitation acknowledged in the Limitations section.

Table 1: Demographic profile of the respondents (n = 236)

Characteristics		Frequency	Percent
Type of Company	Manufacturing	66	28
	Finished Products	53	22
	Retailers	102	43
	Other	15	6
Type of Logistics Service Utilized	Integrated/3PL Services	73	31
	Transportation	89	38
	Warehousing	35	15
	Receiving and Storage	17	7
	Other	22	9
The Period of Operation	Less than three years	74	31
	3 to 6 years	88	37
	7 to 10 years	43	18
	10 years or more	31	13

Note: Service categories reflect the primary type of logistics service procured by each SME from its main logistics service provider

Results

Factor Analysis Findings

This study employed a rigorous two-step structural equation modeling approach. The first step involved validating the measurement model through confirmatory factor analysis (CFA). Prior to CFA, the researchers conducted exploratory factor analysis (EFA) using principal component analysis with varimax rotation to examine the underlying factor structure. This preliminary analysis was crucial in identifying potential issues with the proposed dimensions.

The EFA revealed several important insights about the LSQ dimensions. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.89, well above the recommended threshold of 0.60, and Bartlett's test of sphericity was significant ($\chi^2 = 3847.62$, $p < 0.001$), indicating that the data were suitable for factor analysis. The initial analysis identified ten factors with eigenvalues greater than 1.0, collectively explaining 74.3% of the total variance.

A detailed examination of the factor loading patterns revealed that items related to IT and corporate image showed problematic cross-loadings across multiple factors. Specifically, IT items loaded on both the information quality and ordering procedures factors (cross-loadings > 0.40), while corporate image items showed diffuse loadings across several factors (Mvududu and Sink, 2013). This cross-loading pattern is theoretically interpretable. In the SME context, IT-mediated service features are not cognitively differentiated from general ordering procedures and information quality. This is consistent with the RBV-based expectation that SME buyers — lacking dedicated logistics IT infrastructure — evaluate these features as integrated operational experiences rather than as discrete quality dimensions. Similarly, corporate image is less likely to function as a distinct evaluative criterion for SME owner-managers who

select providers based on direct operational experience rather than formal brand assessment. Accordingly, these dimensions were eliminated from further analysis, with content validity implications acknowledged in the limitations.

Measurement Model Validation

The CFA demonstrated strong construct validity for the refined measurement model. All standardized factor loadings were statistically significant and exceeded 0.60, with most above 0.70, indicating strong item reliability (Hair et al., 2006). Composite reliability values ranged from 0.78 to 0.92, well above the recommended 0.70 threshold, demonstrating strong internal consistency. Average variance extracted (AVE) values ranged from 0.51 to 0.67, exceeding the 0.50 threshold and supporting convergent validity (Fornell and Larcker, 1981), with the items and constructs summarized in Table 2. Discriminant validity was rigorously assessed by comparing the square root of AVE for each construct with its correlations with other constructs. In all cases, the square root of AVE exceeded the inter-construct correlations, providing strong evidence of discriminant validity.

One item, OQ3 (loading = 0.52), falls below the conventional 0.60 guideline. This item was retained for two reasons. First, its removal would leave the order quality construct with only two indicators, which reduces construct representation (Hair et al., 2006). Second, the composite reliability of the order quality construct (CR = 0.87) and AVE (0.67) remain well above their respective thresholds, confirming adequate construct-level validity despite the borderline item loading. This is acknowledged as a minor limitation.

The cost-related items (CO1 = 0.59; CO2 = 0.59; CO3 = 0.60) are also borderline relative to the 0.70 benchmark, though all exceed the minimum acceptable threshold of 0.50 (Hair et al., 2006). The cost construct nonetheless demonstrates adequate construct-level validity, with composite reliability CR = 0.88 and AVE = 0.53, both meeting their respective thresholds. Modest item-level loadings for cost items are consistent with findings from prior LSQ studies (e.g., Thai, 2013; Arabelen and Kaya, 2021), in which cost is an inherently multi-faceted construct whose sub-facets (fee competitiveness, surcharge avoidance, and add-on transparency) share moderate rather than high inter-item covariance. Theoretically, retaining the cost construct is essential given the resource-constraint arguments grounded in RBV, as price sensitivity is a distinguishing characteristic of SME logistics evaluation. The borderline item loadings within cost are acknowledged as a limitation, and future scale refinement is recommended.

Table 2: Factor Loading, CR, AVE and Cronbach's Alpha

Dimension		Items	Factor Loading	Cronbach's Alpha	AVE	CR
Personnel Contact Quality (PCQ)	PCQ1	Availability of service facilitators	0.90	0.75	0.50	0.78
	PCQ2	Problem-solving capability of staff	0.83			
	PCQ3	Accuracy of information provided by staff	0.86			
Order Release Quantities (ORQ)	ORQ1	No shipping quantity restrictions	0.81	0.70	0.54	0.78
	ORQ2	No issues from low shipping volume	0.66			
	ORQ3	Accountability for delivery errors	0.74			
Information Quality (IQ)	IQ1	Availability of service item lists	0.76	0.89	0.65	0.90
	IQ2	Reliability of supplier order information	0.88			
	IQ3	Timeliness of information updates	0.65			
Ordering Procedures (OP)	OP1	Efficiency of service processes	0.72	0.92	0.58	0.92
	OP2	Ease of use of service processes	0.82			
	OP3	Convenience of return processes	0.72			
Order Accuracy (OA)	OA1	Accuracy of shipping item lists	0.71	0.85	0.67	0.84
	OA2	Rarity of incorrect shipping quantities	0.65			
	OA3	Rarity of replacement products in shipments	0.87			
Order Condition (OC)	OC1	Condition of warehouse-sourced goods	0.84	0.91	0.66	0.83
	OC2	Condition of seller-delivered goods	0.73			
	OC3	Rarity of shipping/carrier-caused damage	0.80			
Order Quality (OQ)	OQ1	EMS shipping availability	0.95	0.84	0.67	0.87
	OQ2	Conformance to technical requirements	0.86			
	OQ3*	Consistency of equipment/process compliance	0.52			
Order Discrepancy Handling (ODH)	ODH1	Correction of shipped quality deviations	0.67	0.77	0.52	0.79
	ODH2	Reporting of quality deviations	0.65			
	ODH3	Satisfactory resolution of quality deviations	0.74			
Timeliness (TL)	TL1	Shortness of goods receipt intervals	0.64	0.89	0.61	0.90
	TL2	On-time shipment delivery	0.80			
	TL3	Speed of pending order processing	0.64			
Cost (CO)**	CO1	Competitiveness of service fees	0.59	0.76	0.53	0.88
	CO2	Absence of excessive add-on costs	0.59			
	CO3	Absence of special shipping surcharges	0.60			
Customer Satisfaction	CS1	Pleasantness of business interactions	0.62	0.80	0.51	0.87

Dimension		Items	Factor Loading	Cronbach's Alpha	AVE	CR
Repurchase Intention (RI)	(CS)	CS2 Perceived wisdom of provider selection	0.74	0.73	0.62	0.75
		CS3 Overall satisfaction with service performance	0.69			
	RI1	Willingness to reuse the logistics platform	0.65			
	RI2	Intention to recommend the logistics platform	0.78			
	RI3	Propensity to share positive aspects	0.73			

Note: * OQ3 loading = 0.52 (borderline); retained due to construct-level CR = 0.87 and AVE = 0.67. See text for justification. ** Cost items CO1-CO3 have loadings of 0.59-0.60 (borderline); retained based on construct-level CR = 0.88 and AVE = 0.53 (See text for justification)

Structural Model and Hypothesis Testing

Latent variable analysis conducted in AMOS 22.0 revealed good model fit across multiple indices. The CMIN/DF index was 1.83, below the reference threshold of 2.00. The RMSEA index was 0.06, below the recommended cutoff of 0.08, and other goodness-of-fit indices also met the criteria: NFI = 0.91, IFI = 0.87, TLI = 0.94, CFI = 0.97, and GFI = 0.87 (Diamantopoulos and Siguaw, 2000).

Path analysis revealed that LSQ has a positive direct effect on customer satisfaction ($\beta = 0.62$, $p < 0.001$; H1 supported) and a positive direct effect on repurchase intention ($\beta = 0.16$, $p = 0.004$; H2 supported). Customer satisfaction showed a significant positive effect on repurchase intention ($\beta = 0.14$, $p = 0.010$).

To test mediation (H3), bootstrapping with 5,000 resamples was conducted (Preacher and Hayes, 2008). The indirect effect of LSQ on repurchase intention through customer satisfaction = 0.087 (95% bias-corrected CI = [0.021, 0.163]), which excludes zero, confirming a significant indirect effect. The direct effect of LSQ on repurchase intention also remains significant ($\beta = 0.16$, $p = 0.004$). The results therefore indicate partial mediation by customer satisfaction, rather than full mediation as initially proposed. H3 is supported. The results are shown in Table 3.

Table 3: Results from structural equation modeling

Relationship Paths	β	S.E.	Estimate	p-value	Result
LSQ $\rightarrow$ CS	0.62	0.07	0.07	0.000***	H1 Supported
LSQ $\rightarrow$ RI (direct)	0.16	0.06	0.05	0.004**	H2 Supported
CS $\rightarrow$ RI	0.14	0.03	0.03	0.010*	-
Indirect Effect (LSQ $\rightarrow$ CS $\rightarrow$ RI)	0.087	-	-	-	H3 Supported

Note: * is significant level at 0.05, ** is significant level at 0.01, *** is significant level at 0.001

Robustness and Sensitivity Analyses

To empirically validate the decision to eliminate the IT and corporate image dimensions from the LSQ measurement model, a competing model comparison was conducted.

Model A retained all 12 originally proposed LSQ dimensions, including IT and corporate image items. Model B represents the refined 10-dimension model used in the main analysis. Fit indices for both models are presented in Table 4. Model B demonstrated substantially superior fit across all indices (CMIN/DF = 1.83 vs. 2.71; CFI = 0.97 vs. 0.91; RMSEA = 0.06 vs. 0.09; TLI = 0.94 vs. 0.88). These results confirm that the elimination of IT and corporate image dimensions is empirically, not merely theoretically, justified. The 12-dimension model exhibited poor discriminant validity for IT items, which cross-loaded substantially onto the information quality and ordering procedures factors. This confirms that these dimensions are not cognitively distinct constructs for SME buyers.

Table 4: Model comparison

Model	CMIN/DF	CFI	RMSEA	TLI	NFI	GFI	IFI
Model A: 12-dimension LSQ (with IT & Corporate Image)	2.71	0.91	0.09	0.88	0.86	0.84	0.85
Model B: 10-dimension LSQ (current study)	1.83	0.97	0.06	0.94	0.91	0.87	0.87

Note: Model B (10-dimension) provides superior fit across all indices, empirically confirming the elimination of IT and corporate image dimensions

A sensitivity analysis was also conducted for the borderline item OQ3 (loading = 0.52) by comparing structural path estimates with and without OQ3 included in the order quality construct. Results showed negligible differences. The direct path LSQ → CS changed from $\beta = 0.62$ to $\beta = 0.63$ ($p < 0.001$), and the indirect effect (LSQ → CS → RI) remained within overlapping confidence intervals (without OQ3: 95% CI = [0.019, 0.161]). These results confirm that retaining OQ3 does not materially influence the structural findings.

Discussion

The findings contribute significantly to both theory and practice in B2B logistics services within the Thai and broader ASEAN SME context. The validation of a modified LSQ framework for SME contexts extends theoretical understanding of how service quality dimensionality is context-dependent. Grounded in Resource-Based View theory, this study provides the first explicitly theorized account of why SMEs deprioritize IT and corporate image as distinct LSQ dimensions. SME buyers operate with limited technology infrastructure and engage in direct, relationship-based provider evaluation. Under these conditions, IT-enabled service features and brand reputation do not form cognitively distinct quality constructs. This structural difference in LSQ dimensionality distinguishes the contribution of this study from prior LSQ–satisfaction–loyalty models tested in emerging economies, which have largely used large enterprise or mixed samples.

The findings identified ten LSQ dimensions: (1) Personnel Contact Quality, (2) Order Release Quantities, (3) Information Quality, (4) Ordering Procedures, (5) Order Accuracy, (6) Order Condition, (7) Order Quality, (8) Order Discrepancy Handling, (9) Timeliness, and (10) Cost. The elimination of IT and corporate image dimensions through factor analysis reveals important insights about SME priorities in logistics

services. Unlike larger enterprises, SMEs appear to focus more on operational excellence and direct service delivery than on technological sophistication or brand reputation. This finding is consistent with Oliveira Neto et al. (2017) and Vu et al. (2020), who found that critical LSP selection criteria centered on process quality and efficiency.

The mediation analysis, confirmed via bootstrapping, reveals partial rather than full mediation by customer satisfaction. This suggests that while customer satisfaction is an important pathway through which LSQ influences repurchase intention, LSQ also exerts a meaningful direct influence on repurchase decisions. This finding implies that SME decision-makers respond to service quality improvements both affectively (through satisfaction) and behaviorally (directly), a distinction with practical significance for LSPs designing service improvement initiatives.

The research findings reveal significant distinctions in how LSQ operates in B2B versus B2C contexts. In the B2B context, the emphasis on operational and technical factors such as order release quantities and order discrepancy handling aligns with Mentzer et al.'s (2001) foundational work on LSQ frameworks. However, this differs notably from B2C logistics, where service quality is characterized by a dominant focus on individual deliveries requiring technological integration through mobile applications, tracking systems, and where modern delivery solutions such as parcel machines play a crucial role (Gulc, 2021). Additionally, service quality characteristics identified in models such as SERVQUAL hold potential for enhancing customer satisfaction, particularly in B2C logistics (Boonchunone et al., 2024).

The decision-making process in B2B logistics, as shown in this research involving owners and executives, follows a more rational and process-driven approach. This aligns with Oliveira Neto et al.'s (2017) findings on logistics provider selection criteria. In contrast, B2C logistics decisions are often influenced by different factors. He and Zhang (2022) found that direct interaction between businesses and end consumers, characterized by personalized product offerings, streamlined purchasing processes, and enhanced customer experiences, facilitates real-time communication, allowing businesses to respond quickly to consumer needs and preferences. As a result, B2C customers prioritize convenience and swift service delivery.

The findings confirm that LSQ directly influences both customer satisfaction and repurchase intention, with customer satisfaction serving as a partial mediator. This finding contributes to the existing literature by providing new empirical evidence; the results showed that improving the overall quality of logistics services — such as effective communication, assistance from the provider's employees, and the speed of delivery — affects the satisfaction of customers who choose LSP services, a finding consistent with Fernandes et al. (2018). This aligns with Huma et al. (2020) and Sivaram et al. (2019), who emphasize that quality perception is primarily customer-driven, where better service perception in terms of product quality and process leads to positive quality perceptions that influence service usage decisions. Consequently, LSPs must continuously enhance service quality to remain competitive and improve customer retention.

This investigation establishes empirical evidence regarding customer loyalty dynamics, building upon seminal works in the field (Mentzer et al., 2001; Rauyruen and Miller,

2007). The study presents a conceptual framework that systematically examines the multifaceted dimensions of shipper-carrier relationships within logistics service operations, with particular emphasis on customer loyalty determinants. While extant literature has predominantly concentrated on evaluating carrier service quality through shipper satisfaction metrics (for example, Huma et al., 2020; Yeo et al., 2015), this study adopts a more comprehensive approach.

The impact of LSQ on satisfaction and repurchase intention also shows notable differences between B2B and B2C contexts. The findings demonstrate direct relationships between LSQ, satisfaction, and repurchase intention in B2B settings. However, in B2C logistics, Ehsani and Hosseini (2023) found that the ability to accurately deliver products on time, along with offering special promotions, discounts, and entertainment, can enhance customer satisfaction. Having a systematic approach to these factors can provide a competitive advantage.

These distinctions highlight the importance of developing context-specific approaches to logistics service quality management. While B2B logistics providers need to focus on operational excellence, relationship management, and technical capabilities, B2C providers must prioritize consumer-facing aspects such as delivery experience, communication, and service recovery. This understanding can help logistics service providers tailor their offerings to their target market's specific needs and expectations better.

The relationship between LSQ, customer satisfaction, and repurchase intention in the model provides valuable theoretical insights. The strong direct effect of LSQ on customer satisfaction underscores the fundamental importance of service quality in B2B logistics relationships, and the significant direct effect on repurchase intention suggests that while service quality is important, other factors may influence SMEs' long-term service provider choices. The mediating role of customer satisfaction in this relationship indicates that consistently meeting service expectations is crucial for maintaining long-term business relationships with SME clients.

The study holds important implications for LSP management practices. The findings suggest that LSPs serving SME clients should focus on developing core operational capabilities rather than investing heavily in advanced technological solutions or brand building. This includes ensuring high levels of order accuracy, maintaining consistent delivery timeliness, and developing strong personal relationships through well-trained staff. The significance of cost considerations in the model indicates that LSPs need to develop service packages that provide value for money while maintaining service quality standards that meet SME expectations.

In conclusion, this study advances understanding of LSQ in the Thai SME context, with implications for logistics service management in comparable emerging markets across Southeast Asia. The validated framework and empirical findings offer a foundation for future research while helping practitioners develop more effective service strategies for the SME market segment. As Thailand's SME sector deepens its integration into regional and global supply chains, understanding how to effectively serve this market segment becomes increasingly crucial for logistics service providers.

Limitation and Future Research

This study has several limitations. The single-source, cross-sectional design introduces a risk of common method bias, which was assessed using Harman's single-factor test (first factor = 31.4%) and a common latent factor analysis (standardized CLF loadings = 0.01–0.09; $\Delta\beta \leq 0.02$); longitudinal or multi-source designs would nonetheless provide stronger causal evidence. In addition, the elimination of the IT and corporate image dimensions, while theoretically grounded and empirically supported, results in some loss of content validity relative to full LSQ models, and OQ3 (loading = 0.52) and the cost-related items (CO1–CO3, loadings 0.59–0.60) remain borderline items retained on construct-level validity grounds.

Future research should test whether IT becomes a distinct LSQ dimension as Thai SMEs increase their digital adoption, and should refine the borderline scale items noted above. Longitudinal studies could further examine how LSQ relationships evolve as SMEs grow, and comparative studies across different cultural contexts could identify universal versus culture-specific aspects of LSQ in SME relationships.

Practical Implications for Asian Business

The findings of this study carry important practical implications for logistics service providers (LSPs) and SME managers operating in Asian markets. All recommendations presented below are grounded directly in the empirical results, specifically the factor structure identified through exploratory and confirmatory factor analysis, the path coefficients from structural equation modeling, and the mediation test confirmed via bootstrapping.

The first and most fundamental implication concerns investment prioritization. The failure of IT to emerge as a statistically distinct LSQ dimension in the SME context indicates that Thai SME buyers do not cognitively separate technology-based service features from broader operational quality. This finding directly challenges the conventional assumption that digital logistics infrastructure, such as automated order tracking and real-time shipment monitoring, constitutes a primary driver of SME satisfaction. On the contrary, LSPs serving SME clients should direct their improvement efforts toward core operational capabilities, namely order accuracy, timeliness, order condition, and order discrepancy handling. These dimensions collectively represent the service fundamentals that SME decision-makers evaluate most acutely, and their consistent delivery forms the bedrock of SME satisfaction.

The second implication concerns personnel management and relationship development. Personnel contact quality emerged as a salient dimension within the LSQ construct, confirming that frontline service staff play a central role in shaping SME customers' service experiences. This finding is particularly relevant in the Thai and broadly Southeast Asian business context, where relationship-based commercial practices remain influential, as evidenced by the prominence of personnel contact quality as a key LSQ driver in this study. LSPs operating in Thailand and neighboring emerging markets should therefore invest in structured training programs that develop staff competencies beyond technical logistics knowledge. Such programs should encompass interpersonal communication skills, cultural sensitivity, problem-solving responsiveness,

and an understanding of the operational pressures that SME owner-managers routinely face. The quality of human interaction, not the sophistication of the technology interface, is what differentiates LSPs in the eyes of SME clients.

The third implication addresses service package design. The retention of the cost dimension in the final LSQ model signals that price sensitivity remains a meaningful consideration in SME logistics evaluation — an unsurprising finding given the resource constraints that characterize SME operations across Asia. LSPs should respond by developing flexible, tiered service packages that enable SMEs to calibrate service quality to their current financial capacity. Such packages should accommodate the growth trajectories common in Asian SME markets, where periods of rapid expansion are frequently followed by consolidation phases that require cost discipline. A modular service structure, in which SMEs can scale up or down specific service components without renegotiating entire contracts, would enhance both accessibility and long-term retention.

The fourth implication concerns customer satisfaction management and feedback system design. The bootstrapping analysis confirmed that customer satisfaction functions as a partial mediator between LSQ and repurchase intention, meaning that service quality improvements influence repurchase behavior both indirectly through the satisfaction experience and directly through behavioral evaluation. This dual pathway suggests that LSPs cannot rely solely on satisfaction surveys to capture the full picture of SME loyalty drivers. Providers should implement a layered feedback approach that combines formal, periodic satisfaction assessments with informal, relationship-based check-ins that align with Asian business preferences for trust-building communication. Understanding where dissatisfaction originates, whether in a specific operational failure or in the accumulated perception of service quality, allows LSPs to intervene more precisely and build more durable service relationships.

In summary, the practical path forward for Asian LSPs serving SME clients is clear. LSPs should invest in operational reliability, develop people before platforms, design services around SME resource realities, and sustain customer relationships through both structured and relational engagement mechanisms. These strategies, when implemented cohesively, position LSPs to build competitive advantage in a market segment that remains both underserved and strategically vital.

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