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The Effect of Service Quality and Container Availability on Export Market Share: Evidence from Fresh Coconut and Natural Rubber Export Services in South Sumatra, Indonesia

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Abstract: Container shipping logistics is a key determinant of the competitiveness of agricultural commodity exports; however, the mechanism by which service quality at the shipping agent level and container availability jointly determine export market share remains under-examined theoretically, and no empirical research exists on this topic—particularly in the export corridors of developing countries, where no previous studies have modeled these two driving factors simultaneously using causal inference methodology. This study examines the simultaneous effects of service quality (the five dimensions of SERVQUAL) and container availability on the export market share of PT Samudera Agro Logistics (SAL), a shipping agency operating fresh coconut and natural rubber export corridors in South Sumatra, Indonesia. A quantitative cross-sectional design was employed using Partial Least Squares Structural Equation Modeling (PLS-SEM), with data collected from 50 operational and managerial decision-makers at 10 active exporting companies, selected through purposive sampling based on direct involvement in SAL's export service cycle and a minimum of one year of container logistics experience. The results indicate that container availability is the primary driver of export market share ($\beta = 0.557$; $t = 5.054$; $p < 0.001$), exerting a stronger influence than service quality ($\beta = 0.432$; $t = 3.502$; $p < 0.01$)—a finding that challenges the dominant view in maritime logistics literature, which focuses on service quality. Together, these two variables explain 57.9% of the variance in export market share ($R^2 = 0.579$), with large effect sizes ($f^2 = 0.430$ and 0.717) and adequate predictive relevance ($Q^2 = 0.384$), confirming the model's robustness. As its primary theoretical contribution, this study introduces the Logistics Agent Competitiveness Model (LACM), an original framework that integrates SERVQUAL, Resource Based View (RBV), and Service Dominant Logic (SDL), which establishes that container availability is an independent strategic resource, not merely a sub-dimension of service quality, in determining the competitiveness of shipping agents. Practical implications are directed toward shipping agency managers

prioritizing container fleet reliability, major shipping companies optimizing feeder allocation strategies, and policymakers addressing structural container imbalances in secondary export corridors.

Keyword: Service Quality, Container Availability, Export Market Share, PLS-SEM, Maritime Logistics, Indonesia.

INTRODUCTION

Maritime transport serves as the foundation of international trade, accounting for more than 80% of total global merchandise trade by cargo volume (UNCTAD, 2023). Within this system, container shipping has emerged as the primary mode of transport for agricultural commodity exports, directly impacting costs, reliability, and the competitive position of exporters particularly those operating in developing countries where logistics infrastructure still faces structural constraints (World Bank, 2025; UNCTAD, 2024). Indonesia is a prime example of this dependence. As the world's third-largest producer of natural rubber and a leading coconut producer, accounting for approximately 27% of global coconut production, Indonesia's export performance is highly dependent on the reliability of its maritime logistics system (FAO, 2022; Ministry of Agriculture, 2024). In 2024, fresh coconut exports reached 431,915 tons, recording a 29.84% increase in volume by early 2025, while natural rubber exports reached approximately 1.75 million tons in 2023 (Kumparan, 2025; Ministry of Agriculture, 2024). However, the ability to sustain and increase these export volumes is increasingly constrained not by production limitations, but by logistical bottlenecks at the shipping agent level.

The structural fragility of container availability in secondary export corridors is one of the most persistent yet least theoretically discussed constraints on the competitiveness of agricultural exports in developing countries. Container imbalances in Southeast Asia have been well-documented at the macro level: between 2020 and 2024, the Shanghai Containerized Freight Index experienced unprecedented volatility driven by pandemic-related supply shocks, regional trade imbalances, and recurring geopolitical disruptions including the Red Sea crisis (World Bank, 2025; UNCTAD, 2024). Since early 2024, the global port congestion index has risen again, with pressure on secondary corridors in Asia disproportionately exceeding that on major routes (World Bank, 2025). These macro-level disruptions have had a particularly severe impact on sub-regional export corridors such as South Sumatra, where the supply of Class-A containers for rubber exports is chronically insufficient relative to demand, a structural imbalance that directly erodes the competitive position of shipping agents serving agricultural exporters (Notteboom et al., 2021; Widyanto et al., 2022).

PT Samudera Agro Logistics (SAL) a pseudonym used at the organization's request operates as the official shipping agent for a major international container shipping line in the South Sumatra export corridor, managing the full export service cycle from container allocation and booking confirmation to documentation processing and bill of lading issuance for fresh coconut and natural rubber exporters. Despite this strategic position, SAL's market share in the South Sumatra container export corridor remains in the single digits as a proportion of total outbound TEU volume far below competitors with larger container fleets and more frequent sailing schedules. This competitive gap raises a fundamental research question: which service dimensions most strongly determine a shipping agent's export market share, and does container availability function as an independent strategic resource or merely a sub-dimension of service quality?

The academic literature offers only fragmented answers. Studies examining service quality in maritime logistics have largely focused on customer satisfaction and loyalty as dependent variables (Darmanto, 2016; Wardhani et al., 2020; Mulatsih et al., 2018), rather than on market share as a competitive outcome. Research on container availability mostly discusses macroeconomic impacts on the trade balance (Widiarma, 2022) or port operational efficiency (Dewi, 2023; Nguyen & Kim, 2024), without linking container supply to the competitive position of shipping agents. More critically, port performance research even the latest comparative studies (World Bank, 2025; Notteboom et al., 2024) still focuses on the port or corridor level, leaving the *agent level* as a unit of analysis that remains under-explored theoretically. No previous study has simultaneously modeled service quality and container availability as joint determinants of export market share using causal inference methodology, particularly within the context of Indonesia's agricultural commodity export corridors.

This study addresses this gap through four contributions. First, this research introduces the Logistics Agent Competitiveness Model (LACM) an original theoretical framework that integrates SERVQUAL (Parasuraman et al., 1988), the Resource-Based View (Barney, 1991), and Service-Dominant Logic (Vargo & Lusch, 2004) to explain how logistics capabilities at the shipping agent level impact market share outcomes. Second, the LACM is empirically tested using PLS-SEM with a purposive sample of 50 export decision-makers from 10 active exporting firms, an approach that is methodologically appropriate for small samples with complex and reflective multidimensional constructs (Hair et al., 2021). Third, the findings are contextualized within the agricultural export sector of South Sumatra, providing industry-specific empirical evidence regarding a corridor that is strategically significant yet underrepresented in the maritime logistics literature. Fourth, actionable managerial recommendations are developed for shipping agents, major shipping companies, and policymakers seeking to strengthen Indonesia's export competitiveness in an era of persistent supply chain volatility (UNCTAD, 2024; World Bank, 2025).

METHOD

Research Design

This study employs an explanatory quantitative design with a cross-sectional structure, aiming to test the directional and simultaneous effects of service quality and container availability on export market share. The Partial Least Squares Structural Equation Modeling (PLS-SEM) approach was chosen over Covariance-Based Structural Equation Modeling (CB-SEM) for three methodological reasons: the relatively small purposive sample size (n = 50), the presence of complex and reflective second-order measurement structures across all three constructs, and the study's exploratory-confirmatory nature, which prioritizes predictive accuracy over strict distribution assumptions (Hair et al., 2021; Sarstedt et al., 2021). SmartPLS 4.0 (Ringle et al., 2015) was used for all model estimations. A five-point Likert scale (1 = strongly disagree to 5 = strongly agree) was applied to all survey items, in accordance with best practices in logistics service research (Tanujaya et al., 2022).

Research Background

This study was conducted at PT Samudera Agro Logistics (SAL) a pseudonym used at the organization's explicit request the official shipping agent for a major international container shipping company operating the South Sumatra export corridor in Indonesia. SAL manages the full container export service cycle for fresh coconut and natural rubber exporters, ranging from container allocation and order confirmation to documentation processing and bill of lading issuance. The South Sumatra export corridor which transships through Singapore and Tanjung Priok/Jakarta serves key markets including China, India, Malaysia, Vietnam, and the European Union, with SAL's current market share remaining in

the single-digit range of the corridor's total TEU volume. This competitive position is the primary dependent variable that this study aims to explain.

Organizational Anonymization Disclosure: In accordance with research ethics protocols and at the explicit request of participating organizations, the official names of shipping agents and their primary international routes have been anonymized throughout this article. All operational data, market metrics, survey responses, and statistical findings reported here are authentic and unmodified; anonymization applies exclusively to organizational identities. Supporting documents, including the consent agreements, are retained by the corresponding author and are available upon editorial request.

Population, Sampling, and Sample Adequacy

The target population consists of all active exporters of fresh coconuts and natural rubber operating through the South Sumatra SAL corridor representing approximately 100 operational and managerial decision-makers across 21 registered export companies. Given the population's small, limited, and professionally specialized nature, purposive sampling was adopted as the primary sampling strategy. Three eligibility criteria were applied: (a) direct involvement in the SAL export service cycle, (b) at least one year of operational experience in coconut or rubber export logistics, and (c) demonstrable knowledge of container logistics and scheduling requirements. These criteria ensure that all respondents possess the practical knowledge necessary to provide valid assessments of the study constructs.

To ensure the adequacy of the target sample size within a non-probability framework, the Slovin formula was applied as a sample size adequacy check, not as a probabilistic sampling mechanism a distinction that is methodologically significant: purposive sampling does not assume population representativeness, yet the Slovin threshold provides a benchmark for minimum response coverage relative to the known population. Applying the formula with a 10% margin of error $n = N / [1 + N \cdot e^2] = 100 / [1 + 100 \times 0.01] = 50$ ensures that a minimum of 50 respondents is appropriate for this population size. The final sample of $n = 50$ was recruited by selecting five managerial or operational representatives from each of the ten companies actively engaged in exporting, chosen based on meeting the three purposive criteria. The remaining eleven companies in the population did not meet the minimum experience criteria or declined to participate; this exclusion is acknowledged as a limitation in Section 6.

Although $n = 50$ is small in absolute terms, this number meets the minimum threshold recommended by Hair et al. (2021) for PLS-SEM models with up to five constructs and ten indicators per construct, and is consistent with previous research in the specific field of maritime logistics where limited populations of industry practitioners are frequently studied (Mulatsih et al., 2018; Rahma & Dwiridotjahjono, 2025).

Measurement Instruments

The three constructs were operationalized through a set of validated reflective indicators. Service Quality (X_1) was measured using 10 items adapted from the SERVQUAL model (Parasuraman et al., 1988), with two items per dimension covering reliability, responsiveness, assurance, empathy, and physical aspects. Container Availability (X_2) is measured using 10 items covering five dimensions: number of containers, container types and specifications, accessibility, usage flexibility, and management system integration. Export Market Share (Y) is measured using 10 items covering shipment volume (TEU), customer preference and loyalty, relative market position, capacity utilization, and competitive differentiation. All items are rated using a five-point Likert scale. Content validity was established through a review by three maritime logistics experts, and a pilot test involving

five industry practitioners confirmed the clarity of the items prior to final implementation via Google Forms during the data collection period from July to October 2025.

Table 1 presents a simplified operationalization summary. The complete list of items is available from the corresponding author upon request.

Table 1. Summary of Construct Operationalization

Construct	Dimensions (2 items each)	Representative Indicator	Source
Service Quality (X_1)	Reliability, Responsiveness, Assurance, Empathy, Tangibles	"Vessel departures consistently adhere to the published schedule"	Parasuraman et al. (1988); Mulatsih et al. (2018)
Container Availability (X_2)	Quantity, Type/Specification, Accessibility, Flexibility, Management System	"Grade-A dry containers are reliably available for rubber export bookings"	Pratama et al. (2025); Maulani et al. (2024)
Export Market Share (Y)	TEU Volume, Customer Preference, Relative Market Position, Capacity Utilization, Competitive Differentiation	"SAL consistently captures a higher proportion of corridor TEU volume than key competitors"	Notteboom & Rodrigue (2022); Barasa et al. (2025)

Analytical Strategy

The analysis was conducted in two sequential stages following Hair et al. (2021). Stage 1 evaluated the external measurement model based on four criteria: indicator reliability (external loadings ≥ 0.70; exploratory threshold ≥ 0.60), construct reliability (Cronbach's α > 0.70; Composite Reliability [CR] in the range 0.70–0.95), convergent validity (Average Variance Extracted [AVE] ≥ 0.50), and discriminant validity evaluated via the Heterotrait-Monotrait Ratio (HTMT < 0.90; Henseler et al., 2015) supplemented by the Fornell-Larcker criteria. Stage 2 evaluated the internal structural model through: assessment of multicollinearity (VIF < 3.0), significance of path coefficients (bootstrapping with 5,000 resamples, two-tailed, $p < 0.05$), coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2 via blindfolding). Threshold interpretations generally follow Hair et al. (2021).

RESULT AND DISCUSSION

Results

1. Respondent Profile

The final sample (n = 50) comprised respondents across the following demographic categories: age 31–40 years (56%), 21–30 years (26%), and 41–50 years (18%); educational attainment of bachelor's degree (60%), senior high school (22%), diploma (16%), and master's degree (2%); business tenure of 1–10 years (62%), 11–20 years (36%), and over 21 years (2%); commodity type of fresh coconut (50%) and natural rubber (50%); duration of SAL service usage exceeding three years (84%) and 1–3 years (16%); and shipment frequency of 1–3 times per month (68%), less than once per month (16%), and more than three times per month (16%). The predominance of bachelor's-educated respondents with over three years of direct engagement with SAL's export service cycle and high shipment frequency substantiates the criterion validity of the sample these stakeholders possess the operational depth necessary to provide reliable assessments of service quality performance and container availability conditions.

Table 2. Descriptive Statistics of Construct Indicators (n = 50)

Code	Indicator Statement	Min	Max	Mean (SD)	Category
X1.1	Vessel departures consistently on schedule (Reliability)	1	5	4.58 (0.75)	Strongly Agree
X1.2	Sailing schedule is consistent and predictable (Reliability)	4	5	4.72 (0.45)	Strongly Agree
X1.3	Rapid response to customer inquiries (Responsiveness)	1	5	4.58 (0.78)	Strongly Agree
X1.4	Effective complaint handling (Responsiveness)	3	5	4.40 (0.57)	Strongly Agree
X1.5	Staff possess adequate technical knowledge (Assurance)	4	5	4.52 (0.50)	Strongly Agree
X1.6	Company credibility and market reputation (Assurance)	1	5	4.38 (0.72)	Strongly Agree
X1.7	Personal attention to individual customer needs (Empathy)	3	5	4.44 (0.64)	Strongly Agree
X1.8	Ease of communication with staff (Empathy)	3	5	4.44 (0.57)	Strongly Agree
X1.9	Vessel condition and cleanliness maintained (Tangibles)	3	5	4.54 (0.54)	Strongly Agree
X1.10	Completeness of port facilities (Tangibles)	3	5	4.64 (0.52)	Strongly Agree
X2.1	Container quantity consistently meets demand (Quantity)	3	5	4.54 (0.54)	Strongly Agree
X2.2	Range of container sizes available 20/40/45 ft (Quantity)	4	5	4.56 (0.50)	Strongly Agree
X2.3	Adequate supply of standard dry containers (Type/Spec.)	4	5	4.48 (0.50)	Strongly Agree
X2.4	Specialized containers available (reefer, flat rack) (Type/Spec.)	3	5	4.34 (0.55)	Strongly Agree
X2.5	Containers easily obtainable when needed (Accessibility)	3	5	4.56 (0.54)	Strongly Agree
X2.6	Container allocation wait time meets expectations (Accessibility)	4	5	4.46 (0.50)	Strongly Agree
X2.7	Flexible container lease extension options (Flexibility)	3	5	4.54 (0.54)	Strongly Agree
X2.8	Free time policy aligns with shipment scheduling (Flexibility)	3	5	4.50 (0.54)	Strongly Agree
X2.9	Online container booking system facilitates process (Mgmt. System)	4	5	4.54 (0.50)	Strongly Agree
X2.10	Container management system is integrated and efficient (Mgmt. System)	4	5	4.56 (0.50)	Strongly Agree
Y.1	TEU volume through SAL is consistently high (Volume)	2	5	4.40 (0.63)	Strongly Agree
Y.2	Export cooperation with SAL continues consistently (Volume)	2	5	4.36 (0.71)	Strongly Agree
Y.3	High loyalty to continue using SAL's services (Preference)	2	5	4.30 (0.64)	Strongly Agree
Y.4	Willingness to recommend SAL to other exporters (Preference)	3	5	4.38 (0.56)	Strongly Agree
Y.5	SAL outperforms competitors on key service attributes (Rel. Share)	2	5	4.44 (0.61)	Strongly Agree
Y.6	Competing agencies offer comparatively limited services (Rel. Share)	2	5	4.28 (0.80)	Strongly Agree
Y.7	Container slot utilization is efficient and optimal (Utilization)	2	5	4.40 (0.66)	Strongly Agree
Y.8	Vessel load factor aligns with capacity targets (Utilization)	2	5	4.22 (0.86)	Strongly Agree
Y.9	SAL delivers a highly favorable value	3	5	4.32 (0.58)	Strongly Agree

Code	Indicator Statement	Min	Max	Mean (SD)	Category
	proposition (Competitiveness)				
Y.10	Competitive advantage in price and service vs. rivals (Competitiveness)	3	5	4.50 (0.54)	Strongly Agree

Note: SD = Standard Deviation. Category intervals: (5−1)/5 = 0.80; ≥ 4.21 = Strongly Agree.

2. Measurement Model Evaluation (Outer Model)

All 30 indicators satisfied reliability and validity thresholds, as reported in Table 3. Outer loadings ranged from 0.796 (X1.6) to 0.961 (Y.7), with all values exceeding the 0.70 criterion. Construct reliability was strong across all three constructs, with Cronbach's alpha values above 0.91 and composite reliability values within the acceptable range. Convergent validity was confirmed through AVE values exceeding 0.50 for all constructs (X_1 = 0.575; X_2 = 0.641; Y = 0.688).

Table 3. Outer Loadings, Construct Reliability, and Convergent Validity

Construct	Indicator	Outer Loading	Cronbach α	CR	AVE
Service Quality (X_1)	X1.1–X1.10	0.796–0.935	0.916	0.931	0.575
Container Availability (X_2)	X2.1–X2.10	0.859–0.934	0.937	0.947	0.641
Export Market Share (Y)	Y.1–Y.10	0.892–0.961	0.949	0.956	0.688

Note: All indicators meet established thresholds (Hair et al., 2021). Full indicator-level loadings available upon request

Discriminant validity was confirmed through two complementary criteria (Table 4). HTMT ratios were well below the 0.90 threshold for all construct pairs (maximum: 0.667 between X_2 and Y). The Fornell-Larcker criterion was satisfied, with square roots of AVE (X_1 = 0.758; X_2 = 0.800; Y = 0.829) exceeding all inter-construct correlations. Notably, the HTMT ratio between Service Quality and Container Availability was exceptionally low at 0.233, providing strong empirical confirmation that these two constructs are discriminately distinct directly validating the theoretical decision within the LACM to model them as independent, non-substitutable predictors of export market share rather than as nested sub-dimensions.

Table 4. Discriminant Validity: HTMT Ratios and Fornell-Larcker Criterion

Construct	X_2 Container Availability	X_1 Service Quality	Y Export Market Share
X_2 (√AVE = 0.800)	—		
X_1 (√AVE = 0.758)	0.233 [HTMT] / 0.170 [FL]	—	
Y (√AVE = 0.829)	0.667 [HTMT] / 0.631 [FL]	0.572 [HTMT] / 0.527 [FL]	—

Note: HTMT = Heterotrait-Monotrait ratio (threshold < 0.90; Henseler et al., 2015).
FL = off-diagonal Fornell-Larcker correlation. √AVE must exceed all FL values in the same row/column.

3. Structural Model Evaluation (Inner Model)

Collinearity was not a concern, with VIF = 1.030 for both predictors well below the 3.0 threshold confirming the analytical independence of Service Quality and Container Availability within the structural model. Structural model results are presented in Table 5.

Table 5. Structural Model Results: Path Coefficients, Effect Sizes, and Predictive Relevance

Hypothesis / Path	β	T-Statistic	p-Value	f^2	Effect Size	Decision
H1: X_1 → Y (Service Quality → Market Share)	0.432	3.502	0.001	0.430	Large	Supported
H2: X_2 → Y (Container Availability → Market Share)	0.557	5.054	< 0.001	0.717	Large	Supported
H3: $X_1 + X_2$ → Y (Simultaneous)	$R^2 = 0.579$	F = 32.32	< 0.05	$Q^2 = 0.384$	Moderate	Supported

Note: Bootstrapping with 5,000 resamples, two-tailed.
Effect size benchmarks: $f^2 \geq 0.02$ small, ≥ 0.15 medium, ≥ 0.35 large (Cohen, 1988). Q^2 via blindfolding (omission distance = 7).

All three hypotheses were supported. Three findings merit particular analytical attention. First, container availability emerged as the dominant predictor of export market share (β = 0.557), exerting a meaningfully stronger effect than service quality (β = 0.432) a differential that is theoretically significant given the prevailing service quality-centric orientation in the maritime logistics literature. Second, both predictors demonstrated large effect sizes (f^2 = 0.717 and 0.430 respectively), indicating that each variable makes a practically meaningful not merely statistically significant contribution to the outcome. Third, the LACM explains 57.9% of variance in export market share (R^2 = 0.579), a level of explanatory power that compares favorably with analogous PLS-SEM models in maritime logistics research, and moderate predictive relevance (Q^2 = 0.384) confirms the model's out-of-sample stability within the constraints of the sample size.

Discussion

1. Service Quality as a Market Share Driver: Extending the Evidence Base

The confirmed positive relationship between service quality and export market share extends and theoretically repositions a well-established body of evidence. Prior studies in maritime logistics have predominantly established service quality as a predictor of customer satisfaction and loyalty (Darmanto, 2016; Wardhani et al., 2020; Mulatsih et al., 2018); this study establishes instead a direct pathway from service quality to a competitive market outcome export market share that is commercially more consequential and theoretically more demanding. This repositioning is consistent with recent international evidence: Yang et al. (2023) demonstrate in a Chinese logistics context that service quality dimensions translate into customer re-use intentions through satisfaction as mediator, while Ngo et al. (2025) confirm in a Vietnamese B2C logistics setting that personal contact quality and empathy are foundational to trust formation and long-term loyalty. The present study advances both findings by bypassing the loyalty construct and modeling market share directly, providing a more distal but commercially decisive outcome variable.

The dimension-level finding that Empathy emerged as the dominant SERVQUAL loading surpassing Reliability, Tangibles, Assurance, and Responsiveness is theoretically noteworthy and warrants comparative discussion. This result is initially counterintuitive from a conventional logistics perspective, where operational dimensions such as schedule reliability typically dominate competitive assessments. However, it is consistent with a growing body of evidence from relationship-oriented logistics markets: recent systematic literature analysis confirms that over a twenty-year evolution of logistics service quality research, the field has progressively shifted from physical and operational dimensions toward customer-relational dimensions, with empathy and personal contact quality emerging as primary differentiators for logistics service providers (Jusufbašić & Stević, 2023). In the South Sumatra export corridor characterized by long-term relationship norms, limited competitor differentiation on rate schedules, and high exporter dependency on agency relationships empathy functions as relational capital that substitutes for the scale advantages possessed by larger competitors. This finding offers a culturally situated moderator of

SERVQUAL theory that has not been previously articulated in the maritime logistics literature.

The relatively lower loading on the Assurance credibility indicator (X1.6) signals a specific competitive vulnerability. SAL's dependence on its principal line's brand reputation does not fully transfer credibility at the agency level a finding that aligns with principal-agent theory (Jensen & Meckling, 1976) and with Kara (2024), who demonstrates that improved supply chain performance and relationship-building are essential for competitive differentiation in freight forwarding contexts. Agency-level credibility enhancement through industry certifications, service guarantee programs, or transparent digital performance dashboards represents an actionable strategy for strengthening the service quality pathway to market share.

2. Container Availability as the Dominant Market Share Driver: A Resource Heterogeneity Explanation

Container availability emerged as the stronger determinant of export market share, exerting a larger path coefficient and a substantially larger effect size than service quality. This hierarchy is theoretically explicable through the RBV logic of resource heterogeneity (Barney, 1991): when a shipping agency cannot provide the physical equipment a cargo-ready exporter requires, no degree of service quality can recover the lost cargo booking the exporter is compelled to switch to a competitor regardless of relational satisfaction. This "forced switching" mechanism operates independently of loyalty and represents a categorical market share transfer rather than a gradual competitive erosion. The structural nature of container imbalances in secondary Asian export corridors documented empirically by the World Bank (2025) and confirmed by the Red Sea crisis-driven congestion patterns of 2024 means that this forced switching dynamic is not an idiosyncratic finding but a systemic feature of commodity export corridors where container repositioning capacity is asymmetrically distributed among operators.

The finding that container management system integration rather than raw container quantity emerged as the highest-loading dimension within the Container Availability construct provides an important refinement of the resource availability argument. Exporters appear to value operational transparency and booking system efficiency as much as physical equipment volumes, consistent with the digitalization thesis advanced by Susanto et al. (2024) and with broader evidence that real-time supply chain visibility reduces the perceived uncertainty costs of equipment scarcity even when physical units remain constrained (Rodríguez-López et al., 2024). This finding has a direct parallel in recent maritime disruption research: AlixPartners (2024) documents that schedule reliability declining to a low of 30% on-time vessel arrivals at the nadir of 2023 disruptions has made information transparency a premium service attribute across the container shipping industry, as shippers seek predictability over pure capacity. The implication for SAL is that investment in digital container management systems may yield competitive returns disproportionate to their cost, by converting opaque equipment availability into a visible and plannable resource for exporters.

The specific challenge of Grade-A container availability for natural rubber exports reflected in the slightly lower mean score for specialized container items points to a structural principal-agent misalignment (Jensen & Meckling, 1976) that SAL cannot resolve unilaterally. The stricter cleanliness and contamination-free standards required for rubber export containers impose procurement requirements on the principal line's fleet management that extend beyond standard dry container provisioning. Addressing this gap requires negotiated service level agreements at the principal-agency interface a managerial recommendation with broader applicability to shipping agencies operating in agricultural commodity corridors globally.

3. The Additive Structure of the LACM: Theoretical and Managerial Implications

The simultaneous model confirms that service quality and container availability jointly explain 57.9% of variance in export market share a level of explanatory power that compares favorably with analogous PLS-SEM models in maritime and logistics research. Critically, the structural model confirms an additive rather than interactive relationship between the two predictors, a finding with important theoretical implications. Additivity means that neither predictor substitutes for the other: service quality excellence cannot compensate for container unavailability, and abundant container supply cannot offset relational service deficiencies. This non-substitutability is precisely the empirical justification for the LACM's theoretical architecture the SDL-governed relational pathway and the RBV-governed resource pathway operate in parallel, not in sequence or interaction.

This additive structure parallels findings from recent supply chain integration research: Rodríguez-López et al. (2024) demonstrate in a European manufacturing context that operant resources (knowledge and relational capabilities, analogous to service quality) and operand resources (physical assets, analogous to container fleet) contribute independently to supply chain value creation under SDL, with neither category fully substituting for the other. The LACM thus receives support not only from the South Sumatra data but from the broader theoretical logic of SDL-RBV integration in B2B logistics contexts. The unexplained 42.1% of variance is attributable to factors beyond the model's scope including freight rate competitiveness, principal-line sailing frequency, macroeconomic trade policy dynamics, and competitor strategic moves providing a clear agenda for LACM extension in future research.

4. Theoretical Contribution: The LACM in International Perspective

The LACM's originality rests on three dimensions that distinguish it from existing frameworks. First, it is the first model to position container availability as an independent strategic resource co-equal with service quality in explaining export market share at the agency level resolving a theoretical ambiguity in prior literature where container provisioning has been either subsumed within service quality constructs or treated as a macro-level trade variable rather than a firm-level competitive resource. Second, the LACM applies RBV and SDL simultaneously at the shipping agency level a unit of analysis that is underrepresented relative to ports and carriers in maritime logistics theory (Notteboom & Rodrigue, 2022; Barasa et al., 2025). Third, the LACM operationalizes export market share as a multidimensional competitive outcome construct integrating volume, preference, positioning, utilization, and competitive differentiation dimensions rather than the binary loyalty or satisfaction measures prevalent in prior work (Yang et al., 2023; Ngo et al., 2025).

Compared to existing frameworks in related domains, the LACM occupies a distinctive theoretical position. The Maritime Education Quality Alignment Model (MEQAM) proposed by Barasa et al. (2025) similarly argues for integrated competence-reliability drivers of maritime market share, but operates at the institutional rather than agency level. The logistics service quality models applied in Vietnamese and Chinese contexts (Ngo et al., 2025; Yang et al., 2023) capture relational service pathways but do not incorporate physical resource availability as an independent competitive variable. The LACM integrates both pathways within a single empirically tested framework responding directly to calls in the maritime logistics literature for more fine-grained competitive analysis at the agency level (Notteboom & Rodrigue, 2022; World Bank, 2025).

CONCLUSION

This study confirms that service quality and container availability independently and positively determine export market share in the shipping agency context, with container availability emerging as the dominant driver exerting a substantially larger direct effect and a nearly double effect size relative to service quality. Together, the two predictors account for

the majority of variance in export market share, validating the joint explanatory architecture of the LACM. The primacy of the Empathy dimension within service quality surpassing operational dimensions such as Reliability and Tangibles reveals that relational capital constitutes a critical competitive differentiator for shipping agencies operating in relationship-oriented agricultural export markets. The dominance of container management system integration within the Container Availability construct further establishes that operational transparency and digital accessibility are valued by exporters as much as raw equipment quantity, underscoring the strategic importance of logistics digitalization in secondary commodity export corridors.

Theoretical Contribution Statement: This study introduces the Logistics Agency Competitiveness Model (LACM) as an original theoretical contribution to maritime logistics and export competitiveness research. The LACM is the first framework to simultaneously position service quality and container availability as independent, non-substitutable co-determinants of export market share at the shipping agency level resolving a persistent theoretical ambiguity in which container provisioning has been either subsumed within service quality or treated as a macro-level trade variable. By integrating SERVQUAL, Resource-Based View, and Service-Dominant Logic, the LACM establishes that the SDL-governed relational pathway and the RBV-governed resource pathway operate additively and in parallel neither substituting for the other providing a theoretically grounded and empirically validated framework for agency-level competitive analysis that extends beyond the port- and carrier-centric orientation of existing maritime logistics models.

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