

ENHANCING EXPORT FACILITATION: THE STRATEGIC ROLE OF CLEARING AND FORWARDING AGENTS IN THOOTHUKUDI DISTRICT

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ABSTRACT

This study examines the pivotal role of clearing and forwarding agents in facilitating export businesses, with a specific focus on the Thoothukudi district, a vital hub for international trade. Clearing and forwarding agents act as critical intermediaries, ensuring seamless logistics, compliance, and operational efficiency in the export process. The study investigates the influence of service quality factors such as documentation accuracy, response time, and technical expertise on operational effectiveness, export business outcomes, and competitiveness. Employing a descriptive research design, the study identifies gaps in process efficiency, cost management, and risk mitigation, while also exploring the strategic importance of technological adoption, stakeholder collaboration, and regional infrastructure improvements. Key findings reveal that service quality factors significantly enhance process efficiency, cost management, and export performance, contributing to both short-term operational success and long-term business sustainability. However, operational competitiveness requires integrating these service quality improvements with broader strategies, including technological innovation and value-added services. The study emphasizes the necessity of addressing logistical bottlenecks, improving infrastructure, and fostering skill development among agents to maximize their contribution to export facilitation. By offering actionable insights for exporters, policymakers, and clearing agents, this research highlights the critical role of enhanced service quality and strategic initiatives in promoting sustainable growth and global competitiveness in export businesses.

Keywords: Clearing and forwarding agents, Export facilitation, Service quality, Operational effectiveness, Competitiveness.

INTRODUCTION

The clearing and forwarding industry is integral to the smooth functioning of global trade, serving as a vital intermediary between exporters and regulatory authorities. Clearing and forwarding agents ensure the efficient movement of goods across international borders, managing a range of critical tasks including customs documentation, compliance with regulations, transportation coordination, and logistical

optimization. In export-driven regions such as Thoothukudi, the performance of these agents plays a decisive role in determining the efficiency, competitiveness, and profitability of businesses involved in international trade. Thoothukudi, renowned for its strategic port and export-driven economy, serves as a critical hub for international trade activities in South India. However, exporters in the region face persistent challenges such as logistical inefficiencies, delays in customs clearance, escalating operational costs, and risk management gaps. These issues underscore the importance of clearing and forwarding agents as key facilitators in overcoming operational barriers and streamlining export processes. The increasing complexity of global trade, driven by rapid globalization and stringent regulatory frameworks, has heightened the dependence of exporters on clearing and forwarding agents. Their ability to provide high-quality services such as accurate documentation, timely responses, technical expertise, and effective communication significantly impacts operational effectiveness and long-term business outcomes. Despite their pivotal role, there is limited research on how these agents influence operational and strategic outcomes for export businesses, particularly in regional contexts like Thoothukudi.

This study aims to bridge the knowledge gap by investigating the role of clearing and forwarding agents in enhancing export facilitation. It focuses on assessing the impact of service quality factors such as documentation accuracy, response time, and technical expertise on operational effectiveness, export business performance, and sustainability. Additionally, it evaluates the role of these agents in fostering competitiveness, both at an operational level and in strategic contexts. By identifying the key contributions and challenges faced by clearing and forwarding agents in Thoothukudi, this research provides actionable insights for exporters, policymakers, and logistics stakeholders. These insights aim to address regional bottlenecks, promote infrastructure and skill development, and optimize trade facilitation practices to ensure sustainable growth in the export sector. Through a comprehensive exploration of service quality dimensions and their impact on business outcomes, this study highlights the critical importance of clearing and forwarding agents in strengthening regional and global trade ecosystems.

REVIEW OF LITERATURE

1. Role of Clearing and Forwarding Agents

Clearing and forwarding agents are essential facilitators in the global trade ecosystem, functioning as intermediaries between exporters, regulatory authorities, and logistics providers. Their responsibilities encompass a wide range of activities, including documentation, customs clearance, transportation, and compliance with international trade regulations. According to the Logistics Performance Index (World Bank, 2020), efficient customs clearance and trade facilitation services are directly linked to enhanced trade competitiveness. Countries that rank high on the index tend to exhibit stronger export performance due to streamlined logistics and reduced barriers to trade. Research by Smith et al. (2019) underscores the critical role of trained and experienced agents in minimizing delays, reducing errors, and ensuring compliance with regulatory requirements. These agents act as vital enablers of seamless trade flows, particularly in export-dependent regions like Thoothukudi. They argue that effective clearing and forwarding agents improve the overall efficiency of the supply chain by coordinating multiple stakeholders and leveraging their expertise in trade regulations and procedures. This role is especially significant in complex export markets where the regulatory landscape is continually evolving.

2. Service Quality Dimensions

Service quality is a multifaceted concept that significantly impacts client satisfaction and operational efficiency. Parasuraman et al. (1988) developed the SERVQUAL model, which identifies five key dimensions of service quality: reliability, responsiveness, assurance, empathy, and tangibles. These dimensions are widely used across industries to evaluate service performance and client expectations. In the context of clearing and forwarding agents, these dimensions take on specific relevance. Kumar et al. (2020) applied the SERVQUAL model to logistics services and found that prompt communication, technical expertise, and reliable service delivery are critical for fostering customer trust and satisfaction. They argue that clearing and forwarding agents who excel in these dimensions are more likely to build long-term relationships with exporters and ensure repeat business. In regions like Thoothukudi, where exporters often face logistical and regulatory challenges, the ability of agents to deliver high-quality services is paramount for managing complex export processes effectively. Their ability to anticipate client needs, provide accurate documentation, and resolve issues promptly can make a significant difference in operational outcomes.

3. Operational Effectiveness

Operational effectiveness refers to the ability of a business or service provider to achieve superior performance in critical operational areas such as process efficiency, cost management, and risk mitigation. According to Porter (1985), operational excellence is a key driver of competitive advantage, enabling firms to deliver value to clients while minimizing inefficiencies. Clearing and forwarding agents contribute to operational effectiveness by optimizing processes such as customs clearance, documentation, and transportation. Liu and Wang (2018) highlight the role of automation and digitalization in improving operational effectiveness within the logistics industry. Their study demonstrates how the adoption of technologies such as electronic data interchange (EDI), real-time tracking systems, and automated customs clearance tools can reduce costs, enhance process coordination, and improve overall efficiency. In the Thoothukudi district, where exporters often face delays due to manual processes and inadequate infrastructure, such technological advancements could significantly enhance operational outcomes.

Additionally, process efficiency is closely tied to the accuracy and timeliness of services provided by clearing and forwarding agents. By streamlining workflows, minimizing errors, and ensuring compliance with regulations, agents contribute to smoother export operations and better client satisfaction.

4. Export Business Outcomes

The efficiency of logistical and trade facilitation services has a direct impact on export business performance and sustainability. According to Chen et al. (2017), high-quality logistics services enhance client retention, profitability, and market share by ensuring timely and reliable delivery of goods. Exporters who partner with reliable clearing and forwarding agents benefit from reduced delays, fewer compliance issues, and improved client trust. The importance of sustainability in export operations is highlighted by UNCTAD (2021), which emphasizes the growing demand for eco-friendly and efficient logistics solutions. Exporters that adopt sustainable practices, such as optimizing transportation routes to reduce carbon emissions or using digital documentation to minimize paper waste, gain a competitive edge in global markets. Clearing and forwarding agents can play a pivotal role in supporting these practices by offering innovative and sustainable solutions. In Thoothukudi, where exporters rely heavily on the expertise of clearing and forwarding agents, the quality of these services can determine the overall success of export operations. Agents who deliver superior service quality not only enhance immediate performance metrics, such as delivery

timelines and cost efficiency, but also contribute to long-term business growth by fostering client loyalty and market expansion.

5. Operational Competitiveness

Competitiveness in the export sector is influenced by both operational and strategic factors. Christopher (2016) identifies several enablers of operational competitiveness, including technology adoption, innovative business models, and effective stakeholder collaboration. These factors allow exporters to respond to market demands quickly, reduce costs, and maintain high service standards. However, Brown et al. (2020) caution that isolated operational improvements, such as cost reduction or process optimization, may have limited impact unless integrated into a broader strategic framework. For example, reducing costs without addressing service quality may lead to diminished client satisfaction, while improving process efficiency without adopting technology may fail to achieve the desired scalability. In regions like Thoothukudi, achieving operational competitiveness requires a holistic approach that combines efficient logistics with forward-thinking strategies. Clearing and forwarding agents can contribute to competitiveness by offering value-added services, such as real-time shipment tracking, advanced analytics, and proactive risk management. Collaboration with exporters, port authorities, and other stakeholders is also essential for creating a cohesive and responsive supply chain.

STATEMENT OF THE PROBLEM

Global trade has become increasingly intricate, presenting exporters with numerous challenges that require strategic solutions. In today's interconnected world, seamless logistics and compliance processes are critical for ensuring the competitiveness of businesses in global markets. However, exporters often encounter significant obstacles that disrupt operations, delay shipments, and increase costs. These challenges are particularly acute in export-driven regions like Thoothukudi, where the port serves as a critical hub for international trade. The region's exporters frequently face bottlenecks in logistics, inefficiencies in customs clearance, and inadequacies in infrastructure, all of which adversely affect operational outcomes and business performance. Clearing and forwarding agents, as intermediaries between exporters and regulatory authorities, are expected to mitigate these issues by offering specialized services such as accurate documentation, timely customs clearance, cost management, and risk mitigation. Their role is vital in navigating the complexities of international trade, yet there is limited understanding of how their services directly influence operational effectiveness and business success. The lack of region-specific studies examining the contribution of clearing and forwarding agents further exacerbates the gap in actionable insights, leaving exporters without sufficient guidance to address their challenges. Exporters frequently encounter delays in customs clearance due to process bottlenecks, inadequate coordination among stakeholders, and a lack of real-time tracking and updates. These inefficiencies result in missed delivery deadlines, increased holding costs, and disruptions in the supply chain, ultimately affecting client satisfaction and long-term contracts. Rising costs related to transportation, documentation, and compliance with international trade regulations pose a significant burden on exporters. Inefficient resource allocation, coupled with a lack of cost optimization strategies, further erodes profit margins. Exporters in Thoothukudi struggle to remain competitive globally as they face these escalating expenses. Errors in documentation and non-compliance with trade and customs regulations frequently result in penalties, shipment holds, and reputational damage for exporters. The absence of robust risk management practices among clearing and forwarding agents exacerbates these issues, leaving exporters vulnerable to

operational disruptions. In an increasingly competitive global trade environment, exporters find it challenging to differentiate themselves. A lack of value-added services, such as real-time tracking, advanced analytics, and customized solutions, limits their ability to compete effectively. Additionally, the inability to innovate and adapt to changing market demands further constrains their growth and market share.

RESEARCH GAP

While existing literature has explored the broad aspects of logistics performance and service quality, it has not adequately addressed the specific roles and contributions of clearing and forwarding agents in regional contexts such as Thoothukudi. Most studies emphasize general principles of logistics management without delving into how these agents influence operational efficiency, cost reduction, and risk management in export-dependent economies. The unique challenges faced by exporters in Thoothukudi, combined with the critical role of clearing and forwarding agents in addressing these challenges, remain underexplored. This study seeks to bridge this gap by examining the relationship between clearing and forwarding agents' services and key business outcomes, including operational effectiveness, export performance, and long-term competitiveness. By analyzing the interplay between service quality dimensions, operational factors, and business outcomes, the research aims to provide detailed insights and actionable recommendations for stakeholders. These findings will be particularly valuable for exporters, policymakers, and clearing and forwarding agents seeking to optimize export facilitation and enhance regional trade competitiveness.

OBJECTIVES FOR THE STUDY

1. To evaluate the impact of service quality factors on operational effectiveness
2. To assess the relationship between service quality factors and export business outcomes
3. To analyze the role of clearing and forwarding agents in achieving operational competitiveness

HYPOTHESES FOR THE STUDY

Hypothesis 1 (H1):

- H1a: Service quality factors (e.g., documentation accuracy, response time, technical expertise) have a positive impact on process efficiency.
- H1b: Service quality factors have a positive impact on cost management.
- H1c: Service quality factors have a positive impact on risk management.

Hypothesis 2 (H2):

- H2a: Service quality factors have a positive impact on export business performance.
- H2b: Service quality factors have a positive impact on business sustainability.
- H2c: Service quality factors have a positive impact on operational competitiveness.

Hypothesis 3 (H3):

- H3a: Clearing and forwarding agents enhance operational competitiveness through improved process efficiency.
- H3b: Clearing and forwarding agents enhance operational competitiveness by optimizing cost management.
- H3c: Clearing and forwarding agents enhance operational competitiveness by ensuring robust risk management practices.

METHODOLOGY

This study employed a descriptive research design to examine the role of clearing and forwarding agents in facilitating export businesses in the Thoothukudi district. Data were collected through a structured questionnaire administered to 412 respondents,

selected using the snowball sampling technique. The questionnaire used a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to measure variables such as service quality, operational effectiveness, and export business outcomes. Primary data were supplemented with secondary data sourced from government reports, industry publications, academic journals, and the World Bank's Logistics Performance Index.

The study analyzed independent variables (service quality factors), mediating variables (operational effectiveness), and dependent variables (export business outcomes). Multiple Regression analysis was employed to test the relationships between service quality factors, operational effectiveness, and export business outcomes. Multiple regression analysis further examined the impact of mediating variables on operational competitiveness. Statistical analysis was conducted using SPSS version 25, ensuring robust validation of hypotheses and significant relationships. This methodology provides a structured framework to assess the influence of clearing and forwarding agents on export facilitation and competitiveness.

DATA ANALYSIS

The export business is a complex and dynamic sector that requires the collaboration of various stakeholders to ensure the smooth flow of goods across international borders. Clearing and forwarding agents play a crucial role in facilitating this process by managing the logistics, documentation, and compliance requirements associated with exports. Understanding the profile of these agents can provide valuable insights into the factors that influence their effectiveness and the challenges they face. The following table presents a demographic overview of the respondents who participated in a study aimed at identifying the key factors that contribute to the role of clearing and forwarding agents in the export business.

PROFILES OF THE RESPONDENTS

Table No: 1

S.NO	PARTICULARS	NO. OF RESPONDENTS	PERCENT
Gender			
1	Male	130	78
2	Female	37	22
Age Group			
1	Up-to 30 Years	18	11
2	31 – 45 Years	91	54
3	46 Years and Above	58	35
Location			
1	Rural	115	69
2	Urban	52	31
	Total	167	100

GENDER DISTRIBUTION

The table reveals that the majority of the respondents are male, with 130 out of 167 participants, representing 78% of the sample. Female respondents make up 22% of the sample, with 37 participants. This distribution suggests that the field of clearing and

forwarding in the export business may be male-dominated, which could reflect broader industry trends.

AGE GROUP DISTRIBUTION

The age distribution of the respondents shows a diverse representation across different age groups. The largest group comprises individuals aged 31 to 45 years, accounting for 54% of the sample with 91 respondents. This suggests that mid-career professionals dominate the field, possibly due to the experience required to handle the complexities of clearing and forwarding tasks. The next largest group is those aged 46 years and above, representing 35% of the sample with 58 respondents. Smaller proportions, 11%, are in the up-to 30 years category, indicating that younger professionals are less represented in this industry.

LOCATION DISTRIBUTION

In terms of location, the majority of respondents (69%) are based in rural areas, with 115 participants. This could imply that many clearing and forwarding operations are situated in rural regions, possibly near manufacturing hubs or export points such as ports. Urban respondents constitute 31% of the sample, with 52 participants, suggesting that urban areas also play a significant role, likely due to the presence of major logistical and commercial centers.

ANALYSIS OF THE IMPACT OF SERVICE QUALITY FACTORS ON PROCESS EFFICIENCY

This section examines the relationship between service quality factors and process efficiency, a key dimension of operational effectiveness. The analysis evaluates whether improvements in service quality dimensions such as documentation accuracy, response time, and technical expertise significantly enhance process efficiency. Regression analysis was conducted using a linear model, and the results are presented below.

Regression results: impact of service quality factors on process efficiency

Predictor	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Constant	-0.8168	0.63	-1.296	0.198	[-2.068, 0.434]
Service Quality Factors	0.7941	0.122	6.526	< 0.001	[0.553, 1.036]

1. Constant:

- ❖ The constant coefficient (-0.8168) represents the baseline level of process efficiency when service quality factors are absent. This value is not statistically significant ($p = 0.198$), indicating no meaningful baseline impact.

2. Service Quality Factors:

- ❖ The coefficient for service quality factors is 0.7941, which is statistically significant ($p < 0.001$). This implies that for every unit increase in service quality factors, process efficiency improves by 0.7941 units.
- ❖ The 95% confidence interval ([0.553, 1.036]) indicates a high level of precision in the estimate, with no overlap with zero, further confirming the significance of this predictor.

3. Model Significance:

- ❖ The significant t-value (6.526) and p-value (< 0.001) suggest a strong and positive relationship between service quality factors and process efficiency.

The results support the hypothesis that service quality factors have a positive and significant impact on process efficiency. This highlights the importance of focusing on enhancing service quality dimensions to improve operational effectiveness.

ANALYSIS OF THE IMPACT OF SERVICE QUALITY FACTORS ON COST MANAGEMENT

This section explores the relationship between service quality factors and cost management, focusing on how improvements in service quality influence the ability to manage operational costs effectively. The analysis was conducted using a linear regression model, and the results are presented in the table below.

Regression results: impact of service quality factors on cost management

Predictor	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Constant	-0.4929	0.633	-0.779	0.438	[-1.749, 0.763]
Service Quality Factors	0.6194	0.122	5.071	< 0.001	[0.377, 0.862]

1. Constant:

- ❖ The constant coefficient (-0.4929) represents the baseline level of cost management when service quality factors are absent. This value is not statistically significant (**p = 0.438**), indicating that the baseline effect is negligible.

2. Service Quality Factors:

- ❖ The coefficient for service quality factors is 0.6194, which is statistically significant (**p < 0.001**). This indicates that for every unit increase in service quality factors, cost management improves by 0.6194 units.
- ❖ The 95% confidence interval ([0.377, 0.862]) confirms the robustness of the estimate, as it does not include zero.

3. Model Significance:

- ❖ The significant t-value (5.071) and p-value (< 0.001) suggest a strong and positive relationship between service quality factors and cost management.

The findings support the hypothesis that service quality factors have a positive and significant impact on cost management. This underscores the importance of improving service quality to optimize costs and enhance operational efficiency.

ANALYSIS OF THE IMPACT OF SERVICE QUALITY FACTORS ON RISK MANAGEMENT

This section evaluates the relationship between service quality factors and risk management. The objective is to determine whether improvements in service quality enhance risk mitigation, compliance, and error prevention. A linear regression analysis was performed, and the results are summarized below.

Regression results: impact of service quality factors on risk management

Predictor	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Constant	-0.3092	0.654	-0.473	0.637	[-1.607, 0.989]
Service Quality Factors	0.3977	0.126	3.15	0.002	[0.147, 0.648]

1. **Constant:**

- The constant coefficient (-0.3092) indicates the baseline level of risk management when service quality factors are absent. This value is not statistically significant ($p = 0.637$), implying that the baseline impact is negligible.

2. **Service Quality Factors:**

- The coefficient for service quality factors is 0.3977, which is statistically significant ($p = 0.002$). This suggests that for every unit increase in service quality factors, risk management improves by 0.3977 units.
- The 95% confidence interval ([0.147, 0.648]) does not include zero, indicating a reliable and positive relationship.

3. **Model Significance:**

- The t-value (3.150) and p-value (0.002) demonstrate that the relationship between service quality factors and risk management is statistically significant, though the effect size is moderate.

The analysis supports the hypothesis that service quality factors positively impact risk management. While the relationship is significant, the relatively moderate coefficient suggests that other factors may also influence risk management outcomes.

ANALYSIS OF THE IMPACT OF SERVICE QUALITY FACTORS ON EXPORT BUSINESS PERFORMANCE

This section investigates the relationship between service quality factors and export business performance. The analysis aims to evaluate whether improvements in service quality dimensions, such as documentation accuracy, response time, and technical expertise, significantly enhance export performance metrics, including client satisfaction and market share. The results of the regression analysis are presented below.

Regression results: impact of service quality factors on export business performance

Predictor	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Constant	0.9927	0.642	1.547	0.125	[-0.281, 2.267]
Service Quality Factors	0.5271	0.124	4.254	< 0.001	[0.281, 0.773]

1. **Constant:**

- The constant coefficient (0.9927) represents the baseline export business performance when service quality factors are absent. However, this value is not statistically significant ($p = 0.125$), indicating no reliable baseline effect.

2. **Service Quality Factors:**

- The coefficient for service quality factors is 0.5271, which is statistically significant ($p < 0.001$). This suggests that for every unit increase in service quality factors, export business performance improves by 0.5271 units.
- The 95% confidence interval ([0.281, 0.773]) confirms the robustness of this estimate, as it does not include zero.

3. **Model Significance:**

- The t-value (4.254) and highly significant p-value (< 0.001) indicate a strong and positive relationship between service quality factors and export business performance.

The findings support the hypothesis that service quality factors have a positive and significant impact on export business performance. This emphasizes the importance of enhancing service quality dimensions to improve client satisfaction, market share, and other performance metrics in export businesses.

ANALYSIS OF THE IMPACT OF SERVICE QUALITY FACTORS ON BUSINESS SUSTAINABILITY

This section examines the relationship between service quality factors and business sustainability. The objective is to determine whether improvements in service quality dimensions positively influence long-term business viability, including client retention, profitability, and expansion. The results of the regression analysis are summarized below.

Regression results: impact of service quality factors on business sustainability

Predictor	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Constant	-0.1929	0.65	-0.297	0.767	[-1.483, 1.098]
Service Quality Factors	0.5876	0.126	4.681	< 0.001	[0.339, 0.837]

1. Constant:

- The constant coefficient (-0.1929) represents the baseline level of business sustainability when service quality factors are absent. This value is not statistically significant (**p = 0.767**), suggesting no reliable baseline effect.

2. Service Quality Factors:

- The coefficient for service quality factors is 0.5876, which is statistically significant (**p < 0.001**). This indicates that for every unit increase in service quality factors, business sustainability improves by 0.5876 units.
- The 95% confidence interval ([0.339, 0.837]) does not include zero, demonstrating the reliability of this positive effect.

3. Model Significance:

- The significant t-value (4.681) and p-value (< 0.001) confirm a strong and positive relationship between service quality factors and business sustainability.

The results validate the hypothesis that service quality factors significantly enhance business sustainability. This finding underscores the importance of investing in service quality improvements to achieve long-term business goals, such as retaining clients and ensuring profitability.

ANALYSIS OF THE IMPACT OF SERVICE QUALITY FACTORS ON OPERATIONAL COMPETITIVENESS

This section explores the relationship between service quality factors and operational competitiveness. The analysis seeks to determine whether enhancements in service quality contribute to a firm’s ability to remain competitive in export markets by improving responsiveness, efficiency, and adaptability. The regression analysis results are detailed below.

Regression results: impact of service quality factors on operational competitiveness

Predictor	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Constant	0.3849	0.63	0.611	0.543	[-0.865, 1.635]
Service Quality Factors	0.4581	0.122	3.767	< 0.001	[0.217, 0.699]

1. **Constant:**

- The constant coefficient (0.3849) represents the baseline level of operational competitiveness when service quality factors are absent. This value is not statistically significant ($p = 0.543$), indicating that no meaningful baseline relationship exists.

2. **Service Quality Factors:**

- The coefficient for service quality factors is 0.4581, which is statistically significant ($p < 0.001$). This implies that for every unit increase in service quality factors, operational competitiveness improves by 0.4581 units.
- The 95% confidence interval ([0.217, 0.699]) does not include zero, confirming the robustness of this positive relationship.

3. **Model Significance:**

- The t-value (3.767) and p-value (< 0.001) provide strong evidence of a statistically significant and positive association between service quality factors and operational competitiveness.

The results support the hypothesis that service quality factors positively impact operational competitiveness. This highlights the critical role of improving service quality in strengthening a business's ability to compete effectively in the export market.

ANALYSIS OF THE IMPACT OF PROCESS EFFICIENCY ON OPERATIONAL COMPETITIVENESS

This section examines the relationship between process efficiency and operational competitiveness. The objective is to evaluate whether improved process efficiency, such as faster customs clearance and better documentation processing, significantly enhances a firm's ability to compete effectively in the export market. The regression analysis results are presented below.

Regression results: impact of process efficiency on operational competitiveness

Predictor	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Constant	2.2747	0.345	6.589	< 0.001	[1.590, 2.960]
Process Efficiency	0.1186	0.089	1.327	0.188	[-0.059, 0.296]

1. **Constant:**

- The constant coefficient (2.2747) represents the baseline level of operational competitiveness when process efficiency is absent. This value is statistically significant ($p < 0.001$), indicating a strong baseline relationship.

2. **Process Efficiency:**

- The coefficient for process efficiency is 0.1186, indicating that for every unit increase in process efficiency, operational competitiveness improves by 0.1186 units. However, this relationship is not statistically significant ($p = 0.188$).

- The 95% confidence interval $[-0.059, 0.296]$ includes zero, further confirming the lack of significance in this association.

3. Model Significance:

- The t-value (1.327) and p-value (0.188) suggest that the relationship between process efficiency and operational competitiveness is not statistically significant.

The results do not support the hypothesis that process efficiency significantly enhances operational competitiveness. While process efficiency is important, its direct impact on operational competitiveness appears to be limited based on this analysis.

ANALYSIS OF THE IMPACT OF COST MANAGEMENT ON OPERATIONAL COMPETITIVENESS

This section investigates the relationship between cost management and operational competitiveness. The analysis aims to determine whether better cost management practices, such as reducing operational and transaction costs, significantly enhance a firm's ability to compete effectively in export markets. The regression analysis results are presented below.

Regression results: impact of cost management on operational competitiveness

Predictor	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Constant	2.2669	0.318	7.134	< 0.001	[1.636, 2.897]
Cost Management	0.1466	0.095	1.549	0.125	[-0.041, 0.334]

1. Constant:

- The constant coefficient (2.2669) represents the baseline level of operational competitiveness when cost management is absent. This value is statistically significant ($p < 0.001$), indicating a strong baseline relationship.

2. Cost Management:

- The coefficient for cost management is 0.1466, indicating that for every unit increase in cost management, operational competitiveness improves by 0.1466 units. However, this relationship is not statistically significant ($p = 0.125$).
- The 95% confidence interval $[-0.041, 0.334]$ includes zero, further suggesting a lack of significance.

3. Model Significance:

- The t-value (1.549) and p-value (0.125) indicate that the relationship between cost management and operational competitiveness is not statistically significant.

The findings do not support the hypothesis that cost management significantly enhances operational competitiveness. While cost management is a critical aspect of operational efficiency, its direct influence on competitiveness appears to be limited based on this analysis.

ANALYSIS OF THE IMPACT OF RISK MANAGEMENT ON OPERATIONAL COMPETITIVENESS

This section examines the relationship between risk management and operational competitiveness. The objective is to evaluate whether robust risk management practices, such as compliance enforcement, error prevention, and contingency planning,

significantly enhance a firm's ability to remain competitive in the export market. The results of the regression analysis are detailed below.

Regression results: impact of risk management on operational competitiveness

Predictor	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Constant	2.624	0.265	9.906	< 0.001	[2.098, 3.150]
Risk Management	0.0109	0.099	0.109	0.913	[-0.186, 0.208]

1. Constant:

- The constant coefficient (2.6240) represents the baseline level of operational competitiveness when risk management is absent. This value is statistically significant ($p < 0.001$), indicating a strong baseline relationship.

2. Risk Management:

- The coefficient for risk management is 0.0109, suggesting that for every unit increase in risk management, operational competitiveness improves by only 0.0109 units. However, this relationship is not statistically significant ($p = 0.913$).
- The 95% confidence interval $[-0.186, 0.208]$ includes zero, further confirming the lack of significance in the relationship.

3. Model Significance:

- The t-value (0.109) and high p-value (0.913) indicate that the relationship between risk management and operational competitiveness is not statistically significant.

The results do not support the hypothesis that risk management significantly enhances operational competitiveness. While risk management is a critical aspect of overall operational efficiency, its direct impact on competitiveness is negligible based on this analysis.

FINDINGS AND RESULT ANALYSIS

The study highlights the significant role of service quality factors in improving operational effectiveness and achieving better export business outcomes.

Improving service quality factors, such as accurate documentation and technical expertise, greatly enhances process efficiency. Clearing and forwarding agents who provide timely and precise services help streamline operations, reduce delays, and improve overall workflow in export processes. Additionally, better service quality helps in cost management by optimizing expenses, reducing unnecessary costs, and ensuring more cost-effective operations.

Service quality also plays a key role in improving risk management. By focusing on compliance, error prevention, and having contingency plans in place, clearing and forwarding agents can effectively mitigate potential risks in the export process. This makes businesses more stable and secure in their operations. Furthermore, enhanced service quality leads to improved export business performance, such as higher client satisfaction, increased market share, and a greater volume of exports.

The findings also emphasize the importance of service quality in ensuring business sustainability. Providing high-quality services helps businesses retain clients, improve profitability, and achieve long-term growth in the competitive export sector.

Moreover, service quality contributes to operational competitiveness, allowing businesses to adapt quickly to market demands, be more responsive to clients, and operate efficiently in highly competitive environments.

However, while operational aspects like process efficiency, cost management, and risk management are essential for stability, their direct influence on competitiveness is limited unless combined with broader strategies. This suggests that businesses should integrate these operational improvements with strategic initiatives to gain a competitive edge.

SUGGESTIONS

To improve the facilitation of export businesses, particularly in the context of Thoothukudi district, the following actionable suggestions are proposed:

1. Businesses should focus on improving service quality by investing in accurate documentation tools and training clearing agents to reduce errors and delays. Streamlined workflows and real-time communication technologies can enhance response times, while regular upskilling in customs regulations and logistics will strengthen technical expertise. Additionally, developing transparent communication protocols can foster trust and collaboration among all stakeholders.
2. Implementing technology to automate processes will help reduce operational costs and minimize errors. Efficient resource allocation, such as optimizing transportation and warehousing, is crucial for cost efficiency. Introducing value-added services, like real-time tracking and data insights, can also enhance client satisfaction and justify service fees.
3. Adopting robust compliance frameworks ensures adherence to regulatory requirements and minimizes penalties. Automated error prevention mechanisms, such as digital validation tools, are essential for reducing risks in documentation. Businesses should also develop contingency plans to handle disruptions, including alternative transportation routes and emergency response strategies.
4. Prioritizing client-centric strategies, such as reliable and high-quality services, can directly enhance metrics like market share and export volume. Building trust through consistent and transparent service delivery fosters long-term relationships, ensuring repeat business and sustained growth.
5. Sustainable practices, such as eco-friendly logistics, can align with global trends and improve competitiveness. Streamlining operations to maintain high-quality services while reducing costs supports long-term profitability. Encouraging innovation in service offerings helps meet changing market demands and retain clients.
6. Strategic initiatives, including collaboration with stakeholders and adopting advanced technologies like AI, blockchain, and IoT, can enhance efficiency and adaptability. Advocacy for improved regional infrastructure, such as upgraded port facilities and transportation networks, is essential to eliminate logistical bottlenecks and better support exporters.
7. Digital platforms and automation should be used to expedite customs clearance and reduce delays. Standardizing and digitizing documentation workflows can significantly improve overall efficiency and accuracy.
8. Cost management and risk mitigation efforts must be integrated to create a stable operational environment that supports competitiveness. Partnerships between exporters, clearing agents, and logistics providers should be encouraged to ensure cohesive and efficient operations.

9. Providing regular training to clearing and forwarding agents in advanced logistics, compliance, and customer relationship management will improve their performance. Knowledge-sharing initiatives, such as workshops and collaborative forums, can address industry challenges and promote best practices.

CONCLUSION

This study underscores the indispensable role that clearing and forwarding agents play in facilitating export businesses, particularly in a highly export-dependent region such as the Thoothukudi district. These agents serve as vital intermediaries in the global trade ecosystem, ensuring seamless interactions between exporters, regulatory authorities, and logistics providers. The research highlights the critical influence of service quality factors including documentation accuracy, response time, and technical expertise on the efficiency and success of export operations. These service quality dimensions are essential in enhancing operational effectiveness, export business outcomes, and overall competitiveness in international markets.

The findings of the study reveal that high service quality contributes significantly to improving process efficiency, ensuring that documentation is completed accurately and shipments cleared in a timely manner. Cost management also benefits from superior service quality, as agents who optimize resource allocation and reduce wasteful expenditures can lower operational costs for exporters. Additionally, risk management practices though moderately influenced by service quality help mitigate potential disruptions arising from non-compliance, documentation errors, and regulatory hurdles.

Export business outcomes, including performance and sustainability, are directly linked to the quality of services provided by clearing and forwarding agents. Businesses with access to reliable and efficient agents enjoy higher client satisfaction, increased export volumes, and enhanced market share. Furthermore, these agents play a critical role in fostering business sustainability by ensuring long-term client retention, supporting profitability, and contributing to the overall growth and viability of export enterprises. These outcomes underscore the importance of clearing and forwarding agents as key drivers of export success.

However, the study also identifies that achieving operational competitiveness requires a more integrated and strategic approach. While service quality improvements are foundational, their impact on competitiveness is amplified when combined with technological advancements, such as real-time tracking systems and automation tools. Stakeholder collaboration emerges as another essential component, as effective partnerships with exporters, customs authorities, and port operators can streamline the entire supply chain. Moreover, innovation in service delivery such as offering value-added services and adopting sustainable practices can further enhance the competitive edge of exporters.

The research also highlights the need for regional enhancements to maximize the contribution of clearing and forwarding agents in Thoothukudi. Infrastructure development, such as improved port facilities, transportation networks, and digital platforms, is critical to reducing logistical bottlenecks and delays. Skill-building programs focused on training agents in the latest technologies and regulatory practices can strengthen their capabilities and service quality. Favorable trade policies, including simplified customs procedures and incentives for exporters, can further bolster the district's position as a key export hub.

By addressing these key areas, clearing and forwarding agents can play an even greater role in supporting exporters to meet the demands of global markets. This study provides actionable insights for businesses, policymakers, and stakeholders,

emphasizing the importance of collaborative efforts to enhance export facilitation. With strategic investments in service quality, innovation, and infrastructure, the Thoothukudi district can solidify its position as a critical player in international trade while promoting sustainable growth and long-term competitiveness in the export sector.

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