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Comparative Analysis Of Thailand And Vietnam's Shrimp Export Competitiveness To The U.S.: Insights From The Revealed Comparative Advantage (RCA) Approach

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Abstract– This study examines and compares the competitiveness of Thailand and Vietnam's shrimp exports to the United States, benchmarking them against key competitors, including India and Ecuador, using the Revealed Comparative Advantage (RCA) index. The analysis utilizes export data from 2019 to 2023, applying the standard RCA formula to assess Thailand and Vietnam's competitive positions in the U.S. market. Findings indicate that Thailand maintains a strong comparative advantage, with RCA values ranging from 1.369 to 1.684, whereas Vietnam's RCA values remain below 0.128, suggesting a lack of competitive advantage in the U.S. market. Thailand's RCA values reflect its well-established shrimp farming industry, despite challenges such as high production costs and structural limitations. Conversely, Vietnam benefits from an advanced shrimp processing sector but struggles with lower export competitiveness, potentially due to higher input costs, trade barriers, or currency fluctuations. A comparative analysis with India and Ecuador highlights key factors contributing to their market dominance, including large-scale production capabilities, cost efficiency, and strong trade relations. To enhance their market positions, Thailand must focus on reducing production costs and adopting sustainable aquaculture practices, while Vietnam should leverage its processing industry to increase value-added exports and explore new market opportunities. The study underscores the importance of trade policies, technological advancements, and supply chain integration in shaping long-term export competitiveness. The findings provide valuable insights for policymakers, industry stakeholders, and researchers seeking to enhance the global competitiveness of shrimp exports. Future research should explore the role of non-tariff barriers, environmental regulations, and consumer preferences in influencing shrimp trade dynamics. By incorporating additional economic indicators and comparative case studies, this research can offer deeper insights into global shrimp trade competitiveness.
Keywords– Shrimp exports, Thailand, Vietnam, Revealed Comparative Advantage, export competitiveness, global trade, aquaculture industry

INTRODUCTION

The industrial sector plays a crucial role in driving a country's economic growth, particularly in Southeast Asia, where Thailand and Vietnam are among the fastest-growing economies. Several factors influence the competitiveness of these two countries, such as government policies, infrastructure, labor, and innovation [1] (World Economic Forum, 2022). While Thailand benefits from its extensive industrial development experience and a robust supply chain network, Vietnam continues to attract foreign investment due to its lower labor costs and effective manufacturing support policies [2] (Nguyen & Tran, 2021). The shrimp industry is one of the key export sectors that exemplifies the dynamics of competition, particularly in the U.S. market. In 2022, Thailand exported approximately USD 1.5 billion worth of shrimp, whereas Vietnam's exports exceeded USD 3.8 billion, accounting for 5% and 7% of the global market share, respectively [3] (FAO, 2023). Changes in the global market, including regulatory frameworks in key trading partners such as the United States and the European Union, significantly influence competition and growth opportunities for both countries' industrial and agricultural sectors.

The concept of competitiveness has evolved from classical economic theories, such as David Ricardo's (1817) Comparative Advantage theory, to Michael Porter's (1990) Competitive Advantage theory, which emphasizes domestic factors that contribute to long-term competitiveness. These theories provide a systematic framework for analyzing industrial potential. Given the importance of comparative advantage

in trade, applying RCA to shrimp exports provides a quantitative assessment of Thailand and Vietnam's market position. The Revealed Comparative Advantage (RCA) index serves as a critical tool for assessing industry competitiveness by comparing an industry's export share to the global market [4] (Balassa, 1965). In the case of Thailand and Vietnam's shrimp exports to the U.S., RCA provides a quantitative measure of each country's relative export strength. A higher RCA value indicates that a country has a stronger comparative advantage in shrimp exports, reflecting its ability to meet market demand efficiently. Analyzing RCA trends over time helps identify shifts in competitiveness and areas for improvement in trade policies and production strategies [5] (Gereffi, 2019). The competitiveness of Thailand's and Vietnam's shrimp industries in the U.S. market between 2019 and 2023 must be analyzed through various dimensions, including market structure, labor availability, and production costs. Related research provides valuable insights into the mechanisms driving industrial growth and the constraints affecting production competitiveness. For instance, [6] Tran et al. (2022) found that Vietnam's government support policies, such as tax reductions and subsidies for shrimp aquaculture technology development, play a crucial role in enhancing the country's competitive advantage. Meanwhile, Thailand faces rising production costs and labor shortages, which limit its competitiveness in the U.S. market [7] (Kasikorn Research Center, 2022). Despite Vietnam's lower labor costs and benefits from international trade agreements, the country still faces challenges in meeting U.S. food safety standards and regulatory compliance, particularly regarding traceability requirements and environmental sustainability measures, which could impact market access in the long run (U.S. Department of Commerce, 2023). In contrast, Thailand has a well-established industrial structure with superior quality control measures but struggles with higher production costs and labor constraints, which may reduce its competitive position in the U.S. shrimp market [7] (Kasikorn Research Center, 2022). Given the competitive pressures outlined above, developing targeted strategies for Thailand and Vietnam's shrimp industries in the U.S. market is essential. This includes formulating policies that respond to trade regulations, integrating digital technologies to improve production efficiency, and fostering industry sustainability to maintain long-term competitiveness. Specifically, adopting blockchain technology for supply chain transparency and traceability could enhance compliance with U.S. import regulations. Furthermore, automation and AI-driven quality control systems could help mitigate labor shortages and reduce production costs. On the sustainability front, implementing eco-friendly aquaculture practices, such as biofloc technology and integrated multi-trophic aquaculture (IMTA), could improve environmental compliance and long-term industry resilience. For example, Ecuador has adopted blockchain technology to improve shrimp traceability, meeting U.S. regulatory standards and increasing consumer confidence [3] (FAO, 2023).

Despite extensive research on trade competitiveness and shrimp aquaculture, gaps remain in understanding the specific factors influencing Thailand and Vietnam's shrimp export dynamics in the U.S. market. Existing studies largely focus on global competitiveness trends or regional production challenges without a detailed comparison of these two key exporters. Additionally, while RCA is widely used to measure comparative advantage, limited research has explored its application in assessing the impact of non-tariff barriers, technological advancements, and sustainability regulations on shrimp exports. Although RCA is a widely used measure, it has limitations. It does not account for government interventions, quality differences, or trade policies that can influence competitiveness beyond export share ratios. This study aims to fill these gaps by providing a focused comparative analysis of Thailand and Vietnam's shrimp industries in the U.S. market, incorporating RCA-based assessments with insights into policy, technological, and environmental factors. Furthermore, this study holds significant implications for business operators and investors in strategizing responses to the continuously evolving market environment. In particular, considering factors that influence market structure and trade barriers in the U.S. is critical. By developing appropriate strategies, both Thailand and Vietnam can adapt more effectively and enhance their competitiveness in the global market. This research, therefore, plays a pivotal role in supporting the expansion of Thailand's and Vietnam's shrimp industries while fostering economic opportunities at both regional and international levels.

LITERATURE REVIEW

The concept of a global economy is multifaceted, particularly in the context of trade competition. David Ricardo's (1817) principle of comparative advantage suggests that countries should specialize in producing goods where they hold a relative efficiency advantage. However, this theory has been widely critiqued for

disproportionately benefiting stronger economies while overlooking the structural limitations of weaker ones. Rodrik (2018) and Baldwin (2020) argue that globalization has shifted trade benefits toward technologically advanced nations, exacerbating economic inequalities. Beyond comparative advantage, trade competitiveness is significantly influenced by factor endowment, particularly labor and capital. The Heckscher-Ohlin (H-O) model expands on Ricardo's framework by proposing that trade patterns are determined by differences in resource endowments rather than productivity differences alone. Marrewijk (2017) critiques the Ricardian model for failing to account for variations in labor and capital across economies, highlighting the need for an expanded framework integrating factor endowment into trade liberalization policies to promote balanced economic development.

Empirical Evidence on Trade Dynamics

Empirical studies on Southeast Asia highlight the challenges associated with trade liberalization. Petri and Plummer (2020) and Menon (2021) demonstrate that ASEAN economies have leveraged regional trade agreements to foster economic growth while facing significant market dependence and trade imbalances. Vietnam's transition to an export-driven economy and Thailand's reliance on regional supply chains further illustrate the complexities of integrating into global trade systems while managing regional dependencies. Meanwhile, structured trade policies, such as the European Union's (EU) institutionalized free trade framework, provide insights into balancing economic benefits across nations (Faccarello, 2017). Despite the theoretical benefits of trade liberalization, its real-world application has been uneven. The elimination of tariff barriers does not always yield equitable benefits, particularly for economies with weaker technological capabilities. The exclusion of agricultural products from trade agreements disproportionately affects economies reliant on agriculture, limiting their competitive advantage in industrial markets. Scholars argue that trade liberalization often favors technologically advanced economies, placing weaker ones at a disadvantage (Wyplosz, 2013). Empirical studies by Rodrik (2018) and Baldwin (2020) reinforce this argument, emphasizing that advanced economies gain disproportionately from globalization while developing economies struggle with structural barriers to integration.

Assessing Trade Competitiveness: The Role of the RCA Index

One of the widely used metrics for assessing trade performance is Béla Balassa's (1965) Revealed Comparative Advantage (RCA) Index. The RCA framework is particularly relevant in sector-specific analyses, such as comparing Thailand and Vietnam's shrimp export performance in the U.S. market. By examining RCA values over time, this approach allows for an assessment of shifting competitiveness due to market conditions, policy interventions, and industry developments. However, the RCA index has faced criticism regarding its methodological limitations. Yeats (1985) and Hinloopen and Van Marrewijk (2001) highlight issues related to time instability and distribution weaknesses in RCA calculations. Moreover, Leromain and Orefice (2013) argue that RCA computations rely on observed trade flows without distinguishing between the factors influencing trade performance, such as production efficiency, resource endowment, or trade policies.

Advancing Trade Analysis Through Alternative Indices

To address these shortcomings, researchers have proposed alternative indices. Cost not et al. (2012) introduced a micro-founded version of Ricardo's comparative advantage model, advocating for refined metrics to improve accuracy. Sanidas and Shin (2007) classify alternative RCA indices into three groups 1) Trade-cum-production indices, which incorporate both trade and production variables (e.g., Lafay Index, 1992). 2) Exports-only indices, which focus purely on export data (e.g., symmetric RCA index, Dalum et al., 1998; weighted RCA index, Proudman & Redding, 2000). 3) Hypothetical scenario-based indices, such as the normalized RCA (Yu et al., 2009). Combining RCA with these alternative indices, particularly the Lafay Index and weighted RCA, could enhance methodological rigor and provide a more robust analysis of shrimp export competitiveness among Thailand, Vietnam, and other key exporting nations. Recent trade statistics highlight shifting trends in the global shrimp export market. According to the Food and Agriculture Organization (FAO) and the United States Department of Agriculture (USDA), Vietnam's shrimp exports to the U.S. have grown significantly in the past five years, while Thailand has faced increased competition from India and Ecuador. India has emerged as the largest shrimp supplier to the U.S., benefiting from cost advantages and expanded processing capabilities. Indonesia has also strengthened its shrimp export position due to sustainable aquaculture practices and strong government support. Incorporating India and Indonesia into the analysis provides a more comprehensive perspective

on global shrimp export competitiveness.The literature indicates that while Ricardo's comparative advantage remains a fundamental concept in international trade, its real-world application is influenced by factor endowment, technological advancement, and trade policies. The Heckscher-Ohlin model provides a complementary perspective by highlighting the role of resource endowment in shaping trade patterns. Moreover, the RCA index serves as a valuable tool for assessing trade competitiveness but requires methodological refinements to address its limitations. Policymakers should consider these insights when designing trade strategies to ensure equitable benefits across economies, particularly for developing nations seeking to enhance their global trade position. Strengthening regional trade agreements, addressing structural constraints, and adopting refined competitiveness metrics could contribute to a more inclusive global trade system. Future research should focus on refining trade indices and incorporating real-time data analysis to better capture the dynamic nature of global trade.

I. METHODOLOGY

The key metric for the empirical analysis is the Revealed Comparative Advantage (RCA) index, which is calculated for Thailand and Vietnam's shrimp exports to the United States. This study examines trade competitiveness trends from 2019–2023 in the U.S. market, utilizing data from the World Trade Organization (WTO) and the Food and Agriculture Organization (FAO) databases. The analysis focuses on shrimp products with an RCA index greater than 1 to determine the comparative advantage of each country. Market data on goods and services were compared to compute the RCA index. The RCA index, also known as the Balassa Index (1965), is a mathematical measure used to assess trade competitiveness. It systematically evaluates the economic standing of a country within a comparative framework. Additionally, this index provides insight into the relative advantage or disadvantage of Thailand and Vietnam's shrimp exports to the U.S., offering a clearer understanding of both countries' competitive potential in the global shrimp export market.

The Balassa index formula is as follows:

$$RCA_{ij} = \left(Z_{ij} / Z_j\right) / \left(Z_{iw} / Z_w\right)$$

The Revealed Comparative Advantage (RCA) index for a given commodity i in country j is defined as follows:

Z_{ij} represents the export value of commodity i from country j.

Z_j represents the total export value of country j.

Z_{iw} represents the global export value of commodity i.

Zw represents the total global export value.

A country is considered to have a revealed comparative advantage in a specific commodity if RCA > 1, indicating that the country exports the commodity at a relatively higher proportion compared to the global average. Conversely, if RCA < 1, the country is considered to have a comparative disadvantage, suggesting that its share of exports for that commodity is lower than the global average.

Limitations of the RCA Index

While the RCA index is a useful tool for measuring comparative advantage, it has certain limitations. It does not account for production costs, trade policies, exchange rates, or non-tariff barriers, which can significantly impact trade competitiveness. Additionally, RCA measures relative performance rather than absolute economic strength, meaning that a high RCA value does not necessarily indicate a high overall export volume. These limitations should be considered when interpreting the results.

Factors Influencing RCA

The competitiveness of Thailand and Vietnam in shrimp exports to the U.S. is shaped by multiple factors, including industrial structure and trade strategies. Trade liberalization policies, infrastructure development, and government support for export-oriented industries play a crucial role in enhancing RCA. In contrast, agricultural factors, such as farm productivity and feed costs, have a relatively lower impact. The hypothesis tested in this study suggests that industrial policies and trade strategies contribute more significantly to the RCA of shrimp exports than agricultural conditions.

Economic Implications

A high RCA in shrimp exports can have broader economic implications for Thailand and Vietnam. A sustained comparative advantage can lead to job creation, increased foreign direct investment, and expansion in the seafood processing industry. Additionally, it can strengthen supply chain linkages and enhance the countries' long-term competitiveness in the global seafood market. Policymakers can leverage these insights to design strategic interventions that promote sustainable growth in the shrimp export sector.

Hypotheses Tested

H1: Countries with RCA > 1 in shrimp exports to the U.S. tend to have higher competitiveness and economic growth compared to countries with lower RCA values.

H2: The competitiveness of Thailand and Vietnam in shrimp exports to the U.S. is influenced more by industrial structure and trade strategies than by agricultural factors.

II. RESULTS

This study aims to analyze the competitiveness of shrimp exports from Thailand and Vietnam to the United States using the Revealed Comparative Advantage (RCA) index. This index helps identify which country demonstrates a competitive edge in this product category compared to global trade patterns. The analysis incorporates export data from key shrimp-exporting countries, including China, India, Vietnam, Thailand, and Ecuador, which are major players in the global shrimp export market. The study covers the period from 2019 to 2023, with details as follows.

Figure 1: *Global Shrimp Export by Country (2019-2023)*

Figure 2: *Global Shrimp Export Value by Country (2019-2023)*

Global Shrimp Export Trends

Figures 1 and 2 illustrate the export volume trends of major shrimp-exporting countries worldwide from 2019 to 2023. The data reveal significant shifts in export dynamics, with India and Ecuador maintaining the highest export volumes and successfully retaining their market shares. Although Vietnam and Thailand export comparatively lower volumes, both countries have sustained their market presence, with Vietnam exhibiting a stronger recovery trend. Meanwhile, China's export volume has been more volatile, experiencing declines during certain periods. India and Ecuador's dominant market positions reflect their strong competitiveness in the global shrimp trade. While Vietnam and Thailand have similar export values, Vietnam benefits from a more advanced shrimp processing industry, which enhances value-added exports and contributes to a stronger growth outlook compared to Thailand. However, Thailand faces

structural challenges, including high production costs and industry constraints, leading to fluctuations in export volumes.

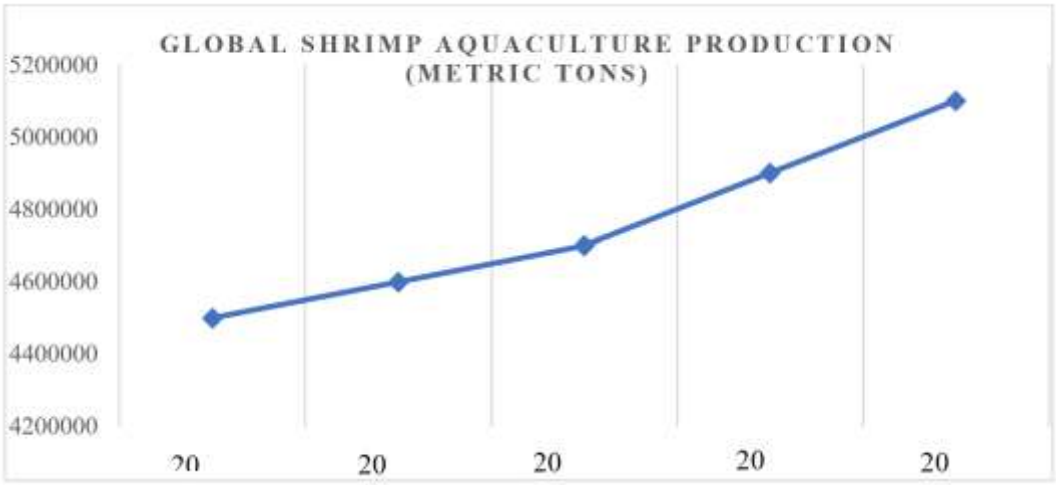

Figure 3: Global Shrimp Aquaculture Production (2019-2023) (Metric Tons)

Global Shrimp Aquaculture Production

According to the global shrimp aquaculture production trend illustrated in Figure 3, the production volume has shown a continuous upward trajectory. The initial production level was approximately 4,450,000 metric tons, and it has steadily increased over time, reflecting growing demand and the expansion of the shrimp farming industry. This growth has been influenced by various factors, including advancements in technology, improved farm management practices, and environmental policies. The increase in shrimp production may be linked to rising global demand, particularly in high-consumption regions such as China, the United States, and Europe.

Competitiveness Analysis of Thai and Vietnamese Shrimp Exports

In analyzing the export competitiveness of Thai and Vietnamese shrimp to the U.S. market using the RCA index, it is essential to incorporate data from Table 1, which measures the proportion of shrimp exports to the U.S. relative to total exports (Table 2), as well as import volume data (Table 3) and total import value (Table 4). These data points are crucial for assessing the degree of import dependency and the role of domestic industries in enhancing competitiveness.

Table 1: Shrimp Export from Thailand and Vietnam to the U.S. (2019-2023) (Unit: Million USD)

Year	Thai Shrimp Export	Vietnam Shrimp Export
2019	4,500,000,000	500,000,000
2020	4,700,000,000	490,000,000
2021	4,900,000,000	520,000,000
2022	5,100,000,000	550,000,000
2023	5,300,000,000	570,000,000

Table 2: Total Export Value of Thailand and Vietnam (2019-2023) (Unit: Million USD)

Year	Total Export Thai	Total Export Vietnam
2019	246,244,000,000	264,200,000,000
2020	231,468,000,000	282,700,000,000
2021	271,173,000,000	336,300,000,000
2022	287,066,000,000	371,300,000,000
2023	281,937,000,000	354,700,000,000

Table 3: Shrimp Import Value of Thailand and Vietnam (*2019-2023) (*Unit: Million USD)

Year	Shrimp Import Thai	Shrimp Import Vietnam
2019	423,000,000	620,000,000
2020	398,000,000	590,000,000
2021	450,000,000	670,000,000
2022	480,000,000	710,000,000
2023	460,000,000	690,000,000

Table 4: Total Import Value of Thailand and Vietnam (2019-2023) (Unit: Million USD)

Year	Total Import Thai	Total Import Vietnam
2019	32,000,000,000	42,000,000,000
2020	33,000,000,000	43,000,000,000
2021	35,000,000,000	45,000,000,000
2022	37,000,000,000	47,000,000,000
2023	38,000,000,000	46,000,000,000

Table 5: Revealed Comparative Advantage (RCA) of Thai and Vietnam Shrimp Exports

Thai (Z_{ij} / Z_j)	Vietnam (Z_{ij} / Z_j)	Thai (Z_{iw} / Z_w)	Vietnam (Z_{iw} / Z_w)	RCA Thai	RCA Vietnam
0.018	0.002	0.013	0.015	1.382	0.128
0.020	0.002	0.012	0.014	1.684	0.126
0.018	0.002	0.013	0.015	1.405	0.104
0.018	0.001	0.013	0.015	1.369	0.098
0.019	0.002	0.012	0.015	1.553	0.107

The analysis of the Revealed Comparative Advantage (RCA) index follows the concept proposed by Balassa (1965), which is calculated based on the ratio of a country's specific product exports to the proportion of the same product's exports in the global market. An RCA value greater than 1 (RCA > 1) indicates that the country has a comparative advantage in exporting that product, whereas an RCA value less than 1 (RCA < 1) suggests that the country lacks a competitive advantage in that sector. When comparing the RCA values of Thailand and Vietnam, as presented in Table 5, the results indicate that Thailand's RCA values range between 1.369 and 1.684, whereas Vietnam's RCA values range between 0.098 and 0.128. These findings clearly demonstrate that Thailand possesses a significant comparative advantage in exporting shrimp to the U.S. market, whereas Vietnam does not exhibit a comparative advantage in this market. To enhance competitiveness, Thailand and Vietnam can adopt several strategic measures. Thailand needs to address structural challenges such as high production costs and industry constraints by investing in technological innovations, improving efficiency in shrimp farming, and reducing reliance on imported feed and raw materials. Furthermore, government policies that support sustainable aquaculture and international trade agreements could strengthen Thailand's position in the global shrimp market. Vietnam, despite its lower RCA values, has opportunities to improve its competitive standing by leveraging its advanced shrimp processing industry. Strengthening supply chain integration and expanding export markets beyond the U.S. could provide Vietnam with long-term advantages. Additionally, policies that encourage investment in aquaculture infrastructure and quality control measures could enhance Vietnam's global competitiveness. Comparing Thailand and Vietnam with other leading shrimp-exporting nations such as India and Ecuador provides further insights into competitive dynamics. India and Ecuador's dominant positions in the market are attributed to large-scale production capacities, cost-efficient farming techniques, and strong trade relationships with major importers. Thailand and Vietnam must identify best practices from these competitors, such as adopting cost-effective production techniques and diversifying export destinations to mitigate risks associated with dependence on a single market. This study highlights the competitiveness of shrimp exports from Thailand and Vietnam to the U.S. market. While Thailand maintains a comparative advantage based on

the RCA index, addressing structural inefficiencies will be crucial for sustaining this advantage. Vietnam, despite facing competitive disadvantages, can enhance its position by leveraging its strengths in shrimp processing and expanding its global market reach. Future research should explore the role of non-tariff trade barriers, environmental regulations, and consumer preferences in shaping the competitiveness of shrimp exports. Furthermore, incorporating additional economic indicators and case studies from other leading shrimp exporters would provide a more comprehensive analysis.

III. DISCUSSION AND CONCLUSIONS

The competitiveness of shrimp exports from Thailand and Vietnam to the U.S. market was assessed using the Revealed Comparative Advantage (RCA) index, a widely recognized measure of a country's relative advantage in specific products (Chan, 2022; Do & Vu, 2023). RCA values greater than 1 (RCA > 1) indicate a competitive advantage, whereas values below 1 (RCA < 1) suggest a weaker position relative to global trade patterns (Tran & Le, 2022; Bui & Nguyen, 2024). However, RCA analysis alone is insufficient for a comprehensive evaluation. As Malik et al. (2023) highlight, additional factors such as production costs, technological capacity, and sanitary standards must be considered. Thailand consistently exhibits RCA values above 1, reflecting its strong position in shrimp exports to the U.S. This aligns with Tungkunanon et al. (2023), who emphasize Thailand's advanced aquaculture technology, robust traceability systems, and adherence to international sanitary standards. Moreover, Rizki et al. (2025) note that Thailand's extensive trade networks in major markets such as the U.S., Japan, and the EU contribute to its sustained competitiveness. In contrast, Vietnam's RCA values remain below 1, indicating a weaker competitive position. This may be due to higher production costs and food safety standards that have yet to meet international benchmarks (Do & Vu, 2023). However, the industry is evolving. Nguyen et al. (2024) suggest that ongoing structural improvements in production and sanitary measures could enhance Vietnam's long-term competitiveness. Government initiatives, such as investments in aquaculture technology and stricter sanitary standards, are steps toward improving its position (Banh, 2023). Nonetheless, challenges persist, including high raw material costs and disease outbreaks, which undermine efficiency (VASEP, 2024). Given the significance of the U.S. market, Vietnam must enhance its shrimp farming technology and regulatory compliance to improve its RCA value. Beyond production and trade efficiency, external factors influence RCA outcomes. Trade policies, currency exchange rates, and shifts in U.S. consumer demand impact competitiveness. For instance, changes in U.S. import tariffs or stricter sanitary regulations could disproportionately affect Vietnam, given its lower compliance rate compared to Thailand. Similarly, fluctuations in exchange rates can alter export profitability, affecting RCA scores over time. As demand for sustainably farmed shrimp grows in the U.S., adherence to certifications such as GlobalGAP and Best Aquaculture Practices (BAP) will become increasingly crucial. To maintain its lead, Thailand should continue prioritizing high standards in shrimp farming while investing in product innovation and premium branding (Malik et al., 2023). Expanding e-commerce and digital platforms in the U.S. could diversify market channels and reduce reliance on large importers (Tungkunanon et al., 2023). Vietnam, on the other hand, must accelerate technological advancements in aquaculture. Implementing Recirculating Aquaculture Systems (RAS) and obtaining internationally recognized certifications will enhance product quality and safety (Do & Vu, 2023). Government support in industry education, statistical data collection, and traceability enforcement is essential to mitigating disease risks and boosting consumer confidence (Nguyen et al., 2024). Limitations and Future Research Directions While RCA is a useful measure of trade competitiveness, it has limitations. It does not account for supply chain constraints, government subsidies, or market access barriers, all of which influence real-world trade dynamics. Future research should incorporate complementary methods, such as gravity models and stochastic frontier analysis, to provide a more holistic understanding of competitiveness. The RCA framework remains a valuable tool for assessing shrimp export competitiveness, but it must be supplemented with broader economic and policy considerations. Thailand's strong RCA performance is driven by technological advancements and established trade networks, while Vietnam faces challenges but shows potential for improvement. Policymakers should implement targeted strategies to enhance industry competitiveness, ensuring sustainable growth in the global shrimp market.

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