DOI: https://doi.org/10.55164/ecbajournal.v17i2.274200

Assessing the Competitive Advantage of Rubber Exports in Songkhla Province, Thailand

Nattaya Chotikul[1*] and Patitta Gosalvitra[2]

Received : 15/05/2024
Revised : 27/06/2024
Accepted : 29/08/2024

Abstract

This research utilized a phenomenological approach in qualitative methodology to assess the competitive advantage of rubber exports in Songkhla Province, Thailand. Conducting in-depth interviews with key informants from 11 factories—including business owners, export managers, and marketing managers, totaling 33 cases—and representatives from two government research institutes, the study applied the Diamond Model to evaluate the business competitiveness of the region. Findings revealed that Songkhla Province boasts significant competitive advantages, such as a strategic location favorable for goods transportation, a robust operating budget, and an organizational structure that supports effective management. Moreover, the local abundance of rubber trees satisfied domestic demand, thereby positioning Thailand advantageously in the global market. The research suggested that both entrepreneurs and the public sector in Songkhla Province should focus on developing blocked rubber and enhancing the competitiveness of smoked sheets and concentrated latex exports, areas where the province had demonstrated substantial capability. It was also imperative to promote research and development in the quality of para-rubber and related products to forge a competitive edge in international markets. Following the post-COVID-19 recovery, there was still a consistent demand for rubber from foreign markets, albeit with stiff competition. To address this, the government sector should explore new markets or engage in diplomatic negotiations to expand trade channels, thus facilitating access for local exporters to burgeoning foreign market demands. Moreover, government intervention was necessary to regulate the production of smoked rubber sheets and alleviate the burden of high production costs on entrepreneurs.

Keywords: Rubber, Export, Competitiveness, Diamond Model

Introduction

Southern Thailand's agricultural sector exhibits robust competitiveness, underpinned by the region's advantageous climatic conditions. Characterized by high humidity and a bimodal seasonal pattern, comprising distinct rainy and mild summer

[1] Faculty of Economics and Business Administration, Thaksin University
[2] Faculty of Multidisciplinary Sciences and Entrepreneurship, Thaksin University
* Corresponding author: E-mail: nattaya.c@tsu.ac.th

seasons, the area benefits from temperate conditions due to sea breezes from both coastlines. Encompassing approximately 72,000 square kilometers or 13.5 percent of the national territory, this region extends from Chumphon Province in the north to Narathiwat and Yala Provinces in the south. It plays an important role in international trade, particularly through Songkhla Province, which emerges as a critical export hub for commodities including rubber, rice, bananas, mangoes, and other fresh produce. In 2019, the province's trade activity predominantly with Malaysia, achieved an export value of 20,913.20 million baht, representing 98.43 percent of the Thai-Malaysian border trade and 77.64 percent of Songkhla's total international trade. Particularly, natural rubber was the foremost export, valued at 4,616.04 million baht, followed by manufactured rubber goods at 2,217.32 million baht, accentuating the region's significant contribution to the national economy (Songkhla Provincial Commercial Office, 2019).

Table 1 Top 10 Export Products Through Songkhla
(Padang Besar, Sadao and Ban Prakob Customs House)

Products	2019 Value (million baht)	2021 Value (million baht)	2023 Value (million baht)
Rubber	4,616.04	5,964.93	5,460.16
Rubber products	2,217.32	3,487.32	3,513.29
Video player, Speaker and parts	2,101.40	855.02	1,580.67
Car engine ignition	1,962.16	1,747.55	669.68
PC and parts	1,724.29	3,271.95	2,572.45
Woods and wooden products	1,359.22	1,865.38	1,564.64
Electric circuit	753.35	892.80	971.34
Cars and parts	643.76	457.24	1,188.69
Machine and parts	460.60	458.05	596.22
Miscellaneous industrial products	252.03	-	-

Source: Songkhla Provincial Commercial Office (2023)

Table 1 presents that rubber plantation products are a primary source of revenue for Songkhla Province, highlighting the significant role of entrepreneurs, both individuals and organizations, in propelling the local economy. Initially, the province hosted 11 exporters, as noted in the 2018 Thai Trade list of exporters-importers (Thai Trade, 2018). Despite being the country's second-largest rubber-producing area after Surat Thani, Songkhla faces relatively low domestic competition due to established market relationships and efforts to expand these connections for a greater market share. Over the past 16 years, production has shown an upward trend, reflecting sustained growth (Songkhla Provincial Statistical Office, 2019). This backdrop compels researchers to explore strategies for enhancing the rubber export sector, focusing on production efficiencies and competitive factors to optimize export performance.

Yet, despite Songkhla province's significant role in rubber exports, the sector experiences considerable volatility due to several factors. These include insufficient advances in production technology and a growing number of competitors, compounded by production shortfalls that fail to meet market demands. Recent challenges such as the COVID-19 pandemic have exacerbated these issues over the last two to three years. In response, strategic measures and guidelines are necessary to address these challenges and to enhance various aspects of the rubber export business, from improving production quality to ensuring readiness across multiple sectors. Research from the Bureau of Agricultural Economics (2018) emphasizes the importance of these interventions, aiming to explore the economic potential of agricultural products in supporting the ASEAN Economic Community. This alignment with research findings is crucial for developing effective strategies that strengthen the province's export capacity in the face of ongoing and future challenges.

The competitiveness of rubber exports from Thailand is influenced by several factors including rising demand, economic variables such as government export subsidies, inflation, interest rates, rubber prices, and foreign exchange rates. The diamond model offers a critical analytical framework for assessing these dynamics, as proposed by Ansonfino et al. (2021). This model not only elucidates factors that enhance the competitiveness of rubber exports but also identifies comparative advantages, thereby aiding in the assessment of a country's export potential. According to Lestari et al. (2022), enhancing export volumes plays a crucial role in national survival, fostering competitiveness within global markets.

This study explores Thailand's competitiveness in the natural rubber sector amidst escalating competition from burgeoning rubber producers such as Vietnam, which have been capturing significant market shares in the global arena. Building on the findings of Sattayawaksakul and Choi (2017), the analysis assesses Thailand's evolving competitiveness and emphasizes the strategic necessity for adaptation to shifting market conditions and effective leveraging of competitive advantages. Similarly, the research draws parallels with Lerdloompheephan's (2018) study on Thailand's mango exports, which, utilizing the Diamond Model, concluded that Thailand's competitiveness in mango exports has been increasing relative to the Philippines and India. The study highlighted the importance of addressing challenges and obstacles for continuous development, emphasizing product quality enhancement, adherence to seasonal timings, and ensuring safety to maintain and improve timely access to global markets.

Moreover, the study aligns with Chausuwan's (2023) comparative analysis of durian export opportunities to China between Thailand and Vietnam, which revealed Thailand's technological superiority in enhancing durian production efficiency through the implementation of smart sensors and IoT systems, unlike Vietnam. The current analysis aims to explore strategies to enhance the competitiveness and efficiency of

Thailand's rubber export business, with a particular focus on maintaining and expanding Thailand's market share in the international natural rubber arena. Drawing insights from Kamaludin (2018) and Usman et al. (2021), this research seeks to identify specific problems and obstacles within the rubber export sector of Songkhla Province, particularly those related to export processes and product management. The objective is to provide actionable guidelines for export business operators to develop and promote the potential of the export business, ensuring the sustainability of Thailand's natural rubber industry against the backdrop of global market dynamics and competitive pressures.

Objectives

1. To study and assess the level of competitive advantage of the rubber export business in Songkhla Province.

2. To examine the problems and obstacles in assessing the competitive advantage of the rubber export business in Songkhla Province.

3. To explore strategies for developing the competitive advantage of the rubber export business in Songkhla Province

Literature Review

This research employs Porter's Diamond Model to analyze the competitive advantage of the agricultural export sector in Songkhla Province, incorporating six key factors: factors conditions, demand conditions, related and supporting industries, firm strategy, structure and rivalry, governmental influences, and chance events or force majeure. These components collectively provide a comprehensive framework for understanding the dynamics of competitiveness, enabling the identification of challenges and barriers specific to the agricultural export industry in the region. This model facilitates a detailed examination of how various factors contribute to or hinder the competitive positioning of Songkhla Province's agricultural exports on a global scale.

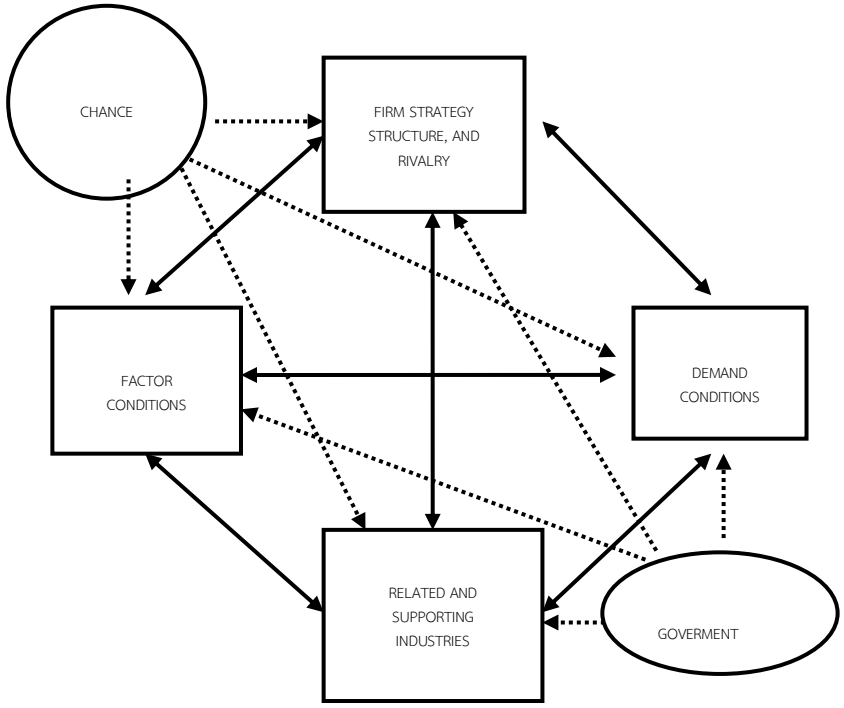

Figure 1 Porter Diamond Concept - Framework for Understanding Competitiveness (Porter, 1998).

Lerdloompheephan (2018) used the Diamond Model as a conceptual framework to analyze the competitiveness of Thailand's mango exports against those of the Philippines and India. The findings indicated that Thailand's mango export competitiveness has significantly increased in the global market. The study stressed the importance of addressing emergent challenges and obstacles to ensure the continuous improvement and development of the mango export sector. This involves enhancing the quality of the produce, ensuring alignment with seasonal market demands, and maintaining stringent safety standards to guarantee timely exports to the global market. In a similar vein, Chausuwan (2023) compared the export opportunities for durian to China between Thailand and Vietnam, utilizing the Diamond Model for data analysis. The research revealed that Thailand holds a competitive edge over Vietnam due to its adoption of advanced technologies, including smart sensors and IoT systems, which significantly enhance durian production efficiency. In contrast, Vietnam has not yet implemented such technologies in production.

Further extending the application of the Diamond Model, Uraisripong and Wonginta (2023) analyzed the pepper value chain in Chanthaburi Province. They identified the upstream process as a critical factor influencing the volume of pepper production, with many farmers transitioning to more lucrative and stable crops due to rising cultivation costs and high labor charges. Challenges in the midstream and downstream processes, including complex processing, limited technology adoption, price control by large- scale operators, and weak bargaining power among small

entrepreneurs, also contributed to the production decline. The researchers suggested strategies to revitalize the pepper value chain, including establishing quality standards to bolster confidence in Thai pepper on international markets and recommending governmental intervention through a pepper price guarantee system to support local farmers.

1. Factor conditions

Figure 1 elucidates the concept of factor conditions as delineated in Porter's framework, highlighting their pivotal role in influencing a nation's production and service sectors. These conditions encompass a range of resources critical for economic activity: human resources, including the educational and training systems that enhance workforce capabilities and academic skills; physical resources, such as factories, machinery, and infrastructure integral to energy and transportation; knowledge resources, which involve innovation, research and development, and the acquisition or dissemination of technological know-how; and capital resources, which include investment capital, financial systems, and access to financial services. Porter stresses the transformation of these resources—from basic and natural to more complex and competitive assets—as essential for securing a competitive edge. This transformation can lead to reduced production costs, enhanced product quality, skilled labor, advanced technologies, ease of financing, and state-of-the-art machinery and equipment. Moreover, the specialized knowledge and techniques applied in production management are vital. Collectively, these factors significantly bolster a country's competitive position in the global market by enhancing the capabilities of its production and service sectors.

2. Demand conditions

Demand conditions are a critical aspect of a nation's economic framework, referring to the domestic demand for goods and services. A robust and expanding domestic market can significantly enhance a country's appeal as a business destination compared to nations with smaller or stagnant markets. More than just the size of the market, the intensity and nature of demand are crucial; countries where demand for products is high tend to be more successful. These conditions are not only shaped by the size and growth of the domestic market but also by the characteristics of domestic buyers and the evolution of their needs. In environments where domestic buyers are among the most sophisticated and demanding globally, local companies are compelled to continuously improve and innovate. This relentless push to enhance product quality and service delivery equips companies to meet and often exceed the stringent requirements of international markets, thereby securing a competitive advantage. This dynamic fosters an ecosystem where continual product and service upgrades become the norm, preparing firms to tackle global market challenges effectively.

3. Related and Supporting Industries

The concept of related and supporting industries highlights the significance of domestic suppliers and complementary industries in enhancing a firm's competitive edge. This notion encompasses the development and integration of a network of industries that are either directly or indirectly linked to various sectors, forming an industrial cluster. Such clusters consist of interconnected companies, including private firms, associations, suppliers, customers, and support institutions like universities, banks, training centers, and other business service providers. The presence and robustness of these clusters foster a competitive supply chain and contribute to the overall competitiveness of a sector. Competitive advantage is thus derived from the strength and synergy of these supporting industries and suppliers, which collectively enhance the operational efficiency and innovation capacity of firms within the cluster. This interconnectedness not only supports but also drives the competitive dynamics of the industries involved, enabling them to adapt swiftly to market changes and new technologies.

4. Firm strategy, Structure and Rivalry

The concept of firm strategy, structure, and rivalry, integral to Porter's Diamond Model, points out the role of domestic competition in shaping business efficiency and market success. In environments where domestic competition is intense, only the most adaptable and robust firms survive. This survival of the fittest prompts companies to develop effective management structures and systems that foster the creation of high-quality products and innovative designs that resonate with consumer preferences. As these firms continuously strive to outperform their rivals, they naturally evolve towards higher production efficiencies and greater responsiveness to market demands. Consequently, such competitive pressures not only drive improvements in product quality and operational efficiency but also ensure that firms are well-prepared to compete on a global scale. This dynamic ultimately enhances the overall competitiveness of the industry and contributes to sustained economic growth.

5. Government

In Porter's Diamond Model, the role of the government is fundamental as it transcends and influences all four determinants of national advantage. Porter (1990) posits that the government should act neither as a direct provider nor as a passive observer but rather as a catalyst or challenger that shapes the competitive environment. Through strategic policies and initiatives, the government can stimulate, guide, and intensify the competitive drive of private enterprises. By establishing regulations and frameworks that encourage innovation, efficiency, and market expansion, the government can create a conducive environment for businesses to enhance their product offerings and market reach. This, in turn, amplifies their competitiveness on an international scale. Guan et al. (2019) further illustrate that enterprises that adeptly

leverage these government policies and opportunities are better positioned to refine their competitive edge and achieve sustained success in global markets.

6. Chance

Chance events represent unpredictable and uncontrollable occurrences that can significantly impact competitive dynamics within the market and other elements of Porter's Diamond Model. These random incidents may alter existing market standings and shift the competitive advantage landscape. Examples of such chance events include groundbreaking new inventions, major technological breakthroughs, sudden political changes in external environments, and shifts in foreign market demand. Each of these occurrences has the potential to reshape industry norms and business strategies abruptly and dramatically. As they are beyond the foresight and control of both enterprises and governments, their impacts can be profound, necessitating agile responses and strategic adaptability from businesses to maintain or enhance their competitive positions.

Methodology

1. Research Design

This study employed a qualitative research method to examine the rubber export industry in Songkhla province. Data were sourced from the Thai trading base and a list of exporters-importers (Thai Trade, 2018). A purposive sampling method was employed to select participants from 11 large-scale rubber export factories. The selection criteria focused on entrepreneurs engaged primarily in the rubber export process. Data collection involved interviews and questionnaires, with a total of 33 participants, including 11 business owners, 11 export managers, and 11 marketing managers the qualifications required are that they must be businesses exporting rubber to foreign countries, dealing with primary rubber products, and be large-scale enterprises to ensure the validity of the data, a triangulation method was applied, which included: 1) verification of data accuracy concerning places, persons, and times; 2) the involvement of multiple data analysts to review the field data; and 3) cross-referencing the collected data with additional sources such as two research and development institutes, a manager from the Thai Concentrated Latex Association, and an export lecturer. This comprehensive approach aimed to gather detailed insights into the challenges and barriers faced by the rubber export sector in Songkhla Province.

The rubber industry is a major export industry in Songkhla province. The main competitors are Vietnam, Indonesia, and Malaysia. Vietnam has low labor costs, while Indonesia and Malaysia have large quantities of high-quality latex. Moreover, they are all ASEAN countries. Therefore, Songkhla province should increase its competitiveness. A crucial factor in enhancing competitiveness and export potential is government support. This depends on how export promotion policies are implemented to address

weaknesses and maintain strengths. The government must develop rubber products and add value to products made from natural rubber.

2. Research Instruments

This study employed a qualitative research method using in-depth interviews in the form of interviews and closed-ended questionnaires, divided into four distinct parts to ensure comprehensive data collection: (a) Part 1 collected personal status information including gender, age, education level, company establishment period, registered capital, workforce size, and monthly business profits. The questions in this section were closed-ended, allowing for a single response choice. (b) Part 2 focused on identifying and addressing export challenges and obstacles, incorporating a six-faceted inquiry based on Porter's Diamond Model (Porter, 1998). This included an examination of factors conditions, demand conditions, related and supporting industries, firm strategy, structure and rivalry, governmental influences, and chance events influencing the competitive advantage in the rubber export business. (c) Part 3 The transportation processes involved in exporting goods, an essential aspect of logistical management. (d) Part 4 solicited input on problems requiring external agency intervention and gathered additional recommendations for sector improvement. This section was also divided into three parts. Firstly, it addressed personal status information, including gender, age, education level, establishment period of the company, registered capital, number of workers, and monthly profit. Secondly, it examined the competitive advantage of the rubber export business, focusing on production factors such as demand metrics, industry relationships, strategic approaches, competitive landscape, governmental influence, and potential scenarios, utilizing a 5-level Importance Scale derived from Porter's diamond model theory (Porter, 1998). Lastly, it included open-ended questions seeking additional suggestions.

3. Data collection and analysis

Data collection and analysis for this study were methodically structured and executed in two primary phases: review data and field data. The field data were gathered through comprehensive in-depth interviews complemented by observations and the administration of questionnaires to all participants. In the review data phase, the researcher employed a robust triangulation approach to ensure the validity and reliability of the collected information. This involved three specific triangulation strategies: 1) Methods Triangulation, which integrated observation with interviews and document analysis to enhance the depth and breadth of data collection; 2) Source Triangulation, which assessed the accuracy of the data by comparing inputs from various sources collected using the same methodology; and 3) Theoretical Triangulation, which applied multiple theories and conceptual frameworks to interpret the data, thereby enriching the analysis. Data were transcribed verbatim and analyzed concurrently with collection, followed by a comprehensive synthesis using descriptive analysis techniques.

This multi-faceted approach facilitated a thorough exploration of the dataset, enabling a nuanced understanding of the research questions.

To ensure data accuracy, the researcher employed the triangulation method, collecting data categorized into three distinct groups. The researcher first derived theoretical data from secondary sources, which involved an extensive review of domestic and international research on rubber export capabilities. Second, experiential data were gathered from in-depth interviews with 33 business owners, export managers, and marketing managers, supplemented by insights from a manager at the Thai Concentrated Latex Association. The third category combined both theoretical and experiential data, sourced from two research and development institutes as well as an expert lecturer specializing in future export forecasting. This comprehensive approach facilitated a robust analysis of the rubber export sector, addressing potential problems and obstacles within the industry.

4. Ethical Consideration

Throughout the data collection and research dissemination phases, stringent ethical standards were upheld to protect the rights and privacy of all informants. At the outset, the researcher clearly introduced himself and explained the objectives of the study, including detailed disclosure of the interview questions to the participants. Informed consent was sought for recording responses using a voice recorder and for the participation in the study itself. Confidentiality was rigorously maintained, with the assurance that personal identifiers would be anonymized, and the information gathered would not be misused or result in any negative impact on the participants. Furthermore, informants were empowered to withhold responses to any questions they felt uncomfortable with, ensuring their autonomy and comfort throughout the research process. These measures safeguarded the ethical integrity of the study while respecting the dignity and rights of all participants involved.

Results

1. The level of competitive advantage of the rubber export business in Songkhla Province

Table 2 offers a thorough assessment of the competitive advantage in the rubber export business within Songkhla Province, covering various determinants from Porter's Diamond Model. The descriptive statistics presented include mean scores, standard deviations, and categorical levels of advantage, enabling a precise evaluation of how each component contributes to the sector's competitiveness.

Starting with the Production factor, the overall score is high (M = 4.06, SD = 0.39), indicating a strong competitive position influenced by several sub-factors. The location suitability for transporting goods scores the highest (M = 4.42, SD = 0.66), suggesting optimal logistical advantages. However, technology utilization in the production process,

while still rated high, shows the lowest mean (3.67) and highest deviation (0.98) within this category, indicating some variability in its application or effectiveness across different operations. Demand factors also reflect a highly competitive advantage (M = 3.93, SD = 0.52), with international demand showing a particularly high mean (4.17) but also a high deviation (0.93), pointing to significant potential tempered by variability in market conditions.

The Supporting industrial factors show a high overall rating (M = 3.83, SD = 0.71), but with noticeable variance among the sub-factors. For instance, related industries like rubber gloves and automotive wheels score a moderate level of competitive advantage (M = 3.42, SD = 1.44), highlighting potential weaknesses in industry integration or innovation. In contrast, logistic and supply chain support is robust (M = 4.08, SD = 0.79), underscoring strong infrastructural backing. The Firm Strategy, Structure, and Rivalry factor is another strong area (M = 4.03, SD = 0.54), with all sub-factors scoring high, indicating effective organizational structures and strategic planning.

Government factors, however, reflect a moderate competitive advantage (M = 3.48, SD = 0.78), with significant discrepancies in effectiveness; financial support is viewed positively (M = 3.75, SD = 0.86), whereas the ability to resolve export challenges is rated lower (M = 3.17, SD = 1.03). This suggests that while some government initiatives are effective, others may need reassessment or enhancement. Lastly, Uncontrollable factors are highly rated (M = 4.27, SD = 0.53), reflecting the significant impact of external events like pandemics and market fluctuations on the industry. High scores in this category (e.g., Pandemic outbreak, M = 4.50, SD = 1.16) demonstrate the sector's exposure to and the need for strategies to mitigate these risks.

In essence, while the rubber export business in Songkhla Province shows overall high competitiveness, the variability in certain areas, especially technological application, government support, and industry collaboration, points to opportunities for strategic improvement to ensure sustained competitive advantage in the global market.

Table 2 Descriptive Statistics

Condition of advantage competition	Mean	Deviation	Level
1. Factor condition	**4.06**	**0.39**	**High**
1.1 Skilled workforce	3.83	0.57	High
1.2 Develop and train personnel	3.83	0.83	High
1.3 Has a location suitable for transporting goods	4.42	0.66	High
1.4 Has a budget for operations	4.33	0.65	High
1.5 Utilizes technology in the production process	3.67	0.98	High
1.6 Quality products such as latex, TSR, and smoke rubber sheet	4.25	0.75	High
2. Demand factor	**3.93**	**0.52**	**High**
2.1 an increase in domestic demand	3.75	0.75	High

Condition of advantage competition	Mean	Deviation	Level
2.2 an increase in international demand	4.17	0.93	High
2.3 an increase demand in new markets	3.58	0.90	High
2.4 A sufficient rubber for domestic demand	4.25	1.13	High
2.5 A sufficient rubber for international demand	3.92	1.08	High
3. Supporting industrial factors	**3.83**	**0.71**	**High**
3. 1 There are logistic & supply chain industries that provide support	4.08	0.79	High
3. 2 There are other related industries such as rubber gloves, medical gloves, and automotive wheels etc.	3.42	1.44	Moderate
3. 3 Industries related to the rubber industry still lack collaboration in terms of elevating innovation or new product development	3.83	1.19	High
3.4 The rubber industry has a good cooperation with the other industries, which have always been supportive and relevant.	3.92	1.24	High
3. 5 Supporting and related industries have processes or guidelines for producing new industrial patterns. The rubber industry ensure it is ready to adapt a seamless workflow	3.92	0.99	High
4. Firm Strategy Structure and Rivalry factor	**4.03**	**0.54**	**High**
4. 1 The business has a structure suitable for effective management	4.25	0.75	High
4.2 Has a clear and advantageous export system	4.00	0.85	High
4.3 Bringing knowledge and expertise from past work to solve the current problems effectively	4.00	0.85	High
4.4 Up to date strategies	3.83	0.71	High
4.5 continuously improvement and planning strategy	4.08	0.90	High
4.6. Productive logistics system	4.00	0.60	High
5. The government factor	**3.48**	**0.78**	**Moderate**
5.1 Support the export business financially	3.75	0.86	High
5.2 Help and fix the problems and obstacles for export	3.17	1.03	Moderate
5.3 Support and encourage the export rubber business	3.33	1.37	Moderate
5.4 Provides training to enhance the capability of the rubber export	3.33	0.98	Moderate
5.5 Give importance to rubber as economic crops for export	3.83	1.19	High
6. Uncontrollable factors	4.27	0.53	High
6.1 Price fluctuation that affects the export	4.25	1.21	High
6.2 Pandemic outbreak	4.50	1.16	High
6.3 International exchange rates	4.25	0.62	High
6.4 National disasters, flooding, storm and earthquakes	4.08	1.08	High
Total	**3.93**	**0.58**	**High**

Source: Authors' calculations from survey.

Table 3 synthesizes qualitative data to delineate the competitive advantages and disadvantages impacting the rubber export business, offering a broad perspective on the factors that shape the industry's operational landscape and market positioning.

1. Factor Conditions

The rubber export sector benefits significantly from a range of favorable factor conditions. Low labor costs enhance profitability and competitive pricing, while the cooperation of a rubber association or union fosters a collaborative industry environment that can advocate effectively for collective interests. The availability of rich natural rubber resources provides a foundational advantage, ensuring raw material security. Additionally, seasoned expertise in natural rubber exports enriches the industry's capability to manage international trade effectively. Government support and well-developed transportation routes further fortify this framework, facilitating smoother operations and logistics. However, these advantages are countered by critical disadvantages such as the inconsistent quality of latex, which necessitates the use of chemicals to meet quality standards, thereby increasing production costs and complicating sustainability efforts. Furthermore, the high production costs of smoked sheet rubber and the ongoing challenge to maintain consistent quality highlight the need for enhanced process controls and technological upgrades.

2. Demand Condition

The sector enjoys a robust demand for natural rubber, driven by various industrial applications globally, which supports sustained business growth. However, this demand has also intensified the bargaining power of customers, given the competitive market dynamics and the availability of alternative suppliers, compelling rubber exporters to continuously innovate and improve their product offerings to maintain customer loyalty and market share.

3. Supporting and Related Industries

There is significant collaboration within the natural rubber industry, which aids in shared technological advancements and operational best practices, strengthening the overall sector's competitiveness. Nevertheless, the rise of synthetic rubber poses a substantial threat as it serves as an alternative to natural rubber, potentially diverting market share. Additionally, high transportation costs present a logistical and financial challenge, impacting the profitability and price competitiveness of natural rubber exports.

4. Firm Strategy, Structure, and Rivalry

Strategic advantages such as early market entry and alignment with customer quality requirements have positioned firms favorably within competitive markets. These strategies enable companies to establish strong market footholds and adapt swiftly to changing consumer demands. Yet, the rubber export market is characterized by increasing competition, necessitating ongoing innovation and strategic agility to navigate

competitive pressures effectively. Nevertheless, the rubber industry continues to face significant barriers to entry due to the high volatility of the market, which is concentrated in only a few export markets, and the limited domestic processing capabilities. The current market conditions are further exacerbated by an excess supply of rubber. Additionally, trade dynamics are continually challenged by the residual effects of the COVID-19 pandemic and the anticipated downturns in the global economy, presenting ongoing and future obstacles for the sector. These factors collectively hinder the expansion and stability of the rubber market.

5. Chance

Opportunistic factors such as the increased demand for natural rubber products amid the pandemic have temporarily boosted sales and market expansion. In contrast, external events like the Russia-Ukraine War have escalated oil prices, significantly inflating transportation costs and thus affecting the cost structures of rubber exporting operations, highlighting the vulnerability of the sector to global geopolitical and economic fluctuations.

6. Government

Government initiatives providing financial assistance and prioritizing agriculture as an economic sector are invaluable, yet the lack of targeted measures to stimulate exports specifically in the rubber sector points to a gap in policy effectiveness. This lack of support could hinder the sector's ability to compete internationally, suggesting an area for policy enhancement. Insights from business owners, export managers, and marketing managers further accentuate the necessity for more focused governmental intervention to bolster the competitiveness of the rubber industry in global markets.

Table 3: Identification of the Advantages and Disadvantages of the Rubber Export Business

Competitive advantage	**Disadvantage**
Factor Conditions:	
1.Low labor costs 2. Co-operative a rubber association or union 3. Rich natural rubber resources in the area 4.The experienced in natural rubber export 5. Get a government support 6. A convenient transportation routes	1. Inconsistent quality of latex, chemicals need for latex quality. 2.Inconsistency to maintain quality 3. Smoked sheet rubber has high cost of production
Demand condition:	
The greater demand for natural rubber	The bargaining power of customers. due to the higher competition
Supporting and Related Industries:	
The collaboration in the natural rubber industry	Synthetic rubber is replacing natural rubber high transportation costs to export
Firm strategy, Structure and Rivalry:	
1. Entering the market before the others	The increased competition of exports

Competitive advantage	Disadvantage
2. Customer requirement where the development of quality was aligned	
Chance:	
High demand for products made from natural rubber due to the pandemic	The Russia-Ukraine War has high oil prices, impacting transportation costs
Government:	
1. Government assistance in finance 2. The Government has prioritized as economic agriculture	Government has not stimulate export

Source: Author's analysis of the survey.

2. The problems and obstacles in creating the competitive advantage of an export business

The qualitative data analysis discloses a range of problems and obstacles that hinder the creation of a competitive advantage in the export business. Each challenge impacts various aspects of the supply chain, operational efficiency, and market expansion efforts.

1. Public Health Concerns: The outbreak of diseases poses significant risks, disrupting workforce availability and operational capacities in the manufacturing sector. This situation highlights the export sector's vulnerability to global health crises, which can halt production, affect workforce stability, and have a long-term impact on competitive advantage. The rubber industry is experiencing steady growth in both production and demand. Production is expected to increase due to increased cultivation areas and favorable climate conditions, while supply from Indonesia and Malaysia has not fully recovered due to labor shortages. Demand is increasing in line with related industries both domestically and internationally, especially the use of natural rubber to substitute synthetic rubber, whose price has risen due to increased crude oil prices in the world market during the Russia-Ukraine war for 2023-2024. The business is expected to grow further, driven by demand from related manufacturing industries such as the automotive sector (including investment in electric vehicle production as per government support plans), rubber gloves, medical equipment, and investment in infrastructure that tends to expand, supporting rubber demand in the construction sector. Meanwhile, government measures to maintain rubber price stability will contribute to the industry's security.

2. Labor and Supply Chain Instabilities: The export industry faces a continual shortage of labor exacerbated by health crises, alongside volatile rubber prices, fluctuating foreign exchange rates, and natural disasters such as floods, storms, and earthquakes. These factors collectively destabilize production schedules, increase

operational uncertainties, and impede the regular flow of goods, thereby complicating export activities.

3. Increased Transportation Costs: The Russo-Ukrainian war has led to a significant rise in oil prices, directly impacting transportation costs. This increase in overheads places additional financial pressure on exporters, squeezing margins and making cost management more challenging. Nonetheless, the industry still faces risks from competition with rival countries in CLMV that can rapidly expand their market share, as well as increasingly stringent non-tariff barriers (NTBs) in international trade.

4. Logistics Challenges: International logistics face their own set of challenges, including container shortages and escalating freight rates, particularly affecting shipments to and from key markets such as the European Union, the United States, and China. The production slowdown in new shipping containers in the U.S., delays in container turnover, and stricter inspection protocols further compound these logistical hurdles.

5. Raw Material Volatility: Critical raw materials like semiconductors, steel, and oil exhibit price volatility and shortages, impacting the production capacity for export goods. This volatility not only affects production timelines but also inflates costs, making pricing strategies more complex.

6. Supply Bottlenecks: Production levels are often insufficient to meet demand, particularly in ASEAN countries and Thailand, where the rising costs of raw materials and imported products align with increased transportation costs. Such bottlenecks lead to higher overall production costs, influencing the pricing strategies and competitive positioning of export goods.

7. Government Support and Market Expansion: There is a perceived deficiency in government efforts to stimulate exports and explore foreign markets. Entrepreneurs express a need for more robust government support, including assistance in negotiations to enhance market demand overseas, suggesting a gap in policy and practical support for exporters.

8. Geopolitical Impacts on Resources: The ongoing war has a direct impact on the availability and pricing of oil, which is a critical input for transportation and production across multiple industries. This geopolitical instability results in increased uncertainties and introduces operational challenges for exporters, as highlighted by business owners, export managers, and marketing managers. These conditions complicate the business environment, forcing companies to navigate fluctuating resource costs and unpredictable market dynamics, thereby affecting their strategic planning and competitiveness on the global stage.

3. Strategies for Enhancing the Competitive Advantage of the Rubber Export Business in Songkhla Province

The rubber industry serves as a cornerstone of Songkhla Province's export economy, facing stiff competition from ASEAN neighbors such as Indonesia and Malaysia.

To bolster its competitive edge, Songkhla must focus on several strategic initiatives, predominantly supported by robust government actions. Central to these initiatives is the enhancement of government export promotion policies, which should aim to mitigate existing weaknesses and amplify strengths within the sector. The government's role is crucial in fostering product development and adding value to goods derived from natural rubber, thereby stimulating demand, and expanding the base of export entrepreneurs.

There is a critical need for infrastructural improvements, particularly in upgrading port facilities to international standards, which will significantly aid local exporters in enhancing their competitive capabilities. Post-COVID-19, there is an anticipated recovery in global production across downstream industries, such as rubber gloves, latex pillows, condoms, and medical rubber products. These sectors are expected to experience a resurgence, which Songkhla could capitalize on to boost its export figures. Additionally, the government can stimulate domestic demand for rubber by integrating it into infrastructure projects, such as rubber dams and road safety installations, further supporting the local industry.

Songkhla should strategically prioritize the development of specific rubber types, particularly blocked rubber, and intensify efforts to compete in the export markets for smoked sheets and concentrated latex, areas in which it already demonstrates substantial capability. Promoting research and development to enhance the quality of para rubber and related products is crucial for securing a competitive advantage in the global market. However, a significant challenge emerges from the practices of Chinese entrepreneurs who bypass local export channels by directly purchasing rubber from Thai farmers and middlemen. This practice not only undermines local exporters but also threatens the sustainability of the rubber export sector in Songkhla, necessitating the implementation of stringent government regulations to protect the interests of domestic businesses and ensure the long-term viability of this industry, as indicated by insights from business owners.

Discussion

The analysis of the Production factor in this study reveals a strong competitive position for Songkhla Province, highlighted by a high overall score influenced by several sub-factors. The location's suitability for transporting goods receives the highest score, suggesting optimal logistical advantages. However, the utilization of technology in the production process, while still rated highly, exhibits the lowest mean and highest deviation within this category, indicating variability in its application or effectiveness across different operations. Additionally, Demand factors are robust, reflecting a significant competitive advantage, especially with international demand scoring a particularly high mean. Meanwhile, Supporting industrial factors, such as related

industries like rubber gloves and automotive wheels, demonstrate a moderate level of competitive advantage, revealing room for improvement.

The study also assesses Government factors, which show a moderate competitive advantage with significant discrepancies; financial support is viewed positively, whereas the ability to resolve export challenges is rated lower. Utilizing the Diamond Model, the analysis identifies significant potential for Songkhla Province to develop into a major rubber hub, suggesting that governmental intervention in regulating the production of smoked rubber sheets is crucial due to their high costs. The government is also recommended to promote the environmental benefits of products made from natural para rubber, such as their biodegradability and non-pollutive nature, to enhance public and consumer acceptance. A commitment from the government to robust policy development, strategic planning, and effective implementation can substantially increase the export potential of rubber, thereby augmenting national income. This aligns with findings by Jitchaipoom (2021) and Victor (2023), who note that the rubber industry is a key export sector for Thailand, primarily catering to industrially advanced nations such as China, the EU, the USA, and Japan. However, while government strategies aim to align the Thai rubber industry with global business trends, there remains a gap in critical export promotion information essential for leveraging the ASEAN Economic Community and the 2015 Free Trade Agreement effectively. This study advocates for up-to-date information and policy planning that not only focuses on enhancing production and market systems but also on bolstering the competitiveness of the Thai rubber industry, ensuring a comprehensive strategic approach to achieve tangible outcomes in the development and global positioning of Thailand's rubber sector.

The Diamond Model, applied to analyze the competitiveness of the rubber export industry in Songkhla Province, identifies several key factors influencing its performance. These factors are ranked in descending order of impact: (1) chance, (2) factor conditions, (3) firm strategy, structure, and rivalry, (4) demand conditions, (5) related and supporting industries, and (6) government. This ranking framework highlights the multifaceted nature of the industry's competitive environment and emphasizes the varying degrees of influence these elements have on export dynamics. This analysis is corroborated by the research of Pornpeerawit and Suwanasap (2022), who identified eight critical factors affecting rubber exports via border roads in Songkhla Province. These include production factors, demand factors, strategic factors, organizational structure and competition, economic factors, political factors, social factors, technology factors, and transportation factors. The broad range of factors identified by Pornpeerawit and Suwanasap extends beyond the traditional Diamond Model, suggesting a complex interplay of both internal industry conditions and external environmental influences that shape the export landscape. Their findings further delineate the specific contexts

affecting the rubber industry: (1) the general situation of rubber in Thailand, which provides an overarching view of the industry's national context, and (2) the particular dynamics of rubber export by road through Songkhla Province, which highlights localized challenges and opportunities. This dual perspective is essential for developing targeted strategies that address both broad and specific competitive pressures, thereby enhancing the industry's overall resilience and performance in the global market.

Within the framework of the Diamond Model, the role of the government is pivotal in enhancing the rubber export sector's competitiveness. A key strategic move for the government would be to actively engage in market exploration and negotiation with partner countries. Such efforts would aim to broaden trade channels and facilitate access to new foreign markets, thereby enabling exporters to boost demand for their products internationally. This approach not only helps in expanding market reach but also supports the sustainability and growth of the rubber industry. This perspective aligns with the findings of Meliany and Novianti (2022), who highlighted the Thai government's significant investment in the development and expansion of rubber plantations. The government's commitment to increasing the area under rubber cultivation is a clear indication of its strategy to support the industry's foundational growth. By augmenting the physical capacity for rubber production, the government lays a solid base for enhancing supply capabilities, which, when coupled with aggressive market expansion strategies, can significantly propel the country's position in the global rubber market. This dual approach of bolstering both supply and demand sides underlines a comprehensive strategy to strengthen the rubber sector's global competitiveness.

Furthermore, the production of smoked rubber sheets in Thailand is marked by high costs, presenting significant challenges for entrepreneurs who sometimes must halt production due to unsustainable expenses. This situation necessitates a strategic reevaluation and control of smoked rubber sheet production to align costs with market demands and competitive pressures. The research conducted by Srithongkul and Muangdee (2016) supports this observation, noting that while Thailand has expanded its production of smoked rubber and concentrated latex, it faces challenges related to production quality and costs when compared to regional competitors like Indonesia and Malaysia. Given these issues, it is critical for Thailand to enhance the production and export capabilities of each type of rubber, with particular emphasis on block rubber, which could offer more sustainable margins and competitive advantages. Additionally, improving the competitive stance of smoked sheet rubber and concentrated latex is crucial. This involves not only optimizing production processes to reduce costs but also investing in research and development to enhance the quality of rubber and rubber products. Such efforts are essential to strengthen Thailand's position in international markets, particularly in China, where the demand for high-quality rubber products continues to grow. Implementing these strategies will help mitigate the cost

disadvantages and bolster Thailand's overall competitive advantage in the global rubber export market.

Implication of the Findings

The following can be considered as the implication of the findings:

1. Quality Management and Cost Analysis

Entrepreneurs must prioritize maintaining high-quality rubber production to meet international standards. Concurrently, the government should address the economic sustainability of smoked rubber sheets, which, despite high production costs, remain in demand in Europe and Japan. To this end, government agencies and marketing experts need to assess production costs and market trends critically. This analysis should identify factors impacting exports and help forecast market directions. Such insights will equip producers with the necessary information to adjust strategies effectively and prevent future disruptions in export activities.

2. Diversification and Environmental Sustainability

In response to the increasing substitution of synthetic rubber, entrepreneurs should be encouraged to process raw natural rubber into finished products, adding value and diversifying offerings. The government should establish and enforce production standards to ensure environmental sustainability and support the competitiveness of natural rubber. Such measures would help secure a stable market position against synthetic alternatives, protecting the livelihoods of local farmers and exporters.

3. Collaboration and Strengthening Industry Alliances

There is a critical need for domestic entrepreneurs to unite, enhancing their collective bargaining power and minimizing competition. The government should facilitate this collaboration by organizing exchanges and learning opportunities with global counterparts in major rubber-producing and exporting nations. This approach would foster knowledge sharing on efficient production and export practices and establish the government's role in coordinating and supervising these cooperative efforts in line with national policies.

4. Market Expansion and Policy Reform

Government bodies responsible for policy-making should implement strategies to overhaul the market structure to identify and penetrate new export markets. This involves diplomatic engagements to expand market demand and potentially organizing a rubber auction market to manage competitive pressures effectively. Such initiatives are crucial for replacing lost market share and supporting sustainable economic growth within the rubber industry. These efforts should be continuous and adaptive to the changing dynamics of global trade and market demands.

Suggestions for Future Research

Future research should explore the impact of government policies aimed at enhancing the value of natural raw rubber through the processing and export of value-added rubber products. It is essential to assess how these policies influence the export behaviors and strategies of companies involved in rubber processing. Studies should evaluate the economic benefits of such policies, as well as the challenges faced by exporters in adapting to these changes. This research would provide valuable insights into the effectiveness of policy measures designed to promote higher-value products within the rubber industry.

Additionally, there is a significant need for comprehensive information collection from international buyers and partners involved in the rubber trade. Understanding their satisfaction levels, requirements, and concerns can offer critical insights into the needs of rubber importers. Future studies should also analyze the import dynamics and assess the competitive risks faced by Thai rubber in markets with high demand, such as Europe and Russia. This analysis would be crucial for developing strategic initiatives aimed at increasing the export value of Thai rubber, diversifying export markets, and reducing the risks associated with fluctuating demand. Such research would contribute to enhancing Thailand's stability and presence in the global rubber market under varying economic conditions.

References

Ansonfino, A., Zusmelia, Z., Dahen, L. D., & Puteri, Y. E. (2021). Diamond Model and Competition of Rubber Export Markets: Evidence from Sumatra Economic Growth Center. *International Scientific Journal. AGRIS on-line Papers in Economics and Informatics, 13*(1), 15-27. https://doi.org/10.7160/aol.2021.130102.

Bureau of Agricultural Economics Research. (2018). *Agricultural Economy*. Retrieved from https://www.oae.go.th/view/1.

Chuasuwan, A., Sornsuwit, P., Tappandee, N., Wattanathanitkul, C., Srimuntha, O., Raksapol, N., Boonchu, I., &. Sueudom, A. (2023). Comparing the Export Opportunities of Durian to China Between Thailand and Vietnam. *Journal of Management Science Review, 25*(3), 242-259.

Guan, Z., Xu, Y., Jiang, H., & Jiang, G. (2019). International Competitiveness of Chinese Textile and Clothing Industry: A Diamond Model Approach. *Journal of Chinese Economic and Foreign Trade Studies, 12*(1), 2-19. https://doi.org/10.1108/JCEFTS-01-2018-0003.

Jitchaipoom, K. (2021). *The Analysis of Export Market Expansion of Thai Rubber Industry* (Master Thesis). Arts Program in Managerial Economics, Faculty of Economics, Srinakharinwirot University. Thailand.

Kamaludin, R. (2018). Competitiveness and Exports Sustainability of the Indonesian Natural Rubber. *Sriwijaya International Journal of Dynamic Economics and Business*, *2*(1), 85-98. https://doi.org/10.29259/sijdeb.v2i1.%25p.

Lerdloompheephan, P. (2018). The Competitiveness of Thailand's Exports in Mangoes Compered to Philippines and India. *Journal of Humanities and Social Sciences Thonburi University, 13*(2), 68-77.

Lestari, E. K., Pramono, J. F., & Indrawati, Y. (2022). Analysis of West kalimantan Rubber Export Competitiveness to China. *Journal Research of Social Science Economics and Management, 1*(8), 996-1006. https://doi.org/10.36418/jrssem.v1i8.122.

Meliany, B. S., & Novianti, T. (2022). Competitiveness of the Top 15 Main Export Destinations of Indonesia's Natural Rubber for 1991 - 2020. *Jurnal Manajemen & Agribisnis, 19*(1), 37-47. http://dx.doi.org/10.17358/jma.19.1.37.

Pornpeerawit, P., & Suwanasap, N. (2022). Factors Affecting the Ability to Export Rubber Through Border Roads Songkhla Province. *Business Administration and Language Journal, 10*(1), 38-52.

Porter, M. E. (1998). *The Competitive Advantage of Nation*. New York: Free Press.

Songkhla Provincial Commercial Office. (2019). *Summary of Thai-Malaysian Border Trade and International Trade*. P.L.A, Songkhla Provincial Commercial Office.

Songkhla Provincial Statistical Office. (2019). *Songkhla Province Statistical Report*. Provincial Statistical Information Center. Retrieved from http://service. nso.go. th/nso/web/contact/contact04.html.

Songkhla Provincial Commerce Office. (2024). *Attachment Summary of Border Trade Situation Jul.21*. https://www.songkhlachamber. org/wp-content/uploads Retrieved on June 20, 2024

Songkhla Chamber of Commerce. (2024). *Top 10 Import-Export Products (Border Trade) Passing Through Songkhla Customs Checkpoints, January 2023*. https://www. songkhlachamber.org/บทความและfactsheet/10- Rank- Imported goods/ Retrieved on June 20, 2024

Srithongkul, S., & Mueangdee, N. (2016). Analysis of Thailand's Para Rubber Export Capability Using Advantage Index Theory by Comparing Appearances and Diamond Replicas. *Proceedings of the 12th National and International Academic Conference*. Surat Thani Rajabhat University, Thailand.

Srithongkul, S. (2016). Analysis of Thailand's Rubber Export Performance Using RCA Index and Diamond Model. *Proceedings of the 12th National and International Academic Conference*. Surat Thani Rajabhat University, Thailand.

Tanielian, D. (2018). Sustainability and Competitiveness in Thai Rubber Industries. *The Copenhagen Journal of Asian Studies, 36*(1), 50-78. https://doi.org/10.22439/cjas.v36i1.5512.

Tengsuwan, P., Inthong, A., & Sunthornsanit, W. (2022). The Competitiveness of the Thai Rubber Industry in the People's Republic of China Market. *Executive Journal, 42*(1), 79-93.

Thai Trade. (2018). *List of Exporters and Importers*. Retrieved from https://Tradereport.moc.go.th/TradeThai.aspx.

Uraisripong, A,. & Wonginta,T. (2023). The Analysis of Pepper Value Chain of Chanthaburi Province. *Journal of Management and Development Ubon Ratchathani Rajabhat University, 10*(1), 21-36.

Usman, M., Rezekina U., Baihaqi, M., & Srihandayani, A. (2021). Analysis of Export Competitiveness of Natural Rubber from Indonesia and Thailand in the International Market. *Economit Journal: Scientific Journal of Accountancy, Management and Finance*, *1*(4), 220-230.

Victor, A. (2023). Indonesia Natural Rubber Export Competitiveness Analysis in World Export Market. *Hasanuddin Economics and Business Review, 3*(6), 47-55.