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# Indonesian and Malaysian Palm Oil Exports Encountered Uncertainty in International Trade Amid the COVID-19 Pandemic

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## Abstract

*This paper analyzes the export performance of Indonesia and Malaysia in global, Chinese, and Indian markets during the uncertain global trade caused by the pandemic. The RCA index was utilized to evaluate the level of competitiveness, while the CMS analysis helped determine the key drivers behind the growth of palm oil exports. Although there was a downward trend overall, Indonesia maintained a higher degree of competitiveness compared to Malaysia in both the global and Chinese markets. An interesting observation is the decline in Indonesia's RCA index value from 2019 to 2021, despite an increasing trend in export market share during the pandemic. The CMS analysis indicates that Indonesia and Malaysia benefited from positive effects in terms of global export growth and commodities. This shows that both countries successfully adapted to global market challenges, particularly regarding environmental sustainability. However, Indonesia showed positive competitiveness effect values in both periods, while Malaysia had negative values. This suggests that Indonesia increased its market share during that period while Malaysia experienced a decline in market share. The implications of these findings highlight the urgent necessity for both governments to fortify downstream industrial policies, ensure strict compliance with environmental sustainability standards, and adapt to shifting global market preferences to sustain long-term competitive advantages.*

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## 1. Introduction

Palm oil is a highly strategic commodity for both Indonesia and Malaysia, serving as a primary pillar for their national economies. In Indonesia, the palm oil sector contributes significantly to the Gross Domestic Product (GDP), generates substantial foreign exchange earnings, and provides livelihoods for millions of smallholder farmers and plantation workers. Similarly, in Malaysia, palm oil is a cornerstone of the agricultural sector and a critical export revenue generator. During the COVID-19 pandemic, this strategic industry faced unprecedented challenges, including severe logistical bottlenecks, labor shortages due to border closures, and highly volatile shifting demands in the global market.

The COVID-19 pandemic had a significant impact on global trade, leading to a decline in its volume (United Nations, 2022). The imposition of travel restrictions, border closures, and lockdowns in many countries disrupted supply chains, production, consequently, the movement of goods and services was disrupted, leading to a significant drop in global trade during the initial phase of the pandemic. Numerous countries experienced reductions in both their export and import activities. The demand for non-essential consumer products, vehicles, and jewelry decreased, while the demand for medical products and essential goods increased (Arriola et al., 2022). The pandemic also caused disruptions in global supply chains, with restrictions on the movement of goods, factory closures, and difficulties in sourcing raw materials affecting production and the availability of goods in international markets (United Nations, 2022).

The pandemic also caused disruptions in global supply chains, with restrictions on the movement of goods, factory closures, and difficulties in sourcing raw materials affecting production and the availability of goods in international markets (United Nations, 2022). The COVID-19 pandemic has brought significant changes to global trade patterns (Barbero et al., 2021). Some countries have increased their domestic production to mitigate potential supply chain risks, while others have looked to expand their trading partnerships (Arriola et al., 2022). Certain nations have also implemented additional tariffs and trade barriers to safeguard their domestic industries, which may lead to trade tensions among countries.

The pandemic has created a lot of uncertainty and market volatility, forcing businesses and investors to adapt to rapidly changing conditions that can affect investment decisions and trade strategies (Arriola et al., 2022). As per a study conducted by Arriola et al. in 2022, the initial expectation of a double-digit decline in world merchandise trade in 2020 due to the pandemic did not come to fruition. Surprisingly, global trade volume has recovered to the pre-pandemic level at a breakneck pace, starting from around mid-2020. Based on OECD calculations from the CPB World Trade Monitor (2023), both the

volume of world trade and industrial production experienced a sharp V-shaped recovery, dipping significantly in early 2020 before rebounding steeply to surpass pre-pandemic baselines by 2021.

The overall performance of global trade appears positive, but there are significant differences in performance across various products, economic sectors, and trading relationships. The trade collapse of early 2020 did not affect all products equally, and the global trade system did not experience equal growth across all parts (Arriola et al., 2022). For instance, the COVID-19 pandemic had both positive and negative effects on global trade in palm oil commodities, influenced by factors such as changes in consumer behavior, supply chain disruptions, and government policies (Murphy et al., 2021). The pandemic caused palm oil prices to fluctuate significantly due to factors like fluctuating demand, supply chain disruptions, and uncertainty surrounding the global economic outlook. Exporting countries, particularly those in Southeast Asia, faced challenges related to disruptions in shipping and logistics, while importing countries struggled to secure stable supplies amidst uncertainties.

Exporting countries, particularly those in Southeast Asia, faced challenges related to disruptions in shipping and logistics, while importing countries struggled to secure stable supplies amidst uncertainties. The pandemic reignited concerns about sustainability and the environmental impacts linked to palm oil production, especially regarding deforestation and the destruction of natural habitats (Murphy et al., 2021). Some consumers and companies increased their focus on sustainable and deforestation-free palm oil. During the pandemic, several governments introduced policies to aid the palm oil sector. These included monetary support, incentives for exports, and initiatives to ensure plantation activities continued.

Despite the challenges, global trade in palm oil commodities continued during the pandemic. Palm oil is a widely used and versatile commodity, and its demand remained relatively resilient. Indonesia's palm oil output has shown steady growth over time, enabling the country to export crude palm oil (CPO) to nearby nations such as China, India, and the Netherlands (Alatas, 2015). Palm oil commodities hold considerable importance in global trade, with Indonesia and Malaysia serving as the primary producers, accounting for approximately 85% of the world's supply. Both nations are key players in the international market and simultaneously act as competitors (Arsyad et al., 2020). The land area dedicated to cultivating this commodity in both Indonesia and Malaysia has been expanding annually, resulting in a rise in production levels (Alatas, 2015). Compared to alternative commodities, palm oil offers several benefits, including lower costs, widespread availability, and a wide range of uses.

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Assessing the competitiveness of the palm oil trade in the global market presents significant challenges (Tandra et al., 2022). Although earlier studies have conducted preliminary evaluations involving various exporting and importing nations, such as the work by Tandra et al. (2022), which applied descriptive analysis, panel regression, stability tests, and the Kaplan-Meier method to explore the determinants, consistency, and duration of competitiveness from 1996 to 2019, limited attention has been given to the specific effects of the global recession and the COVID-19 pandemic on the export performance of Indonesia and Malaysia.

This study offers a unique contribution by adopting a more focused approach, utilizing an expanded RCA Index and CMS analysis to assess the export performance of palm oil amid the market uncertainties brought about by the pandemic. The research aims to apply both the RCA index and CMS analysis, which serve as complementary tools in this context (Escaith, 2021). In this study, our approach is to offer an all-inclusive comprehension and explanation of the exceptional events that took place in international trade during the pandemic. This differs from the CMS Analysis found in many past studies, which measured the growth effect of exports in percentage units. Instead, we analyze the impact of global export growth, commodities, and competitiveness on the absolute value of palm oil exports.

To provide a clear direction for this analysis, the study formulates the following research questions: (1) How did the competitiveness of palm oil exports from Indonesia and Malaysia shift during the pandemic compared to the pre-pandemic era? (2) What were the main drivers influencing the growth of palm oil exports for both countries during these uncertain times? Consequently, the objective of this research is to comprehensively analyze the export performance and competitiveness of palm oil from Indonesia and Malaysia between 2017 and 2021, and to empirically identify the factors driving export growth using the RCA index and CMS analysis across both pre-pandemic and pandemic periods.

## 2. Literature Review

### 2.1 Theoretical Framework and Concepts

The principle of comparative advantage is widely credited to the English economist David Ricardo and his 1817 work *On the Principles of Political Economy and Taxation*, though it is believed that his mentor, James Mill, may have first developed the concept. Comparative advantage is a key idea in economic theory and underpins the belief that all parties can benefit from cooperation and voluntary trade. It also serves as a fundamental concept in international trade theory. Despite facing theoretical challenges and some incorrect assumptions, the concept of comparative advantage remains broadly accepted within mainstream economics (Rassekh, 2018).

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Alatas (2015) To identify trends in palm oil production and its market value, as well as the export volume and value of Indonesian crude palm oil (CPO), it is essential to examine the factors affecting Indonesia's CPO exports and assess the advantages of Indonesian CPO. This analysis used annual data subjected to regression techniques to estimate key influencing factors. Additionally, the Revealed Comparative Advantage (RCA) and Acceleration Ratio (AR) methods were applied to evaluate Indonesia's competitive position in the global palm oil market. The findings revealed that Indonesia's CPO RCA value exceeded the global average, indicating a strong market share and competitive strength internationally. Moreover, the growth rate of Indonesian CPO exports has accelerated, outperforming other countries worldwide with an AR value of 1.009.

Kamaludin (2018) conducted a study on the export competitiveness of Indonesian natural rubber by applying the revealed comparative advantage (RCA) and export competitive index (ECI) within the context of global trade. The RCA analysis was used to evaluate the comparative advantage of four major natural rubber-exporting countries—Thailand, Indonesia, Malaysia, and Vietnam. The results indicated that all four nations possessed a comparative advantage in this sector. Interestingly, between 2011 and 2015, Indonesia demonstrated a stronger comparative advantage than Thailand. However, this outcome differed from the ECI assessment, which did not support the notion that Indonesia's natural rubber was more competitive than Thailand's.

Earlier studies have also examined the uneven impacts between the futures and spot markets throughout the COVID-19 pandemic. Study from Gandhy et al. (2022) aims to examine the connection between market efficiency and price asymmetry of crude palm oil (CPO) across four markets: the Medan spot market, Jakarta futures market, Malaysian futures market, and Rotterdam forward market. Covering the period from January 2016 to December 2020, daily price data were analyzed using the NARDL model. The findings indicate the presence of price asymmetry between spot and futures markets both before and during the COVID-19 pandemic, with price increases having a stronger long-term effect than price decreases. Additionally, both spot and futures markets for CPO demonstrate efficient relationships in the short and long term, suggesting that hedging activities by market participants are likely to be effective. (Gandhy et al., 2022).

Arsyad et al. (2020) examined the competitiveness of palm oil products between Indonesia and Malaysia in international trade was assessed using the Revealed Comparative Advantage (RCA) and products mapping methods. The results showed that the value of RCA of Indonesian CPO had a negative trend, although it was still higher than Malaysia's, but with a positive trend. However, Indonesian RBD palm olein and PFAD showed a positive trend compared to Malaysia. By applying product mapping, it was determined that palm oil products from both countries fall into group A, signifying they possess a comparative advantage and export specialization. Consequently, both

nations require strategic policies to promote downstream palm oil activities, which would boost the production of value-added products capable of fulfilling international trade demands. (Arsyad et al., 2020).

The research from (Zuhdi et al., 2024.) indicates that Indonesia's coffee exports to OIC member states and selected countries experienced a general upward trend from 2010 to 2022, with significant increases in destinations such as Algeria, Egypt, Iran, and Morocco. Despite this overall growth, market dynamics differ across countries. In Algeria, for instance, Indonesia's market share faces stiff competition from Vietnam. The study highlights the importance of adapting product offerings and marketing strategies to suit local consumer preferences, particularly to strengthen Indonesia's competitiveness in markets like Algeria. A key contribution of this research is its in-depth examination of Indonesia's coffee export performance across various OIC markets, underscoring the need for market-driven approaches and flexible strategies to maintain and enhance Indonesia's standing in the international coffee market.

Unlike prior studies, this research expands on competitiveness analysis by combining the RCA (Revealed Comparative Advantage) method with CMSA (Constant Market Share Analysis) to assess the competitiveness of palm oil exports under conditions of market uncertainty. According Escaith (2021), Theoretical convergence between RCAs and CMSA opens the door to empirical investigations while remaining on a safe theoretical ground. It is common to use RCAs for comparative statics or to track changes in the RCA of a single economy over time. The proposed CMSA has an interesting feature that adds information on comparative advantages to the dynamic analysis of market shares(Escaith, 2021).

**2.2 Empirical Studies and the Pandemic's Impact on Trade**

Previous literature highlights the shifting dynamics of agricultural commodities. Alatas (2015) aimed to identify trends in palm oil production and its market value, applying the Revealed Comparative Advantage (RCA) and Acceleration Ratio (AR) methods. The findings revealed that Indonesia's CPO RCA value exceeded the global average, indicating a strong market share. Similarly, Kamaludin (2018) conducted a study on the export competitiveness of Indonesian natural rubber using RCA and the Export Competitive Index (ECI).

The COVID-19 pandemic introduced profound market volatility. Recent studies emphasize the enduring impacts of the pandemic on agricultural supply chains. For instance, Lugo-Arias et al. (2024) highlighted that determinants of global palm oil competitiveness have become increasingly complex, demanding rapid adaptation to logistical constraints. Furthermore, Setiajiati et al. (2024) noted that despite international restrictions, strategic commodities like palm oil maintained specific baseline demands,

though exporting countries had to navigate severe labor and operational disruptions. In a regional context, a study published in the Integrated Journal of Business and Economics (IJBE) by Isnurhadi et al. (2023) analyzed the ASEAN-FTA impact on crude palm oil exports, finding that external market shocks and broader global dynamics often play a more critical role in export volumes than established regional trade agreements alone.

Earlier studies have also examined uneven impacts across markets. Gandhy et al. (2022) found price asymmetry between spot and futures markets both before and during the COVID-19 pandemic. Arsyad et al. (2020) examined the competitiveness of palm oil products between Indonesia and Malaysia, showing that the RCA value of Indonesian CPO had a negative trend, although it was still higher than Malaysia's. Expanding into other commodities, research from Zuhdi et al. (2024) indicates that Indonesia's coffee exports to OIC member states experienced growth, but underscore the need for market-driven approaches to maintain standing.

### 2.3 Synthesis, Research Gap, and Hypotheses

While prior studies have explored general competitiveness or specific spot market efficiencies, there remains a significant research gap concerning the comparative dynamic shifts between Indonesia and Malaysia, specifically during the pre-pandemic and pandemic transition, evaluated through a combined RCA and Constant Market Share (CMS) framework. According to Escaith (2021), theoretical convergence between RCAs and CMS opens the door to robust empirical investigations. Based on the theoretical and empirical synthesis, this study proposes the following hypotheses:

H1: Indonesia maintains a higher Revealed Comparative Advantage (RCA) in global palm oil exports compared to Malaysia, despite facing downward trends during the pandemic.

H2: Global export growth and commodity composition effects serve as the primary positive drivers for the palm oil export performance of both countries amid global trade uncertainties.

## 3. Research Methods

This study utilizes secondary data, specifically international trade data from UN Comtrade for the years 2017 to 2021. The selection of the 2017 to 2021 timeframe is specifically justified to capture a symmetrical and robust comparison between pre-pandemic normal trade conditions (2017-2019) and the peak disruption and subsequent recovery phases of the COVID-19 pandemic (2019-2021).

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Additionally, it incorporates supplementary data from the Indonesian Ministry of Trade, the Indonesian Central Statistics Agency, and the WTO international trade statistics data. While UN Comtrade and Ministry data provide comprehensive macro-level figures, they inherently possess limitations, such as potential reporting lags and valuation discrepancies between exporting and importing nations. To address these limitations, the researchers meticulously cross-verified the data sets across multiple databases (WTO and Central Statistics Agency) to ensure analytical consistency and reliability.

The analysis employs quantitative descriptive methods grounded in the theories of comparative advantage and constant market share analysis to evaluate the competitiveness of Indonesian and Malaysian palm oil exports. The data were examined descriptively to provide a systematic, factual, and precise portrayal of the characteristics and relationships among the observed phenomena (Lugo-Arias et al., 2024). The RCA index, widely used to assess competitiveness through the concept of comparative advantage, was originally developed by Balassa in 1965. Vollrath later revised it in 1991 to prevent double-counting between country pairs. The RCA index is also called the Balassa index, while Vollrath's adaptation is referred to as the Relative Export Advantage (RXA) measure, as it focuses specifically on exports. This measure calculates the ratio of a country's export share of a commodity in the international market with its export share of all other commodities. For the i-th country and j-th commodity, the RCA is defined as follows:

$$RCA_{ij} = RXA_{ij} = (X_{ij}/X_{ik}) / (X_{nj}/X_{nk})$$

In the formula, X stands for exports, k represents all commodities except j, and n refers to all countries except i. An RCA index value exceeding 1 indicates that the country holds a comparative advantage in the specified commodity, reflecting a robust export sector and greater competitiveness. To supplement the RCA index analysis, this study employed the Constant Market Share (CMS) decomposition method. The CMS analysis aims to offer deeper insights into the relative significance of different factors contributing to export growth. According Widodo (2008) The Constant Market Share (CMS) approach was originally introduced by Tyszynski in 1951. However, the version refined by Leamer and Stern in 1970 has become more widely adopted in empirical studies. According to their framework, changes in a country's export performance can be broken down into four components: (a) global export growth effect, (b) market distribution effect, (c) commodity composition effect, and (d) residual or unexplained effect. This study applies the two-level CMS decomposition method for commodities, focusing on three key drivers of export growth: (1) world growth effect, (2) commodity structure effect, and (3) competitiveness effect. The analysis is conducted using the following equation:

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Take into account the variation in export value XXX of a country (r) between two time periods (0 and 1), $X_r^1 - X_r^0$

Let h = $(X_w^1 - X_w^0)/X_w^0$ be the growth rate in the value of world exports over the same period, we can show

$$X_r^1 - X_r^0 = hX_r^0 + \sum_i (h_i - h)X_{ir}^0 + \sum_i (h_{ir} - h_i)X_{ir}^0$$

Here, $h_i$ represents the global growth rate of exports for commodity *i*, while $h_{ir}$ denotes the export growth rate of commodity *i,* specifically from country *r* (Gilbert, 2017b). The equation consists of three parts. The first part is called the world growth effect (Gilbert, 2017b). The second part, known as the commodity effect, indicates how much export growth is affected by the mix of a country's exports compared to products growing faster or slower on a global scale. When a country mainly exports goods that are growing faster than the global average, this effect produces a positive value (Gilbert, 2017b). The final term is the competitiveness effect, which serves as the residual factor after considering the influence of the commodity composition of trade (Gilbert, 2017a).

This study utilizes secondary data, specifically international trade data from UN Comtrade for the years 2017 to 2021, which includes the COVID-19 pandemic period. Additionally, it incorporates supplementary data from the Indonesian Ministry of Trade, the Indonesian Central Statistics Agency, and the WTO international trade statistics data. The study employs quantitative descriptive analysis grounded in the theories of comparative advantage and constant market share analysis to evaluate the competitiveness of palm oil exports from Indonesia and Malaysia in the global market. (Kristyantoadi et al., 2025). The collected data were examined using a descriptive approach to provide a structured, factual, and precise depiction of the characteristics and relationships among the studied phenomena, especially amid the global market uncertainties caused by the COVID-19 pandemic (Lugo-Arias et al., 2024).

## 4. Results

### Export Performance of Palm Oil from Indonesia and Malaysia

The COVID-19 pandemic influenced palm oil export performance due to factors like changing demand patterns, disruptions in supply chains, and the global economic climate. Indonesia initially faced export challenges caused by logistical issues, but the sector quickly adapted. Similarly, Malaysia experienced supply chain interruptions leading to export variability.

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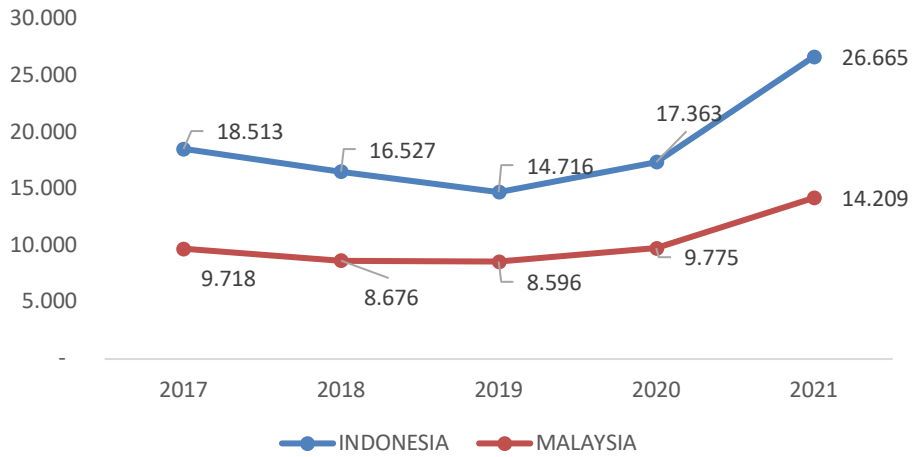
As shown in global data tracking, global palm oil exports increased during the uncertain period of the COVID-19 pandemic from 2019 to 2021. However, prior to the pandemic (2017–2019), the export values from Indonesia and Malaysia declined. Indonesia experienced a drop of 20.5%, with exports falling from 18.5 to 14.7 billion USD, while Malaysia's exports declined by 11.5%, from 9.7 to 8.59 billion USD. In contrast, during the pandemic years (2019–2021), Indonesia's palm oil export value surged by 81.2% (rising to 26.66 billion USD), and Malaysia's increased by 65.3% (reaching 14.2 billion USD). Despite challenges, the sectors in both countries demonstrated resilience. In terms of destination markets (China and India), Indonesia maintained a higher palm oil export value than Malaysia between 2017 and 2021. However, in 2021, Malaysia slightly surpassed Indonesia in export value to the Indian market. Collectively, they accounted for 83.44% of total world palm oil exports in 2021.

**Figure 1. The export value of palm oil from Indonesia and Malaysia in the international market from 2017 to 2021 is shown in millions of US dollars.**




Source: UN Comtrade (2023)

As shown in Figure 1, global palm oil exports increased during the uncertain period of the COVID-19 pandemic from 2019 to 2021. However, prior to the pandemic (2017–2019), the export values from Indonesia and Malaysia declined. Indonesia experienced a notable drop of 20.5%, with exports falling from 18.5 to 14.7 billion USD, while Malaysia's exports declined by 11.5%, from 9.7 to 8.59 billion USD. In contrast, during the pandemic years (2019–2021), Indonesia's palm oil export value surged by 81.2% (rising to 26.66 billion USD), and Malaysia's increased by 65.3% (reaching 14.2 billion USD). Despite facing challenges during the pandemic, the palm oil export sectors in both countries demonstrated resilience, reflecting their critical role in global food and industrial supply chains. Demand for palm oil in food production remained relatively

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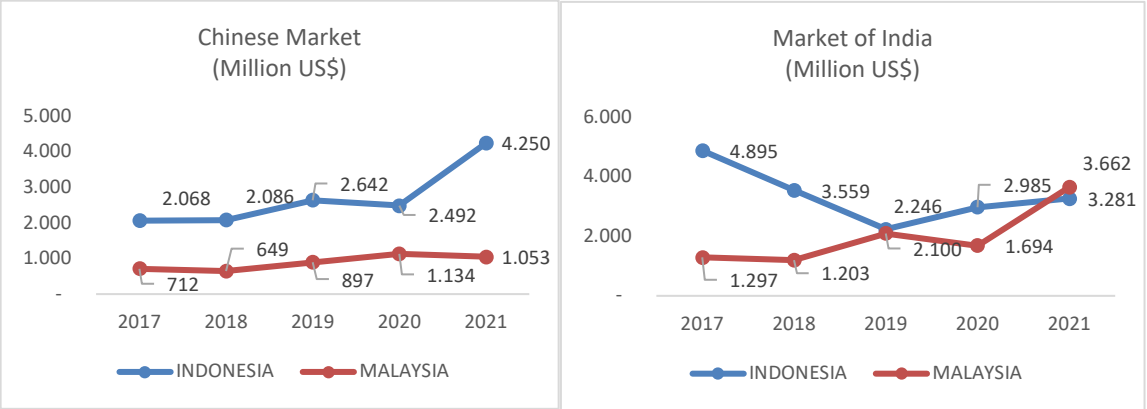
steady, and various government interventions helped cushion the economic impact. The pandemic also emphasized the need to address sustainability and environmental issues linked to palm oil production. In response, both Indonesia and Malaysia have pursued sustainability efforts aimed at improving industry practices and aligning with international environmental standards.

**Figure 2. Export of Palm Oil from Indonesia and Malaysia to China and India (in millions of USD) for 2017-2021**




Source: UN Comtrade (2023)

Figure 2 highlights that Indonesia maintained a higher palm oil export value than Malaysia in both the Chinese and Indian markets between 2017 and 2021. However, in 2021, Malaysia slightly surpassed Indonesia in export value to the Indian market. As the two leading global palm oil exporters, Indonesia and Malaysia collectively accounted for 83.44% of total world palm oil exports in 2021. Indonesia held a dominant position with a 54.43% share, while Malaysia contributed 29.01% by the end of the pandemic. In China, both countries together controlled an overwhelming 99.8% of the palm oil market, and in India, they jointly held an 87.4% share in 2021. Although Indonesia generally recorded higher export values in both markets throughout the period, Malaysia narrowly exceeded Indonesia's export value to India in the final year.

**Competitiveness of Palm Oil Exports from Indonesia and Malaysia**

The figure below shows the results of the calculation of the Revealed Comparative Advantage (RCA) index for the export value of palm oil from Indonesia and Malaysia.

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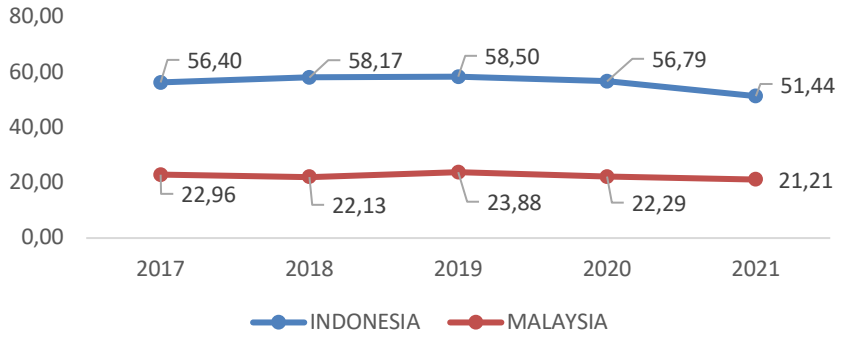
**Figure 3. RCA Index of Palm Oil Exports from Indonesia and Malaysia to the World Market for the Period 2017-2021**




Source: UN Comtrade, 2023 (Processed)

The calculation of the Revealed Comparative Advantage (RCA) index indicates that Indonesia demonstrated stronger export competitiveness in palm oil than Malaysia between 2017 and 2019, especially during the onset of the pandemic. However, from 2019 to 2021, Indonesia's RCA index showed a downward trend in global export competitiveness, declining from 58.5 in 2019 to 51.44 by 2021. Malaysia experienced a similar pattern, with its RCA index falling from 23.88 to 21.21 over the same period. Interestingly, prior to the pandemic, Indonesia saw a rise in its palm oil export competitiveness, as its RCA index increased from 56.4 in 2017 to 58.5 in 2019. This shift during the pandemic is further detailed in Table 1, which presents the contribution of palm oil exports from both Indonesia and Malaysia to the global market.

**Table 1. Indonesia and Malaysia's Share of Global Palm Oil Exports During 2017–2019**

| | Market Share (%) | | | | |
|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 | 2021 |
| INDONESIA | 54,83 | 54,69 | 52,53 | 53,60 | 54,43 |
| MALAYSIA | 28,78 | 28,71 | 30,69 | 30,18 | 29,01 |

Source: UN Cometrade, 2023 (Processed)

Table 1 shows that Indonesia's share in global palm oil exports rose from 52.53% in 2019 to 54.43% by 2021. In contrast, Malaysia's market share declined from 30.69% to 29.01%. The phenomenon where Indonesia's RCA index declined despite an increase in absolute export value and market share requires further explanation. Because the RCA index is a relative measure (calculating the ratio of a specific commodity's export share to the country's total export share), this decline indicates that while palm oil exports grew, Indonesia's exports of other primary commodities (such as coal, nickel, and manufactured goods) grew at an even faster rate during the pandemic recovery phase. Consequently,

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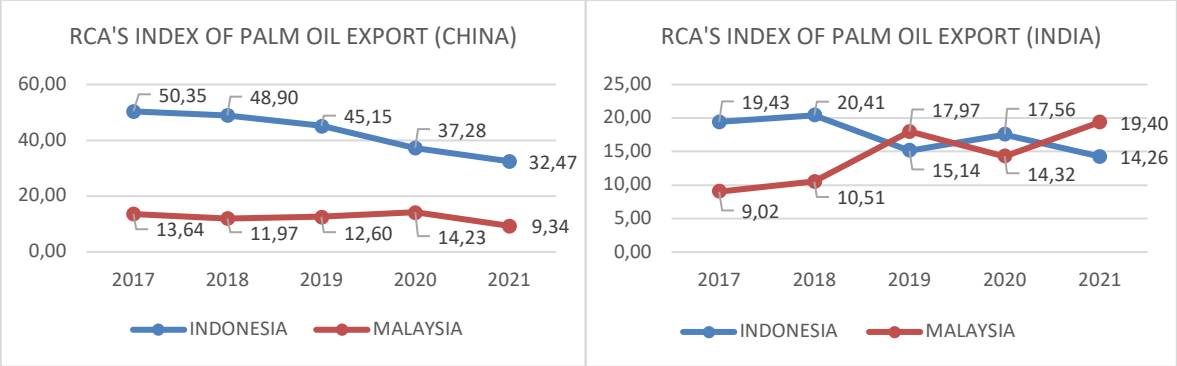
the denominator in the RCA calculation expanded significantly, diluting the RCA index value for palm oil even as its actual trade volume and global market share expanded.

In the Chinese market, Indonesia's competitiveness experienced a notable decline, marking a 35.5% decrease over five years. The decline in Indonesia's RCA index in China could be attributed to changes in China's import regulations and environmental standards (UNDP, 2020). Meanwhile, in the Indian market, both countries alternated in leading competitiveness, with Malaysia regaining the lead by the end of the pandemic. The graph below displays the RCA index values for palm oil exports from Indonesia and Malaysia to China and India.

**Figure 4. RCA Index of Palm Oil Exports from Indonesia and Malaysia to China and India (2017–2021)**




Source: UN Cometrade, 2023 (Processed)

Figure 4 shows that Indonesia's palm oil export competitiveness in the Chinese market was higher than Malaysia's from 2017 to 2021. However, Indonesia's competitiveness experienced a notable decline during this period, while Malaysia's remained relatively stable. Indonesia's RCA index fell from 50.35 in 2017 to 32.47 in 2021, marking a 35.5% decrease over five years. In contrast, Malaysia's palm oil exports were more competitive in the Indian market. From 2017 to 2019, Malaysia's RCA index rose from 9.02 to 17.97, whereas Indonesia's declined from 19.34 to 15.14. Between 2019 and 2021, the RCA indexes of both countries alternated in leading competitiveness: Malaysia was ahead by 2.83 points in 2019, Indonesia took the lead by 3.24 points in 2020, and by the end of the pandemic, Malaysia regained the lead with a 5.14-point advantage.

The decline in Indonesia's RCA index in the Chinese market could be attributed to changes in China's import regulations or standards, which may have influenced the competitiveness of Indonesian palm oil. For example, the introduction of stricter environmental or quality requirements by China during that time might have affected

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market performance. According (UNDP, 2020) Palm oil is recognized by the Indonesian government as one of the country's most important agricultural commodities. To promote sustainable production, the Indonesian Sustainable Palm Oil (ISPO) certification system was introduced. However, despite being mandatory for four years, the adoption of ISPO has been slow. A major obstacle has been issues related to land legality, which have hindered effective implementation. By September 2018, only 413 certificates had been issued, covering 2.34 million hectares out of the total 14 million hectares of oil palm plantations. This amounts to less than 20% of all plantations, meaning more than 80% of Indonesia's oil palm plantations remain uncertified (UNDP, 2020).

**Constant Market Share Analysis of Palm Oil Exports from Indonesia and Malaysia**

This study analyzes the constant market share of palm oil exports from Indonesia and Malaysia over two timeframes: 2017 to 2019 (pre-pandemic period) and 2019 to 2021 (pandemic period). The results of these calculations are presented in the table below

**Table 2. Analysis of Constant Market Share (CMS) for Palm Oil Exports from Indonesia and Malaysia in the International Market**

| NO | CMSA | INDONESIA (Million US$) | | MALAYSIA (Million US$) | |
|---|---|---|---|---|---|
| | | 2017-2019 | 2019-2021 | 2017-2019 | 2019-2021 |
| 1. | World Growth Effect | 12,916.6 | 28,601.3 | 16,657.43 | 40,923.67 |
| 2. | Commodity Effect | 6,136.4 | 4,877.88 | 3,221.2 | 2,849.29 |
| 3. | Competitiveness effect | 528.24 | 419.9 | -396.68 | -350.88 |

Source: UN Cometrade, 2023 (Processed)

From Table 2 above, it can be observed that Indonesia and Malaysia have positive export values as a result of global export growth during both the pre-pandemic and pandemic periods. In the 2017-2019 period, the export growth effect value for Indonesia was $12,916.6 million USD, while Malaysia had a better value of $16,657.43 million USD. Moving on to the 2019-2021 period, Malaysia also had a superior value of $40,923.67 million USD, while Indonesia had a value of $28,601.3 million USD. The positive values for the exports of both countries indicate that the export growth of Indonesia and Malaysia was faster compared to the average global export growth.

According to (Gilbert, 2017b), the export growth effect measures the extent to which a country's exports would have expanded between two time periods if they had grown at the global average rate. In the case of Malaysia and Indonesia, the higher export growth

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effect value for Malaysia indicates that Malaysia experienced greater overall export growth compared to Indonesia during the same period.

CMS calculations reveal that Indonesia and Malaysia have positive export values as a result of global export growth during both periods. In the 2019-2021 period, Malaysia had a world growth effect value of $40,923.67 million USD, while Indonesia had $28,601.3 million USD. The positive values indicate that export growth was faster compared to the average global export growth (Gilbert, 2017b). Regarding the commodity effect, Indonesia had higher values than Malaysia in both periods. Indonesia's palm oil export value was $6,136.4 million USD (2017-2019) and $3,221.2 million USD (2019-2021). The positive values reflect their capacity to align exports with shifts in global commodity demand (Gilbert & Muchová, 2018).

The positive commodity and global growth effects in the CMS analysis are closely linked to the aggressive adaptation strategies deployed by both nations during the pandemic. For instance, Indonesia effectively absorbed excess domestic supply and stabilized international prices through the acceleration of its B30 biodiesel mandate. Meanwhile, Malaysia successfully mitigated severe migrant labor shortages by investing heavily in automated harvesting technologies and securing robust forward contracts. These strategic adaptations allowed both countries to capitalize on the inelastic global demand for edible oils.

The competitiveness effect reveals that Indonesian palm oil exports demonstrate a positive effect, whereas Malaysia exhibits a negative effect (Setiajiati et al., 2024). During 2019 to 2021, the competitiveness effect for Indonesia was USD 419.9 million, while Malaysia had a value of -USD 350.88 million. Comparisons with previous studies highlight notable consistencies and discrepancies. The finding that Indonesia dominates market share but faces a declining RCA trend is highly consistent with the earlier observations by Arsyad et al. (2020). However, building upon the findings of Isnurhadi et al. (2023, IJBE), this study empirically demonstrates that global macroeconomic growth effects—and country-specific crisis adaptations—overshadow the benefits of regional trade agreements when assessing export resilience during unprecedented global disruptions.

## 5. Conclusion and Suggestions

This study analyzes the export performance of the two leading palm oil exporters, Indonesia and Malaysia, during the pandemic period (2017 to 2021). Despite the uncertain global market conditions caused by the COVID-19 pandemic between 2019 and 2021, global palm oil exports actually grew. Indonesia demonstrated stronger competitiveness than Malaysia with a higher RCA index value in the global and Chinese

markets, despite a declining trend. According to the CMS analysis, both countries benefited from global export growth and commodity exports. In terms of competitiveness effects, Indonesia showed positive results in both time frames, indicating a successful increase in market share, while Malaysia displayed negative values.

Based on these empirical findings, specific policy recommendations are proposed. For Indonesia, the government must accelerate the resolution of land legality issues and aggressively promote the global recognition of the Indonesian Sustainable Palm Oil (ISPO) certification to regain relative competitiveness in strict markets like China. For Malaysia, strategic policies should focus on reducing dependency on foreign manual labor through subsidies for plantation automation, and aggressively pushing for higher value-added downstream oleochemical industries.

This study transparently acknowledges several limitations. The research period of five years is relatively short and is heavily influenced by the singular outlier event of the COVID-19 pandemic. Furthermore, the reliance exclusively on macro-level secondary data implies that the study may not fully capture microeconomic or firm-level operational dynamics. For further research, it is strongly suggested to expand the observation period to include the post-pandemic recovery and stabilization phase (2022-2025) to assess long-term structural changes. Additionally, incorporating qualitative primary data from industry stakeholders or assessing the specific impacts of emerging non-tariff barriers, such as the European Union Deforestation Regulation (EUDR), would provide deeper insights into the future competitive landscape.

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