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ANALYSIS OF INDONESIAN CRUDE PALM OIL EXPORT PERFORMANCE AND COMPETITIVENESS TO THE ASIAN REGION

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ABSTRAK

Kelapa sawit merupakan komoditas ekspor yang sangat penting bagi Indonesia, dengan kawasan Asia sebagai salah satu pasar utama dan paling strategis. Namun, di tengah tantangan perdagangan global yang dinamis serta fluktuasi nilai ekspor, evaluasi terhadap posisi pasar secara berkelanjutan menjadi hal yang sangat diperlukan. Penelitian ini bertujuan untuk menganalisis kinerja ekspor, perkembangan, dan daya saing ekspor *crude palm oil* (CPO) Indonesia di kawasan Asia selama periode 2021–2025. Penelitian ini menggunakan pendekatan kuantitatif dengan data sekunder yang diperoleh dari TradeMap dan Badan Pusat Statistik (BPS). Metode analisis yang digunakan meliputi *Revealed Comparative Advantage* (RCA), *Export Product Dynamics* (EPD), dan *Export Competitiveness Index* (ECI). Hasil penelitian menunjukkan bahwa CPO Indonesia secara konsisten memiliki keunggulan komparatif yang kuat, ditunjukkan oleh nilai RCA yang selalu berada di atas 1 selama periode pengamatan, dengan nilai tertinggi pada tahun 2023 sebelum mengalami tren penurunan. Selain itu, analisis EPD menunjukkan bahwa CPO Indonesia secara konsisten berada pada kuadran *rising star*, yang menandakan pertumbuhan pangsa pasar yang tinggi. Sementara itu, perhitungan ECI menunjukkan bahwa kinerja ekspor CPO Indonesia relatif kompetitif meskipun mengalami fluktuasi. Temuan ini mengindikasikan bahwa daya saing CPO Indonesia perlu terus dipertahankan melalui inovasi berkelanjutan, peningkatan efisiensi hilirisasi produk, serta diversifikasi pasar ekspor yang lebih luas.

Kata kunci: Minyak Kelapa Sawit Mentah (CPO); Daya Saing Ekspor; *Export Product Dynamics*; *Revealed Comparative Advantage*

ABSTRACT

Palm oil is a crucial export commodity for Indonesia, with the Asian region serving as a primary and highly strategic market. However, facing dynamic global trade challenges and fluctuating export values, continuously evaluating market position is essential. This study aims to analyze the export performance, development, and competitiveness of Indonesian crude palm oil (CPO) to the Asian region during the 2021–2025 period. Utilizing a quantitative approach, this research employs secondary data obtained from TradeMap and the Central Statistics Agency (BPS). The analytical methods applied encompass Revealed Comparative Advantage (RCA), Export Product Dynamics (EPD), and the Export Competitiveness Index (ECI). The results demonstrate that Indonesian CPO consistently maintains a strong comparative advantage, evidenced by RCA values remaining above 1 throughout the observed period, peaking in 2023 before experiencing a declining trend. Furthermore, EPD analysis confirms that Indonesian CPO is persistently positioned within the rising star quadrant, signifying high market share growth. Meanwhile, ECI calculations indicate relatively competitive yet fluctuating export performance. These findings suggest that Indonesia's CPO competitiveness must be actively maintained through continuous innovation, downstream product efficiency, and broader market diversification.

Keywords: *Crude Palm Oil; Export Competitiveness; Export Product Dynamics; Revealed Comparative Advantage*

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INTRODUCTION

Palm oil is one of Indonesia's leading plantation commodities and plays a vital role in the national economy, particularly as a source of foreign exchange through exports. Indonesia is known as one of the world's largest producers and exporters of palm oil, contributing significantly to international trade. High palm oil production makes this commodity a mainstay in increasing Indonesia's export value and strengthening its position in the global market (Tandra et al., 2023). According to the Food and Agriculture Organization (FAO), palm oil has become one of the most widely consumed vegetable oils globally due to its relatively high productivity and efficiency compared to other vegetable oil commodities. The strategic position of palm oil has made the commodity an important driver of economic growth, employment creation, and rural development in producing countries, particularly Indonesia.

According to Salvatore (2020), international trade enables countries to maximize the utilization of their comparative advantages through the export of commodities in which they possess superior production efficiency. In this context, Indonesia possesses a strong comparative advantage in palm oil production due to favorable climatic conditions, extensive plantation areas, and relatively competitive production costs. Consequently, palm oil has become one of Indonesia's most important export commodities and contributes significantly to the country's trade balance and foreign exchange earnings.

Recent studies have highlighted the importance of palm oil exports for Indonesia's economic performance. Research conducted by Tandra et al. (2023) found that the palm oil sector contributes substantially to export earnings and supports national economic resilience amid global economic uncertainty. Similarly, Maulana et al. (2023) reported that Indonesian palm oil remains highly competitive in the global market despite increasing competition from other producing countries. Their findings indicate that Indonesia continues to dominate global palm oil exports due to its large production capacity and extensive export networks.

In international trade, Indonesian palm oil is marketed to various regions worldwide, including Asia, Europe, Africa, the Americas, and Australia. However, Asia remains a key market for Indonesian palm oil exports due to the high demand for vegetable oil products in the region. Research shows that Indonesian palm oil exports, particularly crude palm oil (CPO) and its processed products, are highly competitive in the Asian market compared to several other regions (Ulfah et al., 2019). This demonstrates the strategic role of Asia in the development of Indonesian palm oil exports. Previous studies have confirmed that Indonesian CPO consistently demonstrates a strong comparative advantage over major competitor countries such as Malaysia and Thailand, particularly in the Indian, Chinese, and Pakistani markets (Prasetyo et al., 2018).

The increasing demand for edible oils, food ingredients, cosmetics, biofuels, and industrial raw materials in Asian countries has further strengthened the role of the region as a major destination for Indonesian palm oil exports. According to Yumna and Perdana (2023), the growth of population, urbanization, and industrialization in Asia has continuously increased the demand for palm oil products, creating significant export opportunities for Indonesia. Likewise, research by Sari et al. (2022) found that economic growth in developing Asian countries positively affects the volume of Indonesian palm oil exports due to rising consumption needs and industrial demand.

The development of Indonesian CPO exports over time is also influenced by global demand dynamics, trade policies, exchange rate fluctuations, and sustainability issues in destination countries (Yumna & Perdana, 2023). Furthermore, Indonesia has proven capable of maintaining its competitive position in major export destination markets despite facing competitive pressure from fellow palm oil producing countries (Maulana et al., 2023). A study by Rahman et al. (2024) revealed that Indonesia's competitiveness in the palm oil sector is supported not only by production capacity but also by improvements in downstream processing industries that generate higher value-added products. The development of derivative palm oil products has enabled Indonesia to diversify its export portfolio and reduce dependence on raw CPO exports.

From the perspective of competitiveness theory, Porter (1990) argues that a country's competitiveness is influenced by factor conditions, demand conditions, supporting industries, and firm strategy. Indonesia's palm oil industry benefits from abundant natural resources, increasing

investment in downstream industries, and strong domestic and international demand. Recent empirical research by Putri and Nugroho (2024) found that Indonesia's palm oil competitiveness remains strong in Asian markets due to its relatively lower production costs and wider product diversification compared to competing exporters.

Although various studies have examined the competitiveness of Indonesian palm oil exports in the global market, studies specifically analyzing export developments and market opportunities for Indonesian palm oil in Asia are limited. This is despite Asia being a key market contributing significantly to Indonesian palm oil exports. On the other hand, external challenges such as sustainability standards, environmental concerns, geopolitical tensions, and trade protection policies continue to affect the global palm oil trade. The European Union's Renewable Energy Directive (RED) policy has influenced the structure and direction of Indonesian CPO exports, thereby encouraging diversification toward the more open Asian market (Ramadhani et al., 2022).

Recent studies also indicate that shifts in global trade patterns following supply chain disruptions and geopolitical uncertainty have created new opportunities for Indonesian palm oil exports in Asia. Research by Wijaya et al. (2025) concluded that growing demand from South Asian and Southeast Asian countries has the potential to offset declining exports to regions implementing stricter sustainability regulations. This suggests that the Asian market will remain strategically important for Indonesia's palm oil export performance in the coming years.

In 2021, Indonesia's CPO exports to the world were valued at USD 2.73 billion, accounting for 1.18% of Indonesia's total exports. By 2025, export value reached USD 3.08 billion, although its share of total exports slightly decreased to 1.06% (TradeMap, 2025).

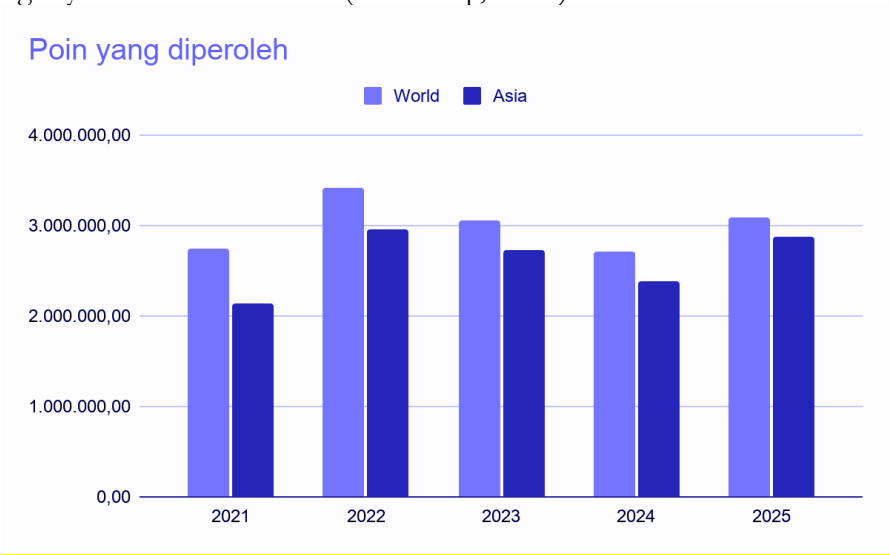


Figure 1. Indonesia's CPO Export Value to the World, 2021–2025

Source: www.trademap.org

The export trend indicates that palm oil remains one of Indonesia's most important export commodities despite fluctuations in global commodity prices and changes in international trade policies. Understanding the development and competitiveness of Indonesian palm oil exports in Asia is therefore crucial for formulating effective export strategies and identifying future market opportunities.

Therefore, this study aims to analyze the development of Indonesian palm oil exports to the Asian region, identify its level of competitiveness in the international market, and analyze opportunities for developing the Indonesian palm oil export market in the future.

METHOD

Quantitative Approach

This research method uses a quantitative approach with descriptive analytical methods to analyze the performance of Indonesian palm oil exports to the Asian region. The quantitative approach was used because this study utilizes processed export statistical data to examine the

development, competitiveness, and changes in Indonesian palm oil export performance in the international market. This study utilizes secondary data obtained from various official sources, such as the Central Statistics Agency (BPS), TradeMap, and various relevant scientific publications. The data used is time series data on the volume and value of Indonesian palm oil exports to several countries in the Asian region over a specific time period.

Data collection was conducted through a literature review, reviewing various written sources such as statistical reports, government publications, and previous research related to palm oil exports and competitiveness. The collected data was then analyzed using several analytical methods. First, a descriptive analysis was used to describe the development of Indonesian palm oil exports to the Asian region, including trends in export value and volume, as well as the main export destinations.

2. *Revealed Comparative Advantage* (RCA)

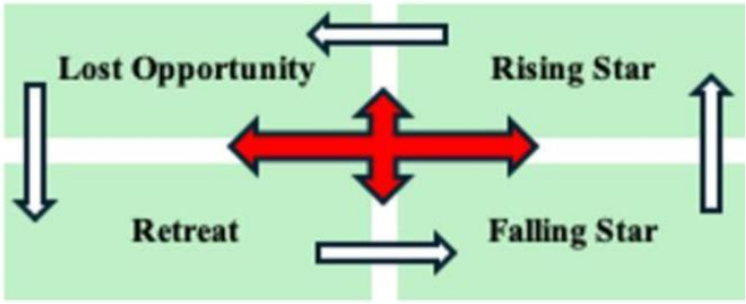
The Revealed Comparative Advantage (RCA) method is used to measure the comparative competitiveness of Indonesian palm oil in the international market, particularly in Asia. This indicator shows whether a product's export share exceeds that product's share of total exports from other countries or regions. An RCA value >1 indicates comparative advantage (Suparmono et al., 2022). The RCA approach has been widely employed in empirical studies to analyze the comparative advantage of Indonesian export commodities, including CPO traded to various major destination countries in Asia and globally (Riwaldi & Wijayanti, 2023). This analysis has also been applied to examine the export intensity of Indonesian CPO to major importing countries using a gravity model approach (Rosyadi et al., 2021). Furthermore, the comparative advantage of Indonesian CPO in the international market has been analyzed using panel data from several export destination countries with the highest export volumes (Simanjuntak et al., 2024). The RCA formula is as follows.

$$RCA = \frac{(Xij/Xit)}{(Xwj/Xwt)} \quad \text{..... (1)}$$

Information:
Xij = Indonesia's CPO export value
Xit = Indonesia's total exports
Xwj = CPO export value of the Asian continent
Xwt = total exports of the Asian continent

3. *Export Product Dynamic* (EPD)

Export Product Dynamics (EPD) is an analysis method in international trade that is used to identify the position and dynamics of the competitiveness of a product to be exported in the global market (Trilarasati et al., 2023).



Source: Export Product Dynamic competitiveness position matrix (Esterhuizen, 2006)

The formula for the EPD method is as follows:
X-axis: Growth in product export market share

$$X = \frac{\sum_{t=1}^{t}\left(\frac{X_i}{W_i}\right)_t \; x\; 100\% - \sum_{t=1}^{t}\left(\frac{X_i}{W_i}\right)_{t-1} \; x\; 100\%}{T} \quad \text{..... (2)}$$

Y-axis: Growth in product market share

$$Y = \frac{\sum_{t=1}^{t}\left(\frac{X_t}{W_t}\right)_t x\ 100\% - \sum_{t=1}^{t}\left(\frac{X_t}{W_t}\right)_{t-1} x\ 100\%}{T} \quad \text{..... (3)}$$

Information:
Xij = Indonesia's CPO export value
Xt = Indonesia's total export value to export destination countries
Wij = The value of world CPO exports to export destination countries
Wt = Total world export value to export destination countries
T = Number of years of analysis used

4. *Export Competitiveness Index* (ECI)

The Export Competitiveness Index (ECI) is an indicator in international economics used to assess the level of export competitiveness of a country or commodity in the global market. This index reflects a country's ability to maintain or increase its market share compared to other countries over time. In other words, the ECI looks beyond the size of exports and emphasizes the dynamics of changes in a commodity's competitive position in international trade.
The formula for the ECI method is as follows:

$$RCA = \left(\frac{Xij}{Xw}\right)_t \div \left(\frac{Xij}{Xw}\right)_{t-1} \text{..... (4)}$$

Information :
Xij : CPO Export Value in Asia
Xw : Global CPO Export Value
t : Current period
$t-1$: Previous period

The results of the above calculations will produce two possibilities. First, if ECI > 1, it means that the commodity has a significant competitive advantage and is expected to become increasingly competitive. Second, if ECI < 1, it means that the commodity has a low competitive advantage.

RESULT AND DISCUSSION

Development of Indonesian CPO Exports to the Asian Region

Based on international trade data obtained from TradeMap for the 2021-2025 period, the development of Indonesian palm oil exports to the Asian region shows a relatively upward trend, although it experienced a decline in 2023 and 2024. This increase indicates that the Asian region remains a major market for Indonesian palm oil products. Countries such as India, China, Pakistan, and Bangladesh are the main destinations for Indonesian palm oil exports due to the high demand for vegetable oils in the region (www.trademap.org).

Analysis of the Competitiveness of Indonesian CPO Exports to the Asian Region

A. RCA analysis

Revealed Comparative Advantage (RCA) is an indicator in international trade analysis used to measure a country's comparative advantage in a particular commodity based on its export performance. This indicator reflects a country's relative ability to produce and export a product compared to other countries, allowing the resulting export patterns to serve as a basis for empirically identifying trade specialization (Adigwe, 2022). Recent research has shown that the use of RCA extends beyond traditional export competitiveness analysis and has also been developed to evaluate a country's position in the global value chain and changes in the structure of international trade. This approach demonstrates that the RCA indicator remains relevant and adaptable in analyzing the increasingly complex dynamics of global trade (Luksamee-arunothai, 2025).

Table 1. Calculation Result Data

Years	Xij	Xit	Xwj	Xwt	RCA
2021	2.737.923	231.587.887	8.432.615	9.593.416.010	13,44982
2022	3.410.127	291.979.103	9.143.320	10.638.833.256	13,58967
2023	3.055.134	258.797.196	6.910.361	9.982.466.024	17,05328
2024	2.710.402	264.703.354	6.877.941	10.233.001.354	15,23417
2025	3.089.552	282.908.944	7.540.789	7.865.128.707	11,39037

Source: www.trademap.org (*Data is processed*)

The Revealed Comparative Advantage (RCA) values indicate that the analyzed commodities consistently have a comparative advantage during the 2021–2025 period. This is evident from all RCA values being above 1, indicating that the export contribution of these commodities is relatively greater than the average contribution of similar commodities to global trade. This condition reflects the country's strong export specialization in these commodities (Adigwe, 2022).

Trendwise, the RCA value fluctuates. In 2021, it was 13.44982, increasing to 13.58967 in 2022, and then peaking at 17.05328 in 2023. This increase indicates increased export competitiveness, likely influenced by increased global demand or domestic production efficiency. However, in 2024 and 2025, the RCA value decreased to 15.23417 and 11.39037, respectively. This decline indicates a relative weakening in competitiveness, which could be caused by changes in the global trade structure, increased competition from other countries, or a decline in national export performance (Luksamee-arunothai, 2025). This finding is consistent with Maulana et al. (2023), who concluded that Indonesia consistently maintains its comparative advantage position in major export destination countries despite competitive pressure from Malaysia. Rosyadi et al. (2021) also found that the export intensity of Indonesian CPO to five major importing countries is positively influenced by the importer's GDP and export quantity, indicating the importance of sustaining market penetration in the Asian region.

B. EPD Analysis

Tabel 2. EPD Calculation Results

Year	Indonesia		
	Export Market Share (%)	Product Market Share (%)	Competitive Position
2022	37.3	2.7	Rising Star
2023	44.2	2.6	Rising Star
2024	39.4	2.6	Rising Star
2025	40.9	3.6	Rising Star
Rata-rata	40.4	2.8	Rising Star

Source: www.trademap.org (*Data is processed*)

Based on the analysis of Export Product Dynamics (EPD) for Indonesia's crude palm oil (CPO) commodity for the 2022–2025 period, it can be concluded that CPO export competitiveness consistently ranks in the riding star quadrant. This position demonstrates Indonesia's ability not only to increase its export market share but also to operate in a global market experiencing growing demand. This is consistent with the findings of Rosyadi et al. (2020), who found that certification and compliance with international sustainability standards positively contribute to maintaining the competitiveness and market share of Indonesian CPO exports in major destination countries.

ECI Analysis

Table 3. ECI Calculation Results

Year	ECI
2022	1.15
2023	1.18
2024	0.89
2025	1.03

Source : www.trademap.org (*Data is processed*)

Based on the Export Competitiveness Index (ECI) calculations for Indonesia's CPO commodity for the 2022–2025 period, it can be explained that the level of export competitiveness shows fluctuating conditions but remains relatively competitive. The ECI value in 2022 was 1.15 and increased to 1.18 in 2023. A value greater than 1 indicates that Indonesia's export market share has increased compared to the previous period, thus CPO export competitiveness can be said to be strengthening.

CONCLUSION

The development of Indonesian crude palm oil (CPO) exports to Asia continues to grow, confirming the region as a strategically dominant primary destination. Analytically, findings indicate that Indonesia possesses a strong comparative advantage in this international market. However, fluctuations in the RCA value and a downward trend in the final period demonstrate that this advantage is dynamic and potentially vulnerable to erosion. While the consistent rising star position in the EPD analysis reflects high growth opportunities, it also signifies operation within a highly competitive market. This is reinforced by the ECI value, which, despite remaining in the competitive category, highlights instability in year-over-year competitiveness. Therefore, Indonesia's CPO export dominance must be viewed as an advantage requiring active maintenance. To sustain and enhance this position, it is practically recommended that exporters and policymakers accelerate downstreaming efforts to increase product added value and strengthen sustainability practices to meet global standards. Relying solely on natural resource-based advantages is no longer sufficient. For future research, it is suggested to expand the analysis by incorporating specific trade barrier variables, such as tariff and non-tariff policies in destination countries, and to directly compare Indonesia's performance with emerging competitors to provide a more comprehensive competitive landscape.

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