# Indonesia Competitiveness and Position of CPO Trade among Developing Eight (D-8) Countries

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**Abstract.** Indonesia has been joined the Developing Eight (D-8) organization since 1997. However, Indonesia has not utilized yet D-8 in terms of trade benefits. Indonesia as the main exporter of the world CPO should take opportunity from the organization. This study aims to analyze the position and competitiveness of Indonesia's CPO trade among D-8 countries. The methods used in this study are Revealed Comparative Advantage (RCA), and Export Product Dynamic (EPD). Secondary series data are used as the main data in this study. The results show that Indonesia's CPO has a strong competitiveness among D-8 countries. Although Indonesia has a high competitiveness in CPO, Indonesia must consider the position of retreat, falling star and rising star for CPO trade among D-8 countries in order to anticipate risks of the trade.

Keywords: Trade, Competitiveness, Position, Developing Eight (D-8), CPO.

#### **1** Introduction

Trade is an activity related to transactions of goods and services within the country and beyond national borders with the aim of transferring rights to goods and/or services to obtain rewards or compensation [1]. Trade does not only occur between regions within a country, but trade can also occur between the country itself and other countries. International trade is the economic activity of selling domestic products to foreign markets (exports) and buying foreign products for domestic use or marketing (imports) [2].

A country's international trade is divided into 3 types, namely: bilateral cooperation, regional cooperation and multilateral cooperation. According to [3] the existence of diplomacy through bilateral and multilateral channels is considered very important in advancing a country's national interests. In carrying out trade, there are several types of trade agreements that are quite common, namely Preferential Trading Arrangements (PTA), Trade in Goods Agreement (TIGA), Free Trade Agreement (FTA) and Comprehensive Economic Partnership Agreements (EPA/CEPA) [4].

International trade is considered important because no country in the world is able to meet all needs for goods and services without conducting trade or business with other countries [5]. Exports and imports are very important to form and control the balance of trade (Balance of Payment) in a country [6].

Indonesia has joined various multilateral cooperation. Some examples of multilateral cooperation that have been carried out by Indonesia include the United Nations (UN), International Monetary Fund (IMF), World Trade Organization (WTO), International Labor Organization (ILO), Food and Agricultural Organization (FAO), ASEAN Free Trade Area (AFTA), Economic and Social Council (ECOSOC), Organization of Islamic Cooperation (OIC), Non-Aligned Movement (NAM), Developing Eighth (D-8) and others [7].

Developing Eighth (D-8) is a multilateral organization that is suitable and has the potential to increase the value of Indonesia's exports. The D-8 organization was formed on June 15, 1997 in Istanbul, Turkiye which marked the holding of the 1st D-8 Summit. The D-8 consists of 8 countries, namely Bangladesh, Indonesia, Iran, Malaysia, Egypt, Nigeria, Pakistan and Turkiye, which initially had the aim of bringing together Islamic countries to overcome unfair attitudes carried out by western countries [8]. However, as time went by, this organization developed into an organization that was not only based on religion, but also based on the welfare of the people in the member countries. In 2012, the D-8 committed to achieving sustainable economic development, prosperity and eradicating poverty in member countries [8].

The Ministry of Foreign Affairs (2022) [8] stated that in 2012, D-8 members formed and agreed on a charter, one of the aims of which was to strengthen ties of cooperation between member countries so that they could take a bigger role in the global economy. In 2021, D-8 held the 10th Summit which produced 2 important documents, namely the Dhaka Declaration and Decennial Roadmap 2030 which discussed the crucial issue of Covid-19, the stages of each country in eradicating Covid-19 and establishing a number of targets for sustainable development. the 2030 agenda which will be supervised directly by Commissioner D-8. The 10th High Level Conference resulted in togetherness in facing global problems, collaboration in achieving predetermined goals and agendas, namely sustainable development, especially from the aspects of eradicating poverty, increasing human resources and increasing trade both nationally and internationally.

D-8 has not been utilized optimally for its member countries, especially Indonesia [8]. This is caused by the existence of PTA D-8 (Preferential Trade Agreement Developing Eight), which has not been implemented optimally for all D-8 member countries. As a result, export activities are still not being carried out optimally for all commodities that are mutually needed in D-8 member countries. The PTA D-8 agreement was signed on May 13 2006 in Bali, Indonesia [9]. The tariff reduction modality applied in PTA D-8 is less than 10% of the total tariff line for each country [10]. This tariff reduction is the beginning of trade cooperation between the D-8 countries, so that the liberalization carried out is relatively light and not too ambitious. However, trade barriers to Indonesian market access to D-8 member countries are still relatively high [10].

If we look at their trade potential, D-8 member countries have quite a large contribution to world trade. The D-8 Secretariat reported that the trade volume of D-8 member countries reached 5% of the total world trade volume [11].



Fig. 1. CPO commodity export value Indonesia to Developing Eigth Countries Source: The United Nations Comtrade [12]

World Bank [13] data shows that the export value of Indonesian CPO products to D-8 countries in 2011-2021 fluctuated, leading to an increase in exports. This is in accordance with Figure 1. This figure also shows that the largest CPO export value in Pakistan reached 14 billion USD. Meanwhile, the smallest value of CPO exports fell on Nigeria, which only reached 906 million USD from 2011 to 2021. Therefore, efforts are needed to increase the value of Indonesia's exports to D-8 countries, especially Nigeria, Iran and Turkiye.

CPO is processed palm oil in the form of semi-finished oil, while Palm Oil is processed palm oil that is ready-made [14]. The advantage of palm oil is that it is easy to fractionate (separate) into a solid fraction (stearin) and a liquid fraction (olein). Thus, palm oil has the flexibility to be developed for either liquid or solid products at room temperature [15]. Apart from that, oil palm also has a harvest period which will last quite a short time. Every year an oil palm tree will produce as much as 40 kg/year and each tree will produce for 25 years [16]. Total nilai ekspor CPO Indonesia ke negara-negara D-8 mencapai 8,4 Triliun [17]. Hal ini menunjukkan permintaan akan komoditas CPO cukup tinggi di pasar D-8. Seharusnya ini dapat dimanfaatkan Indonesia untuk meningkatkan nilai ekspor CPO.

The Ministry of Trade of the Republic of Indonesia classifies Indonesia's export destination markets into two, namely: traditional markets and non-traditional markets [14]. Countries that fall into the

traditional market category are countries that have consistently been in the top 5 export destinations for more than 40 years. Meanwhile, non-traditional markets are divided into two types, namely countries in the export category that have developed and countries with potential for export development (untapped markets) [18].

Indonesia must overcome various challenges in carrying out international trade in CPO commodities to export destination countries, both non-traditional and traditional areas. Lack of focus on product development, there are competitors from various countries, lack of understanding about the product are examples of challenges in exporting [19]. Currently, there are various obstacles being experienced by the Indonesian palm oil industry, one of which is the implementation of the Delegated Act which aims to limit the use of palm oil in biofuel production. This happens because palm oil is considered not to support sustainable development programs [20].

Another problem was raised by stated that along with increasing public consumption of products made from CPO as raw materials, new competitors have emerged in exporting CPO such as the Netherlands and Papua New Guinea [21]. With increasingly fierce competition, the volume and value of Indonesian CPO exports has decreased so that market share in export destination countries has also decreased, therefore competitiveness has of course been disrupted [22]. Through research conducted by [23], the enormous pressure exerted by the European Union through increasing the growth of vegetable production such as rapeseed oil, soybean oil and sunflower seed oil for the purposes of meeting domestic needs makes the challenges faced even greater.

With various challenges, a new market is needed to trade CPO commodities in the world. Through regulations issued by the WTO (World Trade Organization) regarding reducing and eliminating barriers to international trade, Indonesia must be more active and provide solutions in solving problems and exporting.

D-8 is an organization consisting of countries that have the potential to become markets for international trade, especially CPO commodities. This is proven by the large value of Indonesia's exports to D-8 countries and it continues to increase every year. The Ministry of Foreign Affairs of the Republic of Indonesia [8] explains that there are opportunities that have not been optimally exploited by Indonesia. This is caused by the implementation of the PTA which has not yet been realized, due to differences in the level of preparedness of the D-8 member countries in the PTA policy. Therefore, this can be used to create a new market for international trade in Indonesian CPO commodities. Indonesia needs to map the potential for CPO trading in the D-8 market.

Based on the background above, the aim of this research is to analyze the position and competitiveness of Indonesian CPO among the D-8 member countries. It is hoped that the results of this research can provide input for stakeholders in expanding the Indonesian CPO market.

# **2 Literature Review**

### 2.1 Benefits of international trade

According to [21], the benefit of international trade is obtaining goods that cannot be produced in one's own country. Apart from that, there are many factors that influence differences in production results in each country. These factors include: Geographical conditions, climate, level of mastery of science and technology and others. With international trade, each country is able to meet needs that it does not produce itself. According to [24] the benefit of export activities is expanding the market for local products. Indonesia's export activities are one way to increase the market share of domestic products

## 2.2 Competitiveness

According to Porter's theory in 1990, competitiveness is productivity which is part of the output produced through labor, natural resources and capital in a country. The country will gain an advantage in competitiveness when a company can be competitive and able to improve capabilities and innovation in the trade industry, both goods and services

#### 2.3 Export

Trade between countries that occurs can stimulate expansion in an industry, thereby encouraging the increase of other industries in the economy [25]. Exports are other countries' purchases of goods made by domestic companies. The most important factor that determines exports is the country's ability to produce goods that can compete in foreign markets [21].

# 2.4 CPO commodity

Carter et al. [26] stated that CPO is one of Indonesia's export commodities that contributes to Indonesia's economic growth both in the form of crude oil and processed products. According to [27], Indonesia's CPO exports are mostly in the form of crude oil, this is due to the lack of CPO processing factories in Indonesia.

# **3 Method**

#### 3.1 Data and source of data

The data used in this research is secondary data in the form of time series and cross section data from 8 D-8 member countries. Export, import and other data are used from Developing Eight countries, namely Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkiye from 2011 to 2021. The crude palm oil commodity used in this research uses the HS classification 1511 (palm oil and its derivatives).

This research data is secondary data obtained from the World Bank and several other official agency websites. Data processing in this research uses Microsoft Excel.

#### 3.2 Analysis method

The analytical method used in this research is a quantitative method using Revealed Comparative Advantage (RCA) and Export Product Dynamics (EPD). Below is an explanation of the two analysis tools.

#### Revealed Comparative Advantage (RCA) analysis

By pressing production costs to be lower than other countries will make a country superior in these commodities so that the country can be said to have competitiveness. Therefore to calculate the comparative advantage or export competitiveness of Indonesia's Crude Palm Oil in 2011-2021 the Revealed Comparative Advantage (RCA) method is used. Revealed Comparative Advantage (RCA) is a method used to measure competitiveness or commonly referred to as comparative advantage in certain regions, be it districts, provinces, countries and others.

Competitiveness calculations use the Revealed Comparative Advantage (RCA) index, namely Balassa [28]:

$$RCA = \frac{x_{ij/Xj}}{x_{iw/Xw}} \tag{1}$$

Where:

Xij = Export value of country CPO products (importers) Xj = Total value of country exports (importers) Xiw = Export value of world CPO products Xw = Total value of world exports

Interpretation for RCA index is if the RCA value is < 1 or close to 0, then the competitiveness of a commodity is weak. Conversely, if the RCA value is > 1 then the commodity has a strong competitiveness.

#### Analysis of Export Product Dynamics (EPD)

Export Dynamic Product (EPD) analysis is explained in the form of a matrix consisting of market attractiveness and business strength information. Based on the components in the EPD matrix, the character and position of the commodity is divided into four categories, namely Rising stars, Lost opportunity units, Falling stars and Retreat [29].

Export Product Dynamics (EPD) analysis can be used to identify the competitive position of a commodity and also to measure the dynamics of a product in the world market [30] (Sitanini, 2022).

- 1. Rising star describes the highest market position or it can be said the most ideal market for dynamic products (demand is growing fast).
- 2. Lost opportunity is a condition in which the market's competitiveness decreases so that products produced in a country lose the opportunity to reach exports in international markets.
- 3. A falling star is a condition that is not expected by a country (same as a lost opportunity condition), but a falling star condition is not as bad as a lost opportunity condition because in this condition there is still an increase in market share even though it does not occur for products with dynamic performance (demand grows fast).
- 4. Retreat is a condition where the existence of a product is no longer desired by the market.

The following is the calculation using Export Dynamic Product (EPD):

X: Growth in business strength or export market share

$$\frac{\sum_{t=1}^{t} \left[ \left( \frac{x_{ij}}{w_{ij}} \right)_{t} x \ 100\% - \left( \frac{x_{ij}}{w_{ij}} \right)_{t-1} x \ 100\% \right]}{T-1}$$
(2)

Y: Market appeal or product market share

$$\frac{\sum_{t=1}^{t} \left[ \left( \frac{X_t}{W_t} \right)_t x \operatorname{100\%} - \left( \frac{X_t}{W_t} \right)_{t-1} x \operatorname{100\%} \right]}{T-1}$$
(3)

Where:

Xij = Total value of Indonesia's CPO exports to destination countries

Xt = Total value of Indonesia's exports to destination countries

Wij = Total value of world CPO exports to destination countries

Wt = Total value of world exports to destination countries

# **4 Result and Discussions**

In order to answer the aim of this research, namely analyzing the position and competitiveness of Indonesian CPO among D-8 member countries, the potential for Indonesian CPO trade in the D-8 market can be seen from the condition and position of its competitiveness. The competitiveness or comparative advantage of Indonesian Crude Palm Oil in 2011-2021 uses the Revealed Comparative Advantage (RCA) method. Table 1 shows RCA Indonesia Calculation Results for D-8 countries 2011-2021.

| Year | Bangladesh | Iran  | Malaysia | Egypt  | Nigeria | Pakistan | Turkiye |
|------|------------|-------|----------|--------|---------|----------|---------|
| 2011 | 23.81      | 23.83 | 7.38     | 21.68  | 119.14  | 2.26     | 12.35   |
| 2012 | 28.22      | 22.69 | 7.17     | 34.20  | 2.23    | 4.07     | 33.24   |
| 2013 | 33.20      | 21.55 | 6.98     | 26.40  | 22.49   | 5.50     | 26.40   |
| 2014 | 29.66      | 34.48 | 11.84    | 49.38  | 19.20   | 6.77     | 21.32   |
| 2015 | 30.90      | 30.59 | 11.53    | 188.09 | 116.40  | 8.37     | 3.83    |
| 2016 | 34.16      | 13.15 | 12.52    | 32.52  | 8.13    | 8.60     | 2.19    |
| 2017 | 31.57      | 7.67  | 14.51    | 29.17  | 7.71    | 7.71     | 18.12   |
| 2018 | 30.63      | 1.07  | 14.27    | 29.41  | 7.12    | 8.09     | 29.82   |
| 2019 | 30.31      | 18.08 | 47.38    | 32.41  | 24.38   | 8.08     | 22.37   |
| 2020 | 29.74      | 17.51 | 14.64    | 29.32  | 9.26    | 7.44     | 38.63   |
| 2021 | 26.43      | 14.68 | 11.13    | 32.42  | 5.42    | 7.08     | 21.07   |

Table 1. RCA Indonesia Calculation Results for D-8 countries 2011-2021

Based on the average results of the RCA analysis, in 2011-2021 the Indonesian CPO commodity showed a value of more than one (RCA>1). It can be concluded that in 2011-2021 Indonesia has a fairly high comparative advantage for Crude Palm Oil commodities in the markets of D-8 countries. This result is paralel with studies by [31] and [32]. The study reveals Indonesian CPO commodity has strong competitiveness and comparative competitiveness in the international market.



Fig. 2. Calculation of the Average Value of Comparative Competitiveness (RCA) of Indonesian Crude Palm Oil to D-8 Countries 2011-2021

It can be seen from Figure 2, through RCA calculations that the average RCA value in 2011-2021 has the highest comparative competitiveness in Egypt, where the value reaches 505, so Egypt is considered to have a comparative advantage for CPO products and is considered capable. competitive with other producing countries in the same commodity. Meanwhile, the lowest RCA value is found in Pakistan, which is only 74, this indicates that Pakistan has the potential to import

CPO from other countries. This is an advantage that can be obtained by Indonesia as the world's largest CPO exporter.

The four analyzes above can be described in a matrix as in Table 2.

| Table 2. Market Position Matrix        |  |                           |  |  |  |  |  |  |
|--|--|---------------------------|--|--|--|--|--|--|
|  | Share of Country's export in world trade (Y) |                           |  |  |  |  |  |  |
| Share of Product in World Trade<br>(X) | Rising (Competitive)                         | Falling (Non-competitive) |  |  |  |  |  |  |
| Rising (Dynamic)                       | Rising Star                                  | Lost Opportunity          |  |  |  |  |  |  |
| Falling (Stagnant)                     | Falling Star                                 | Retreat                   |  |  |  |  |  |  |

The results of the analysis of the estimated Export Dynamic Product (EPD) of Indonesian CPO products to D-8 countries can be seen in Table 2 based on the results of the EPD calculation, the results obtained as in Table 2 indicates that the best position/potential for Indonesian CPO trade within the D-8 organizational framework is to the Pakistani market because it shows a rising star.

Table 3. Estimated Results of EPD HS 1511 Indonesia to D-8 Countries 2011-2021

| Commodity | Bangladesh | Iran    | Malaysia        | Egypt           | Nigeria | Pakistan       | Turkiye         |
|-----------|------------|---------|-----------------|-----------------|---------|----------------|-----------------|
| HS 1511   | Retreat    | Retreat | Falling<br>Star | Falling<br>Star | Retreat | Rising<br>Star | Falling<br>Star |

Meanwhile, the worst conditions for Indonesian CPO trade were seen in Bangladesh, Iran and Nigeria, because the markets of these three countries were no longer desired and were marked by a retreat. However, Indonesia can still take advantage of CPO trade relations with Malaysia, Egypt and Turkiye because the market share in these three countries (international demand) is still higher than the product market share. This means that Indonesia still has the potential to take advantage of the high market share of CPO exports in the three countries within the scope of the D-8 cooperation.

Figure 3 shows the EPD value derived from X and Y calculations. The X axis is the country's export share in international trade, while Y is the share of products in world trade. The four quadrants show the relative competitiveness of Indonesian CPO in the D-8 market.

Based on the results of the EPD calculation, the results obtained as in table 3 and figure 3 indicate that the best position/potential for Indonesian CPO trade within the D-8 organizational framework is in the Pakistani market because it shows a rising star. Meanwhile, the worst conditions for Indonesian CPO trade were seen in Bangladesh, Iran and Nigeria because the markets of these three countries were no longer desired and were marked by a retreat.



Fig. 3. Competitive position of Indonesian crude palm oil in D-8 countries 2011-2021 based on EPD analysis.

However, Indonesia can still take advantage of CPO trade relations with Malaysia, Egypt and Turkiye because the market share in these three countries (international demand) is still higher than the product market share. This means that Indonesia still has the potential to be able to take advantage of the opportunity for the high market share of CPO exports in the three countries. within the scope of D-8 cooperation.

## **5** Conclusion

The potential for Indonesian CPO trade to the markets of other D-8 member countries is quite high. This is shown by the Revealed Comparative Advantage (RCA) value of Indonesian CPO, in 2011-2021 which has quite strong competitiveness. This indicates that the Indonesian CPO market in D-8 has great potential to be developed.

The position of the Indonesian CPO market seen from the results of the EPD analysis in 2011-2021 shows that Indonesia still has the potential to be able to take advantage of the opportunity for a high share of the CPO export market in the three countries within the scope of the D-8 cooperation. This is proven by the EPD calculation results where there are rising star results in Pakistan, falling star positions in Malaysia, Egypt and Turkiye and the rest are retreats in Bangladesh, Iran and Nigeria.

Indonesia is advised to expand into new markets, especially the Developing Eight countries, namely Bangladesh, Iran, Malaysia, Egypt, Nigeria Pakistan and Turkiye in marketing CPO commodities, so that exports of CPO products can increase. The potential competitiveness of Indonesian CPO and the high demand for CPO from D-8 member countries (GDP) should be utilized as much as possible by Indonesia. In particular, the Ministry of Foreign Affairs and the Ministry of Trade are expected to carry out various initiatives in the D-8 negotiations to optimize the Preferential Trade Agreement.

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