

ANALYSIS OF THE COMPETITIVENESS OF INDONESIAN RUBBER EXPORTS IN THE MARKET INTERNATIONAL

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Abstract

The object of this study is to know the competitiveness of Indonesian rubber and articles thereof (HS 40) export in international market, also the rivals (China and Thailand) by using Revealed Comparative Advantage (RCA) to analyze the comparative advantage and Export Product Dynamic (EPD) to analyze the competitive advantage. The result shows that Indonesia has a comparative advantage and specializes in rubber and articles thereof (HS 40) export above the average of countries' based on RCA value, but this commodity is not competitive in capturing the international market based on EPD value. This study also finds the weakness of the RCA method that has been unable to identify the relative productivity (comparative advantage) of country. We underlined that RCA value in this study is not absolutely shows the strength/weakness of the countries.

Keywords: *Competitiveness, Export, EPD, RCA.*

1. INTRODUCTION

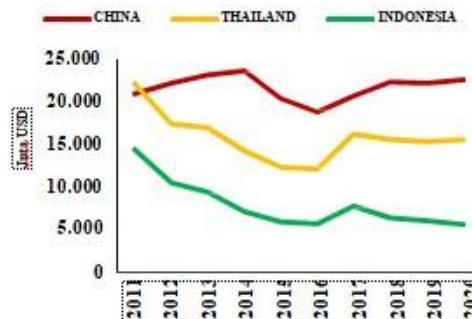
Rubber and processed export commodities rubber (HS 40) Indonesia is wrong one of the prima donnas in the international market apart from the coffee and commodity groups the palm oil. This HS 40 commodity includes several industrial sub-commodities upstream to downstream rubber industry. On range 2011-2020, export market Indonesian HS 40 commodities always is in the world's 10 largest exporters.

Meanwhile, China and Thailand always rank first among the world's HS 40 commodity exporting countries. Currently, Indonesia is in 8th place with an export value of 5,618 million USD while China and Thailand are at the top with HS 40 commodity export values respectively 22,539 million USD and 15,638 million USD (UN Comtrade, 2020).

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Ulfah et al, 2023

Figure 1. HS 40 Commodity Export Values for Indonesia, China and Thailand 2011-2020.



Source: UN Comtrade (2020)

Based on the figure above, the dynamics of HS 40 commodity exports experienced by Indonesia, China and Thailand are almost the same, as is generally the case for international trade commodities relative to global economic conditions.

During this period, these three countries experienced negative average export value growth where Indonesia's HS 40 commodity decreased by 8%, Thailand decreased by 3% while China experienced small growth of an average of 1% per year. Simultaneously, these three countries had their lowest export values, namely in 2016. This year, there are quota restrictions based on the policy of the International Tripartite Rubber Council (ITRC) which approved the Agreed Export Tonnage Scheme (AETS).

Table 1. Main Destination Markets for Commodity Exports HS 40 Indonesia 2011-2020.

Tahun	Amerika Serika (US\$)	Jepang (US\$)	Cina (US\$)
2011	3.436.644.892	2.078.758.095	2.006.856.597
2012	2.420.208.663	1.512.352.826	1.735.970.858
2013	2.184.782.959	1.336.880.055	1.550.898.808
2014	1.691.697.077	963.389.116	803.067.651
2015	1.653.588.559	793.504.370	507.195.869
2016	1.637.413.241	751.969.538	530.230.309
2017	1.836.873.806	997.656.049	1.243.574.982
2018	1.637.255.857	882.359.519	581.614.622
2019	1.578.062.495	925.365.745	451.390.112
2020	1.490.708.096	705.877.611	682.193.360
Pertumbuhan rata-rata (%)	-8	-9	0,5

Source: UN Comtrade (2020)

The main destination markets for Indonesia's HS 40 commodity exports (Table 1.1), namely the United States, Japan and China, have shown unfavorable developments, especially the export value in the United States and Japan markets has grown negatively.

respectively 8% and 9%. Meanwhile, the export value in the Chinese market only grew 0.5%. This value can be an indication that this commodity is starting to lose its market.

Apart from that, the decline in the value of Indonesia's HS 40 commodity exports is also reflected in its export share which decreases by 8% every year (UN Comtrade, 2020). The subcommodity that had a major contribution to the decline in HS 40 commodity exports was natural rubber exports, which experienced an average decline in export value of 11% in the last 10 years. Apart from that, its contribution to the export value of HS 40 commodities also continues to decline the same time, namely an average of 4% per year (UN Comtrade, 2020).

Several conditions described above raise important questions regarding the picture of the competitiveness of Indonesia's HS 40 commodities in the international market, whether their competitiveness has weakened due to the decreasing value of commodity exports or actually indicates other conditions.

Various analyzes of the competitiveness of Indonesian rubber commodity exports in the international market have actually been published in a number of studies so that it can be seen that apart from the problems above, the competitiveness of Indonesian rubber exports is assessed still quite good (Syahputra et al., 2014; Apriansyah & Sohibien, 2019). However, this research only covers natural rubber commodities, so the condition of the export competitiveness of HS 40 commodities including rubber and rubber products is not yet clear. Therefore, in this section an in-depth study will be carried out. analyze the competitiveness of Indonesia's HS 40 commodity exports in the international market by making comparisons with countries the main exporters are China and Thailand.

2. RESEARCH METHOD

This research will use several mathematical approaches, namely Revealed Comparative Advantage (RCA) and Export Product Dynamics (EPD). Meanwhile, a comparative approach is used to compare the situation of Indonesia and other main exporting countries (China and Thailand) in interpreting the analysis results.

1. COMPARATIVE ADVANTAGE ANALYSIS

Revealed Comparative Advantage (RCA) analysis is used to measure a country's trade patterns, but with it a country can be claimed to have advantages or disadvantages. comparative disadvantage. RCA can be written mathematically as follows:

$$RCA = \frac{K_{ia} / (\text{total } K_a)}{K_{iw} / (\text{total } K_w)}$$

Information:

x = commodity export value
 i = product type
 a = country of origin
 w = world or world

To find out whether a product has a comparative advantage over its exports, it is assessed based on the RCA index is between 0 and greater than 0. The value 1 is considered the dividing line between comparative advantage and disadvantage. $RCA > 1$ means the competitiveness of the country concerned for the product measured above the (world) average, whereas if $RCA < 1$ means power the competition is below average.

2. COMPETITIVE ADVANTAGE ANALYSIS

Export Product Dynamics (EPD) measurements are then used to analyze the competitive advantage of a commodity. Mathematically, the growth of business strength or what is usually called share the export market (x-axis) can be written as follows:

$$\frac{\sum_{t=1}^n \left(\frac{X_{ij}}{W_{ij}} \right)_t \times 100\% - \sum_{t=1}^n \left(\frac{X_{ij}}{W_{ij}} \right)_{t-1} \times 100\%}{T}$$

Meanwhile, the growth of market attractiveness or what is usually called product market share (y-axis) is mathematically written as following:

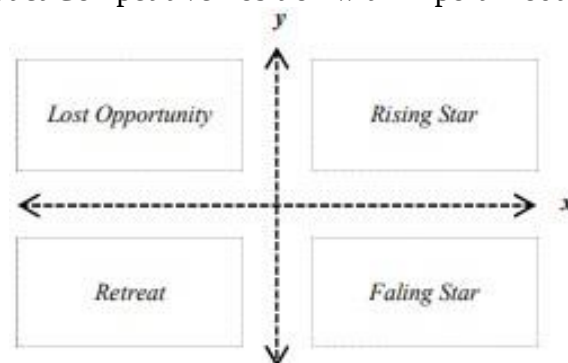
$$\frac{\sum_{t=1}^n \left(\frac{X_{ij}}{W_{ij}} \right)_t \times 100\% - \sum_{t=1}^n \left(\frac{X_{ij}}{W_{ij}} \right)_{t-1} \times 100\%}{T}$$

Information:

- X_{ij} = export value of commodity i in country j
- W_{ij} = world export value of commodity j
- X_{it} = export value of country j
- W_{it} = total world export value
- T = number of years analyzed

Export Product Dynamics (EPD) Measurement will place the analyzed product into in four categories (Figure 2)

Figure 2. Product Competitive Position with Export Product Dynamics (EPD)



Source: Esterhuizen (2006)

In the EPD method, the ideal market position has a high export share, which is called a rising star. The rising star position indicates a country's commodity that has a fast-growing

market share, while the lost opportunity position is the position of losing market share for a product that is actually dynamic. This position is an unexpected position. Falling star is an undesirable position because this position is in a condition where market share is increasing but the product is not dynamic. This position is better when compared to the lost opportunity position. Meanwhile, a retreat position is an undesirable position, namely when market share is lost and the product is not dynamic.

3. RESULTS AND DISCUSSION

3.1 COMPARATIVE ADVANTAGE ANALYSIS

The results of measuring comparative advantage are presented in Table 2.

Table 2. Revealed Index Calculation Results Comparative Advantage (RCA) Rubber and Rubber Processed Commodities (HS 40) 2011-2020

No.	Tahun	Indonesia	Cina	Thailand
1.	2011	5,50	0,86	7,51
2.	2012	4,51	0,88	6,21
3.	2013	4,67	0,95	6,73
4.	2014	3,90	0,97	6,09
5.	2015	3,83	0,87	5,65
6.	2016	3,80	0,87	5,51
7.	2017	4,28	0,85	6,43
8.	2018	3,53	0,89	6,17
9.	2019	3,55	0,88	6,5
10.	2020	2,97	0,75	5,84
Rata-rata :		4,05	0,88	6,27

Source: UN Comtrade (2020), processed

In general, the Revealed Comparative Advantage (RCA) Index actually reveals a country's trade patterns, but with it a country can be claimed to have an advantage/comparative disadvantage. The assumption underlying this is that if according to David Ricardo differences in relative productivity determine trade patterns, then trade patterns can be used to express differences in relative productivity (Sejkora & Sankot, 2017). In other words, a country specializes in commodities that have a comparative advantage, and vice versa.

If viewed based on the theory of comparative advantage, countries will specialize in the production of goods that require lower opportunity costs compared to their trading partner countries (Suranovic, 2010). In general The RCA value above shows that Indonesia and Thailand tend to specialize in HS 40 commodities above the country average in the world market. This can be easily justified by the fact that both of them are the largest rubber producers, especially natural rubber commodities, so they dominate the domestic export market for both.

The proportion of Indonesia and Thailand's HS 40 commodity exports is still dominated by exports of natural rubber sub-commodities (UN Comtrade, 2020). However, the value of Thailand's tire sub-commodity exports is much greater than its natural rubber exports compared to Indonesia.

The availability of resources makes it possible to procure natural rubber commodities at lower costs so that this commodity is highly specialized in the export market structure of Indonesia and Thailand. Although land resources are not emphasized in the Ricardian comparative advantage model, it is explained in the Hecker-Ohlin comparative advantage model that resource endowments determine a country's specialization in the production of goods that require more factors of production are relatively abundant in the country (Voinescu & Moisoiu, 2014). Indonesia's rubber plantation area is indeed the largest rubber area in the world, reaching 3.6 million hectares, but the productivity of the land owned is still low. This low productivity may also be one of the reasons for the decline in the value of natural rubber exports which ended in a decline in the value of HS 40 commodity exports.

Furthermore, another sub-commodity that dominates Indonesia's HS 40 commodity exports is tire exports, although the value is still lower than natural rubber exports. Based on UN Comtrade data (2020), Indonesian tire exports are superior in the United States and Japanese markets, where more than half of Indonesian tire exports are absorbed in the United States market. Tire industry contributes significantly to the Indonesian economy, especially tires made from natural rubber. Starting from rubber plantations, which are dominated by smallholder plantations as suppliers of raw materials, then medium industry or crumb rubber industry and downstream industry includes tire factories and distribution networks, of course this sector is quite strategic (Ministry of Trade, 2016). Development Tire and natural rubber sub-commodities will make important changes in the value of HS 40 commodity exports due to value its exports dominate. Therefore, if this commodity industrial chain becomes increasingly integrated within the country, then Indonesia will have the opportunity to increase the export value of its HS 40 commodities.

The sub-commodities of clothing and clothing accessories as well as synthetic rubber also dominate Indonesia's HS 40 commodity export market (UN Comtrade, 2020). In recent years, Indonesia's synthetic rubber exports have shown an increase, especially since the establishment of the first synthetic rubber factory, namely PT Synthetic Rubber, which was only founded in 1999. 2018, where the first phase of production from this factory is intended for export, especially for the Association of Southeast Asian Nations (ASEAN) region.

Apart from the findings above, the results of the RCA analysis show that the RCA value of Indonesian HS 40 commodities continues to decline with an average negative growth of 6% per year. Apart from low rubber land productivity, Indonesia faces fluctuations in HS 40 commodity prices on the world market for each sub-commodity owned, as does Thailand. This is shown in the export dynamics faced by both of them showing trends that tend to be the same (Figure 1). Therefore, Indonesia needs to increase the volume of rubber

exports, one of which is by increasing the productivity of natural rubber, which is still low so that its contribution to the cumulative value of HS 40 can increase. Apart from that, it is very important for Indonesia to expand the areas of comparative advantage it has in every sub-commodity other than natural rubber, and for the mobility of domestic production factors to be devoted to expanding the rubber processing industry which produces added value for the natural rubber commodities produced.

Based on the results of the RCA analysis, it can be seen that China has a comparative disadvantage in the commodities analyzed. If this is viewed based on the theory of comparative advantage, China's rubber trade should not be profitable, but the reality is that China even occupies the top position according to world rubber commodity trade data. Thus, there are weaknesses in the RCA calculation in interpreting China's relative productivity (comparative advantage).

3.2. COMPETITIVE ADVANTAGE ANALYSIS

Table 3. Calculation Results of the Export Product Dynamic (EPD) Index for Rubber and Rubber Processed Commodities (HS 40) 2011-2020

No.	Negara	Pertumbuhan Pangsa Pasar Ekspor (Sumbu X)	Pertumbuhan Pangsa Pasar Ekspor (Sumbu y)	Posisi Pasar
1.	Indo- nesia	-0,29 (non- competitive)	-0,001 (stagnant)	<i>Retreat</i>
2.	Cina	0,43 (competitive)	0,72 (dynamic)	<i>Rising Star</i>
3.	Thailand	-0,03 (non- competitive)	0,03 (dynamic)	<i>Lost Opportunity</i>

Source: UN Comtrade (2020), processed

The HS 40 commodity positions of the three countries analyzed in the complete EPD matrix can be seen in Figure 3.

Figure 3. Export Product Dynamic Matrix for rubber and processed commodities rubber (HS 40)



Source: UN Comtrade (2020), processed

Indonesian HS 40 commodities are in a retreat position based on Figure 3. This means that Indonesian HS 40 commodities are growing in a market that is neither competitive nor dynamic. This position may be undesirable because it reflects a commodity that is no longer desired in the market, but it may be desirable if the commodity's growth movement is towards dynamic growth and away from stagnant products (Estherhuizen, 2006).

If you look closely, growth Indonesian product market share begins has improved since the last 3 years, moreover Indonesia's position in Figure 4.5 is close approaching the position of lost opportunity so It is estimated that the product market movement Indonesia is currently approaching dynamic product growth.

Thailand itself is in a lost opportunity position where this position is very unprofitable because Thailand's HS 40 commodities grow in an uncompetitive export market even though the product market is actually dynamic. This is in line with a negative growth value in the export share of these commodities in the last 10 years, namely an average of minus 0.09% per year (UN Comtrade, 2020).

Meanwhile, China is in an ideal position, namely a rising star, where this position is very profitable because Chinese HS 40 commodities are growing in a competitive and dynamic market. As Prima donna exporter, this situation is not surprising for a country like China, let alone the share of HS 40 commodity exports China has experienced positive growth on average in the last 10 years (UN Comtrade, 2020). This reflects that the movement of the Chinese product market continues to lead to dynamic (competitive) product growth.

Apart from that, the growth in the export market share of the three countries above is also in line with the trend in the export value of HS 40 commodities as previously explained in Figure 1.1, namely that Indonesia experienced an average decline in exports of 8% and Thailand also experienced an average decline of 3%. Every annually, while only China experienced a small increase of 1% per year on average.

The results of the Export Product Dynamic (EPD) analysis above can also be used to explain conditions found in China, which previously could not be found through RCA

analysis. The results of this analysis show that Chinese HS 40 commodity exports have a competitive advantage in the international market, whereas this is not found in Indonesian or Thai HS 40 commodities. This is reflected in China's HS 40 commodity export market share which has experienced positive growth in the last 10 years, while Indonesia and Thailand's share of HS 40 commodity exports has actually grown negatively over the same period.

Based on Michael Porter's theory of competitive advantage, the success/prosperity of a country in trade it is not inherited or does not need to depend on resources or exchange rates. On the other hand, the prosperity of a country designed by a national company that is successful in the world market. A country's competitiveness depends on industrial capacity in innovating. This ability to innovate then depends on four things: a) factor conditions, b) demand conditions; c) related industries and supporting industries; and d) competition, company structure and strategy.

The large value of China's rubber exports is closely related to the increasingly rapid growth of the tire industry in this country. Tire export dominates China's HS 40 commodity export market (Table 4.1). China has established an integrated tire industry chain. Tire raw materials are now produced in China except for natural rubber, which is mostly still imported. However, there are advantages to importing materials. The raw material in the form of natural rubber in China has now pushed natural rubber production in China to continue to grow. Slowly this will reduce China's external dependence. However, this progress implies that Indonesia and Thailand will begin to lose the main destination markets for their natural rubber exports.

4. CONCLUSION

Here are some conclusions from analysis carried out in this research:

- a. Comparative advantage. Indonesia and Thailand still have a comparative advantage in exporting HS 40 commodities while China does not have a comparative advantage in these commodities. The comparative advantage value of Indonesia's HS 40 commodities always remains decreased in the last 10 years with an average negative growth of 6%. Meanwhile, the RCA value showing China's comparative disadvantage reveals the weakness of this analysis in revealing the value of a country's comparative advantage.
- b. Competitive advantage. China has a competitive advantage in HS 40 commodities, but this is not the case with Indonesia and Thailand which have a competitive advantage in these commodities.

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