

ANALYSIS OF INDONESIAN COCOA'S COMPETITIVENESS IN THE INTERNATIONAL MARKET

M. A Ikhwan, Jusni, Mahyuddin
Hasanuddin University, Indonesia
Email: muhammadadib262@gmail.com

Abstract

The cocoa commodity contributes the fourth highest national income after palm oil, rubber and coconut. The cocoa market has great potential as seen from the increase in world consumption, so Indonesia is expected to take advantage of the opportunities available. This study aims to analyze Indonesia's cocoa competitiveness in the international market with several countries that are the largest exporters of selected cocoa products in 2018-2022. The analysis methodology of this research measures the competitiveness of commodities in the global market using a mathematical framework. The analysis is used to process quantitative data. Revealed Comparative Advantage (RCA) is used to determine the competitiveness of Indonesian cocoa in the international market. Index of Trade Specialization (ISP) analysis was then conducted to determine the competitiveness position. The results of the RCA analysis show that Indonesia's competitiveness is strong for the commodities of cocoa paste, cocoa fat and cocoa powder, while the cocoa beans are still weak. The results of the ISP calculation for 2018-2022 show that Indonesia is an exporting country for kakao paste, kakao fat and kakao powder, while for kakao seeds Indonesia is an importer

Keywords: Indonesian Cocoa's, Competitiveness, International Market

This article is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International](https://creativecommons.org/licenses/by-sa/4.0/)



INTRODUCTION

The agricultural sector has an important role in economic activities in Indonesia, this can be seen from its contribution to the Gross Domestic Product (GDP) which is quite large, which is around 12.20 percent in 2022 or ranks third after the Manufacturing Industry sector of 18.34 percent and the Wholesale and Retail Trade; Car and Motorcycle Repair sector of 12.85 percent. 18.34 percent and the Wholesale and Retail Trade; Car and Motorcycle Repair sector at 12.85 percent. During the economic crisis, this sector was quite strong in the face of economic shocks and turned out to be reliable in the recovery of the national economy."(Statistik, 2019).

The cocoa commodity (*Theobroma cacao* L.) is one of the mainstay plantation commodities that plays an important role in the Indonesian economy, namely as a foreign exchange earner, source of income, job creation, encouraging the development of agribusiness and agro-industry as well as the development and management of regional natural resources. The cocoa commodity contributes US\$1.2 billion per year in national

foreign exchange (exports) from a total land area of 1.6 million hectares. In 2022, cocoa production reached 649.39 thousand tonnes from 99.63% smallholder plantations.

Table 1 Growth of Plantation Area and Production of Cocoa, 2018–2022

Years	Area (Ha)	Production (Ton)
2018	1.611.014	767.280
2019	1.560.945	734.795
2020	1.508.955	720.660
2021	1.460.396	688.210
2022	1.421.009	650.612

In the last five years, cocoa bean production has continued to decline in line with the decline in cocoa plantation area. In 2018, cocoa bean production reached around 767,280 tons. Then it continued to decline until in 2022, cocoa bean production only reached around 650,612 tons. The largest cocoa bean production in 2022 comes from Central Sulawesi Province with a total production of 130,848 tons or around 20.11 percent of the total cocoa bean production in Indonesia. In the second position is Southeast Sulawesi Province with a production of 104,649 tons or around 16.08 percent.

According to UN Comtrade, cocoa and other cocoa preparations, HS code 18, are grouped into sections with different HS codes. Cocoa beans, HS code 1801, are the seeds contained in the fruit of the cocoa tree, including all or part of it, raw or roasted. Cocoa shells, husks, skins and waste, HS code 1802, are the shells, husks and other cocoa parts removed during processing. Cocoa paste (cacao paste/liquor), HS code 1803, is the portion obtained after grinding roasted cocoa beans, the fat having been completely removed. Cocoa butter, HS code 1804, is the portion of cocoa obtained from the beans and paste after pressing, including fats and oils. Cocoa powder, HS code 1805, is all or part of the defatted cocoa paste, converted into powder, without added sugar or other sweeteners. Chocolate and other food preparations containing cocoa, HS code 1806, consists of sweetened cocoa powder and other processed cocoa products ready for consumption. Each commodity has a different selling value depending on the amount of added value generated from each cocoa processing process (Comtrade, 2020).

Table 2. Development of Cocoa Bean Export Volume and Value, 2018-2022

Years	Volume (Tons)	Value (000 US\$)
2018	380.827	1.245.794
2019	358.841	1.198.734
2020	377.849	1.244.184
2021	382.712	1.206.775
2022	385.421	1.259.655

The data above shows that cocoa exports in terms of both volume and value have fluctuated over the last five years. In 2018, cocoa export volume reached 380,827 tons with a total value of around US\$ 1.25 billion. Then in 2019 it decreased to 358,481 tons with a total value of around US\$ 1.20 billion. Furthermore, the volume of cocoa exports continued to increase until in 2022 it reached 385,421 tons with a total value of around US\$ 1.26 billion. However, in 2021, the increase in cocoa export volume was not followed by the export value, where the cocoa export value actually decreased by 3.01 percent from 2020.

Exports of processed cocoa remain minimal in relation to exports of cocoa beans. About ninety three percent of Indonesia's cocoa production was shipped outside in 2009

(Syadullah, 2012). This is based on the export value, which rose to USD 1.08 billion in 2009 and subsequently expanded by USD 567 million to USD 1.19 billion in 2010. Only 20 to 30 percent of Indonesia's cocoa bean production is consumed by the country's domestic industry; the rest is exported and used as raw material for downstream cocoa industries in nations like the US, Singapore, China, Malaysia, and the European Union that comparatively lack sources of raw materials for cocoa beans (Puspita et al., 2015). This causes the domestic cocoa processing industry to lack raw materials.

The government then established a policy on export tariffs for cocoa beans, as specified in Minister of Finance Regulation No.67/PMK.011/2010, with the goal of developing the indigenous cocoa processing industry. In order to guarantee the supply of cocoa beans on the domestic market as a raw material for the processing sector to create downstream domestic processed cocoa products, this policy regarding export duties on cocoa beans was put into effect in April 2010.

According to data from the International Trade Center (ITC), there has been a notable decline in both the value and volume of cocoa bean exports since the implementation of export duties in 2010. The export value of the beans has decreased by 48.3 percent, or USD 576 million, while the export volume has decreased by 51.4 percent, or 222,359.8 tons. On the other hand, after export taxes were implemented in 2010, exports of processed cocoa products such as paste, fat, and cocoa powder have started to rise in terms of both value and volume. The value of cocoa paste, fat, and powder exports increased by 91.6 percent, 28.6 percent, and 53.1%, respectively. Pasta, fat, and cocoa powder export volumes increased by 84.5 percent, 76.7 percent, and 14.1 percent, respectively, during this time. Exports of processed cocoa products have started to overtake exports of cocoa beans, which previously made up the majority of cocoa exports, as seen by the growth in both the value and volume of these exports. The amount of cocoa exported is impacted by the imposition of export taxes on cocoa beans (Jackson, 2021).

The potential for the domestic cocoa sector to grow is significant, given the higher selling value of items made from cocoa derivatives as opposed to selling raw cocoa beans. The government then implements policies and initiatives to assist this. Nevertheless, cocoa beans are not instantly given up on; they are still a staple product for exports today. To ensure a seamless transition to concentrating on exporting items derived from cocoa, this must be done in phases. In terms of sales value, the Netherlands is now the world's largest exporter of items derived from cocoa. Although Indonesia is one of the major exporters of items derived from cocoa, it must make improvements in a number of areas if it is to surpass the Netherlands as the world's top exporter of these products.

Every nation is being encouraged to produce items that are sold on worldwide markets by the present trade liberalization. As a nation that engages in active international commerce, Indonesia must also enhance the value of its products to make them more competitive in the global market. Adding value to cocoa is a brilliant idea that might be implemented to boost the nation's foreign exchange earnings. The global and Indonesian economic growth trends have resulted in a rise in the demand for cocoa products, including both beans and processed goods. Ultimately, in order to make all of Indonesia's cocoa goods competitive with those made in other nations, the country must not just grow cocoa derivative products but also the cocoa beans itself.

From the description above, it can be seen that Indonesia's cocoa bean exports tend to decline, although it is still a sector that is relied upon as one of the major foreign exchange earners. On the other hand, exports of Indonesian cocoa derivative products are slowly increasing in line with government policies. Exporting intermediate products or

processed forms of cocoa ready for consumption will provide more foreign exchange for the country when compared to selling cocoa beans without further processing. Moreover, in this era of globalisation, only countries with high competitiveness will dominate the international market. Therefore, research on Indonesia's cocoa competitiveness needs to be conducted to determine Indonesia's competitiveness position in cocoa commodity trade in the international market.

RESEARCH METHODS

Types and Sources of Research Data

This study employed secondary data, which includes both domestic and foreign sources. Time series data covering the years 2018 through 2022 are used. Production data, cocoa area, import volume, import value, export volume, and export value are the components of time series data. The object of the research were cocoa in the form of cocoa beans with code 1801, cocoa paste, whether or not defatted with code 1803, cocoa butter with code 1804, and cocoa powder with code 1805. The data was obtained from the Ministry of Agriculture, Central Bureau of Statistics (BPS), Ministry Trade, and the UN Comtrade website. Other data sources are books, journals, theses related to export competitiveness which are then processed systematically and objectively.

Data Analysis and Processing Methods

This study's analytical methodology measures commodity competitiveness in global marketplaces using a mathematical framework. Analysis is used to process quantitative data. Revealed Comparative Advantage (RCA) is used to determine the competitiveness of Indonesian cocoa in the international market. Trade Specialization Index (ISI) analysis is then performed to determine the competitiveness position.

2.2.1. Revealed Comparative Advantage (RCA). Revealed Comparative Advantage (RCA) is used to look in more detail at Indonesian cocoa commodities competing with other cocoa exporting countries in the international market. The basic concept of the RCA method is to analyze the comparative advantage position of Indonesian cocoa and processed cocoa products with other cocoa producing countries in the international market.

This analysis uses a comparison of five major exporting countries for each product. The results of the RCA will compare the comparative advantage of each country. The data required in this RCA method is the export value of cocoa commodities from the five comparison countries and the world as well as the total export value of the five comparison countries and the world. The first formulation of RCA by Balassa and Bella (1965) is as follows:

$$RCA = \frac{(X_{ij}) / (X_{it})}{(W_j) / (W_t)}$$

Information:

X_{ij} = export value of commodity j from country i

X_{it} = total export value of country i

W_j = total world export value of commodity j

W_t = total world export value.

RCA values range from zero to infinity. An RCA value > 1 , indicates that the commodity's share in a country's total exports is greater than its average share in world exports. Then the commodity has a comparative advantage and the commodity is export oriented because it has high competitiveness. An RCA value of < 1 indicates that the commodity's share in a country's total exports is less than its average share in world exports. Then the commodity should not be export oriented because it has low competitiveness.

Index of Trade Specialization (ISP).

The Index of Trade Specialization (ISP) is used to explain Indonesia's position as an exporter or importer. The ISP index value ranges from -1 (net importer) to +1 (net exporter). If the value is positive above 0 to 1, then the commodity is said to have strong competitiveness or the country tends to be an exporter. Conversely, competitiveness is low or tends to be an importer if the value is negative (below 0 to -1). If the index rises, it means that competitiveness increases, and vice versa. In the introduction stage, the ISP ranges from -1 to -0.5; the import substitution stage is between -0.4 and 0; the export expansion stage is between 0 to 0.7; the mature stage is 0.8-1. By using this ISP tool, an overview of changes or shifts in comparative advantage for each product can be obtained. In Tambunan (2004) mathematically, this index can be formulated as follows:

$$\text{ISP} = \frac{X_{ia} - M_{ia}}{X_{ia} + M_{ia}}$$

Information:

ISP : Trade Specialization Index

X_{ia} : Export value of product i in Country a

M_{ia} : Import value of product i in Country a

RESULT AND DISCUSSION

Indonesia has a great opportunity to supply the world's cocoa needs. It is known that the level of world cocoa consumption shows an increasing trend from year to year. This is a good opportunity for Indonesia in the future. To be able to take advantage of this opportunity, Indonesian cocoa producers must be able to compete with cocoa producers from competitor countries. This requires high competitiveness, not only in production capability, but also in the quality of the cocoa products produced. Indonesia needs to focus on cocoa products that have the highest competitiveness in order to continue to compete with major competitor countries in international trade.

Competitiveness Analysis (RCA) of Indonesian Cocoa

RCA measures a country's export market share in the same industry group as other exporting countries. other exporting countries, so it is widely used to measure comparative advantage (Serin & Civan, 2008). In this analysis, the RCA value of Indonesian cocoa beans and processed cocoa will be compared with other major producing countries in the world market. The higher the RCA value, the higher the comparative advantage of the country, and vice versa.

Comparative advantage of cocoa bean trade (HS 1801)

The main cocoa bean exporting countries (HS 1801) consist of Côte d'Ivoire, Ghana, Cameroon, and Ecuador, all of which already have a comparative advantage, as seen from the RCA values of these countries having values greater than one. Côte d'Ivoire, Ghana and Cameroon have very high RCA values, compared to Indonesia and Ecuador. This shows that the percentage of cocoa bean export value to the total export value of these three countries is much greater. It also shows that Côte d'Ivoire, Ghana and Cameroon rely heavily on cocoa bean exports. When compared to other major cocoa bean exporters, Indonesia's comparative advantage in cocoa bean exports is far below Côte d'Ivoire, Ghana, Cameroon and Ecuador. Indonesia's average RCA score for cocoa beans over the last five years has been below 1, indicating that Indonesia no longer has a comparative advantage and cocoa beans are no longer the largest contributor to Indonesia's cocoa exports (HS 18) (Table 3).

Table 3. Results of RCA Analysis of Cocoa Bean Commodity (HS 1801)

Years	Indonesia	Côte d'Ivoire	Ghana	Cameroon	Ecuador
2018	0,83	567,93	294,15	228,06	64,21
2019	0,99	568,45	227,14	248,28	60,54
2020	0,92	579,19	205,44	269,85	80,24
2021	0,51	591,42	248,95	238,06	65,99
2022	0,61	543,80	176,13	177,09	71,98
Average	0,77	570,37	230,44	232,35	68,62

Comparative advantage of cocoa paste trade (HS 1803)

The main exporting countries of cocoa paste (HS 1803), namely Côte d'Ivoire, Ghana, the Netherlands and Germany, all have a comparative advantage, as the RCA values of these countries are greater than one. Côte d'Ivoire has an RCA value that is far behind its competitors. The average RCA value of Côte d'Ivoire for cocoa paste over the last five years is 300.01. The very high RCA value indicates that Côte d'Ivoire has a very high comparative advantage in cocoa paste. Ghana came second with an average index value of 161.71, followed by the Netherlands in third place. Indonesia has a better comparative advantage when compared to Germany. After the BK policy in 2010, there was a significant increase in the RCA value of cocoa paste in Indonesia. This shows that Indonesia has a fairly good comparative advantage in cocoa paste commodities so that it can be said to be able to compete in international trade (Table 4)

Table 4. Results of RCA analysis of Cocoa Paste (HS 1803)

Years	Indonesia	Côte d'Ivoire	Netherland	Ghana	Germany
2018	5,80	317,57	6,09	154,76	1,30
2019	5,31	301,73	5,77	153,03	1,21
2020	4,44	301,11	6,55	159,60	1,07
2021	3,95	289,52	7,32	187,68	1,24
2022	4,36	290,11	6,18	153,47	1,32
Average	4,77	300,01	6,38	161,71	1,23

Comparative advantage of cocoa butter trade (HS 1804)

Indonesia has an average RCA value of 13.72 and is the highest average value among other major cocoa butter exporting countries, such as the Netherlands, Malaysia, Germany and France. The RCA values of the Netherlands and Malaysia are relatively similar. Malaysia experienced an increase in RCA value at the beginning of the analysis period. The Netherlands in the last 5 years showed a slowly declining RCA index value since 2018. France and Germany have comparative advantages although their values are relatively lower than Indonesia, the Netherlands and Malaysia (Table 5).

Table 5. Results of RCA analysis of Cocoa Butter (1804)

Years	Indonesia	Netherland	Malaysia	Germany	France
2018	16,15	9,23	5,58	1,12	2,84
2019	15,44	8,97	8,49	1,15	2,55
2020	14,96	8,67	7,93	1,04	2,96
2021	11,49	8,33	8,05	1,35	3,17
2022	10,58	7,68	8,46	1,35	3,31
Average	13,72	8,57	7,70	1,20	2,97

Comparative advantage of cocoa powder trade (HS 1805)

The Netherlands and Malaysia have comparative advantages that are quite high in value. Indonesia is in third place with an average RCA value of 7.68 over the last five years. Indonesia's RCA value shows an increase even though it fell in 2021 but then rose again in 2022. The increase in the RCA index of Indonesia's chocolate powder commodity occurred due to an increase in the volume of chocolate powder exports. Germany and France have a comparative advantage although the value is quite low (Table 6)

Table 6. Results of RCA analysis of Cocoa Powder (1805)

Years	Indonesia	Netherlands	Malaysia	Germany	France
2018	6,88	9,76	7,75	1,50	2,03
2019	6,90	9,80	9,47	1,47	1,99
2020	8,27	9,06	8,76	1,39	2,11
2021	8,09	9,20	8,77	1,43	2,10
2022	8,25	8,36	8,93	1,58	2,13
Average	7,68	9,24	8,73	1,47	2,07

Index of Trade Specialization (ISP) Analysis

The trade position of Indonesian cocoa beans and processed cocoa products is measured using the Index of Trade Specialization (ISP). ISP can see the position or stage of development or growth rate of cocoa products in trade. The Index of Trade Specialization (ISP) can see that a country tends to be an exporter or importer of a commodity.

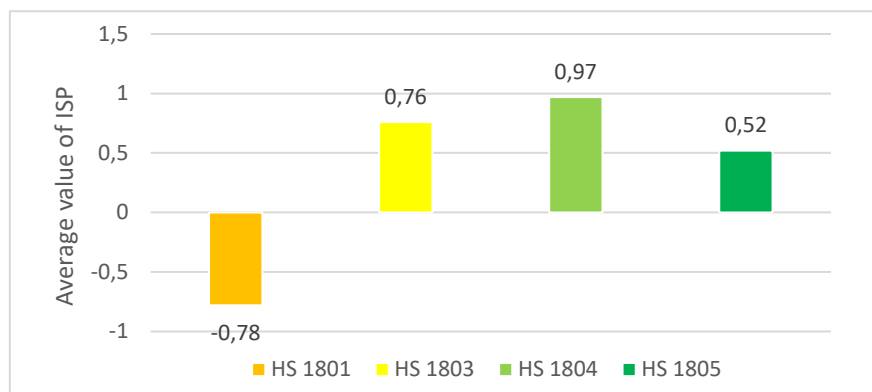


Figure 1 Average ISP Value of Four Indonesian

The image above shows the average ISP value of four Indonesian cocoa products using data from the last five years. The ISP value for cocoa beans (HS 1801) is -0.78, indicating that Indonesian cocoa beans tend to be importers and have low competitiveness. Indonesian cocoa paste (HS 1803) received an ISP value of 0.76, indicating that this product is competitive and is in the growth stage, in accordance with the rules for dividing the growth stages of traded commodities based on the ISP index which is divided into five stages, namely the introductory stage. and with the ISP index value -1.00 to 0.50, initial production stage with an ISP index value of -0.50 to 0.00, growth stage with an ISP index of 0.01 to 0.80, maturity stage and with an ISP index of 0.81 to 1.00 and the return to import stage with an ISP index of 1.00 to 0.00. The ISP value for cocoa butter (HS 1804) was 0.97, indicating that Indonesian cocoa butter has high competitiveness and is at the maturity stage, while for cocoa powder (HS 1805) it is at the production stage with an ISP value of 0.52.

CONCLUSION

Based on the results of the analysis that has been carried out regarding the analysis of the competitiveness of Indonesian cocoa commodities in the international market during 2018 to 2022, several conclusions are obtained Based on the Revealed Comparative Advantage (RCA) calculation, Indonesia has a weak comparative advantage for cocoa beans (HS 1801), the value obtained is only 0.77 and lags far behind Ivory Coast which obtained a value of 570.37. Indonesia has a fairly high comparative advantage for cocoa paste (HS 1803), close to the Netherlands, although it lags far behind Ghana and Côte d'Ivoire. Indonesia has the highest comparative advantage in cocoa butter (1804), higher than the Netherlands, Malaysia, France and Germany. Indonesia has the highest comparative advantage in cocoa powder (HS 1805), higher than France and Germany and slightly behind Malaysia and the Netherlands. The Index of Trade Specialization (ISP) value of cocoa beans (HS 1801) is decreasing and is even at the

introduction stage or can be said to be a country that tends to import. Cocoa paste (HS 1803) and cocoa powder (HS 1805) are at the export expansion stage. Only cocoa butter products (HS 1804) are in the maturity stage. As measured by the Index of Trade Specialization (ISP), Indonesia tends to be an exporter except for cocoa beans.

REFERENCES

- Comtrade, U. N. (2020). United Nations Commodity Trade Statistics. *Http://Comtrade.Un.Org/Db/Default.AspX*.
- Jackson, S. D. (2021). *International Trade in Services: Effective Practice and Policy*. CRC Press.
- Puspita, R., Hidayat, K., & Yulianto, E. (2015). *Pengaruh Produksi Kakao Domestik, Harga Kakao Internasional, Dan Nilai Tukar Terhadap Ekspor Kakao Indonesia Ke Amerika Serikat (Studi pada Ekspor Kakao Periode Tahun 2010-2013)*. Brawijaya University.
- Serin, V., & Civan, A. (2008). Revealed comparative advantage and competitiveness: A case study for Turkey towards the EU. *Journal of Economic and Social Research*, 10(2), 25–41.
- Statistik, B. P. (2019). Statistik Kakao Indonesia 2019 [internet].[diunduh 2021 Oktober 07]. *Tersedia Pada: HttPs://Www.Bps.Go.Id/Publication/2020/12/02/2ac5a729f43e5f6b666e482d/St Atistik-Kakao-Indonesia-2019.Html*.
- Syadullah, M. (2012). Dampak kebijakan bea keluar terhadap ekspor dan industri pengolahan kakao. *Buletin Ilmiah Litbang Perdagangan*, 6(1), 53–68.

Copyright holders:

M. A Ikhwan, Jusni, Mahyuddin (2023)

First publication right:

AJEMB – American Journal of Economic and Management Business
