



Market Potential Analysis of Indonesian Cinnamon Exports in International Markets

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ABSTRACT

Indonesia is known as one of the world's spice-producing countries. One of the spices produced by Indonesia is cinnamon, which has many benefits and a high economic price. However, the existence of various obstacles in exporting cinnamon makes Indonesia have to select cinnamon export markets in destination countries. The purpose of this study is to analyze the potential development of Indonesia's cinnamon export markets. This research uses the analysis methods of Revealed Comparative Advantage (RCA), Export Product Dynamic (EPD), and X-model potential export product. The results of the study can be concluded that the destination countries of China and India are in the position of optimistic market. While the Netherlands and Thailand are in the position of potential market.

INTRODUCTION

Economic development makes countries need each other to fulfill their needs and market their superior products, so they exchange goods and services in international trade (Bustami & Hidayat, 2013). In Indonesia, the agricultural sector has an important role to play in the improvement of the national economy (Indelman et al., 2022). The agricultural sector has proven its ability to recover the economy during a crisis (Firmansyah et al., 2017). Exports are one of the most important factors in the economy of a country. The contribution of exports to the national economy can strengthen overall development. An increase in exports will attract investment in exported goods, absorption of employment, and maximize the benefits of the country's local natural resources (Astuti, 2018). One of the spice products that Indonesia exports is cinnamon.

Indonesia is one of the world's largest producers and exporters of spices with a contribution of 21,06 percent to the total world spice market in 2013 (Hermawan, 2015). Cinnamon is one of the spice export commodities by Indonesia since 1960. Indonesia has several cinnamon producing centers, including West Sumatra and Jambi.

In 2015, cinnamon was the third largest contributor to exports in Indonesia for spices at 12,6% after pepper at 66,5% and nutmeg at 13,1%. In 2016, Indonesia's cinnamon export volume to the world market reached 48.899.734 kg or equivalent to 37,04% of the world's total cinnamon exports. From 2015 to 2016, the average contribution of Indonesian cinnamon was 19,1%. The large contribution of Indonesian cinnamon from 2015 to 2016 placed Indonesia as the fourth largest country in the international market after China, Sri Lanka, and Vietnam (Nurhayati, 2020; Supriana et al., 2022). Indonesia exports cinnamon to various destination countries, including the United States, Australia, the Netherlands, Brazil, England, Germany, Malaysia, Mexico, Spain, and Thailand (Iskandar et al., 2012; Pribadi, 2016).

Export activities occur due to the influence of market size and economic strength of each importing country. In addition, export activities are carried out because of a production surplus and great potential in world trade (Sundari et al., 2023). Export activities are also influenced by the supply of cinnamon in the country and demand from abroad. The amount of Indonesian cinnamon export volume fluctuates every year. Where the export volume and export value of Indonesian cinnamon from 2016 to 2020 are shown in Figure 1.



Source: Agricultural Data and Information Systems Center (2022)

Figure 1. Development of export volume and export value of Indonesian cinnamon from 2016 to 2020

Based on Figure 1, it shows that the highest export volume of cinnamon from 2016 to 2020 was 50.459 tons in 2017. While the highest value of cinnamon exports from 2016 to 2020 was US\$ 151.292.000 in 2020. The value of cinnamon exports experienced a large increase in 2016 from US\$ 94.155.000 to US\$ 148.064.000 in 2017. The export volume fluctuated for five years from 2016 to 2020. The demand for spices such as cinnamon, pepper, vanilla, ginger and others can affect the increase in cinnamon export volume. The growth of world spice consumption reaches 10,2% annually (Santoso et al., 2022). The competitiveness of Indonesian cinnamon in the international market may influence the decline in the volume of cinnamon exports (Rambe & Malau, 2023). Changes in exported volumes are also influenced by the amount of cinnamon produced by each exporting country. If the land area for planting increases, it will have a positive impact on Indonesia in producing cinnamon sustainably (Sa'diyah & Darwanto 2020).

Table 1. Area and Production of Cinnamon in Indonesia

Year	Area (Ha)	Production (Ton)
2016	98.502	80.335
2017	94.604	73.192
2018	90.916	76.922
2019	88.315	72.773
2020	88.448	48.836

Source: Agricultural Data and Information Systems Center (2022)

Based on table 1, the largest area of Indonesian cinnamon from 2016 to 2020 was 98.502 ha in 2016. While the largest production of Indonesian cinnamon from 2016 to 2020 was 80.335 tons in 2016. Changes in the development of Indonesia's

cinnamon area and production are the most important factors in the development of Indonesia's cinnamon export market.

Based on the description above, the purpose of this study is to analyze the potential development of the Indonesian cinnamon export market.

THEORETICAL REVIEW

Competitiveness

International trade is a reflection of a country's export and import activities. Where international trade activities aim to seek profits from a trade carried out. Increasing a country's export activities needs to pay attention to competitiveness. Competitiveness is the ability of a product to enter the foreign market and the ability to survive in this market. A product that is competitiveness is in great demand by consumers (Wardani & Mulatsih, 2017). The competitiveness of a country can also depend on changes in basic demand behavior, the level of competition, and the basic capabilities possessed by industries in a country, hence competitiveness is dynamic and fluctuates over time.

Revealed Comparative Advantage (RCA)

The concept of the RCA method is that trade between regions actually reflects a region's comparative advantage (Pramesti et al., 2017). Measurement with this RCA method can determine the comparative advantage of a country. The comparative advantage is the competitiveness of an export commodity from a country against the export of that commodity throughout the world. Comparative advantage in producing these commodities does not only come from natural factors but can also be created (Firmansyah et al., 2017).

Export product dynamic

Export Product Dynamics (EPD) is a method employed to identify the competitive advantage of a product and to measure the market position of a country's product in a specific market destination. This approach is also used to determine whether a product is a dynamic performer or not. In addition, this competitive advantage is more often used to measure a company's superiority and profit sustainability over its competitors (Firmansyah et al., 2017). The EPD matrix employs market attractiveness, as gauged by demand growth, as the horizontal axis (X-axis), and business strength, as gauged by market share growth, as the vertical axis (Y-axis). Export product dynamic produces four categories of market positions, namely rising star, falling star, lost opportunity and retreat (Anggrasari et al., 2021). Rising star is an ideal position in market share due to its rapidly growing market share and product share. Lost opportunity is an undesirable market position because it is a position where the market share of all commodities falls. Falling star is a position where the market share of all commodities rises, but the product market share falls. Retreat is a position where both sides of a commodity or all commodities have decreased (Nugraheni et al., 2021).

METHODOLOGY

This research uses secondary data. The data used is the value of Indonesian cinnamon exports in destination countries (the Netherlands, China, India and Thailand) over a period of 18 years from 2004 to 2021. The object of this research is cinnamon with HS code 0906. The data sources used are UN Comtrade, The Central Statistics Agency, The Indonesian One Data Center of the Ministry of Agriculture, and other literature related to this research.

The data analysis methods used in this study are the RCA method to determine the comparative advantage of Indonesian cinnamon in destination markets, the EPD method to determine the market position of Indonesian cinnamon in destination markets, and the X-model potential export product to determine the market development position of Indonesian cinnamon in destination markets.

The RCA method is used to determine the comparative advantage of Indonesian cinnamon in destination markets. The RCA formula used is as follows:

$$RCA = \frac{X_{ij}/X_j}{X_{iw}/X_w}$$

Where:

- X_{ij} : Indonesian cinnamon export value to destination country (the Netherlands, China, India and Thailand) (US\$)
- X_j : Total export value of Indonesia to destination countries (the Netherlands, China, India and Thailand) (US\$)
- X_{iw} : World export value of cinnamon to destination countries (the Netherlands, China, India and Thailand) (US\$)
- X_w : Total world export value to destination countries (the Netherlands, China, India and Thailand) (US\$)

The results of the RCA calculation (Rochdiani et al., 2023) can be interpreted as follows:

- a. $RCA < 1$, indicating that a country has a comparative advantage below the world average.
- b. $RCA > 1$, indicating that a country has a comparative advantage above to the world average.

Export Product Dynamics (EPD)

Export Product Dynamics (EPD) is an indicator used to measure the market position of a country for a particular market destination and the dynamism of a product in the market. EPD analysis contains a matrix that shows the share of a country's exports in world trade and the share of product exports in world trade (Hanafi & Tinaprilla, 2017). An Export Product Dynamics (EPD) matrix is comprised of two distinct elements: market attractiveness and business strength. Market attractiveness is calculated based on the growth of a product's demand for a particular market destination. In contrast, business strength information is measured based on the growth of a country's market share in a particular market destination. This combination of market attractiveness and

business strength characterizes the position of the product to be analyzed into four categories namely "Rising Star", "Falling Star", "Lost Opportunity", and "Retreat" (Patone et al., 2020).

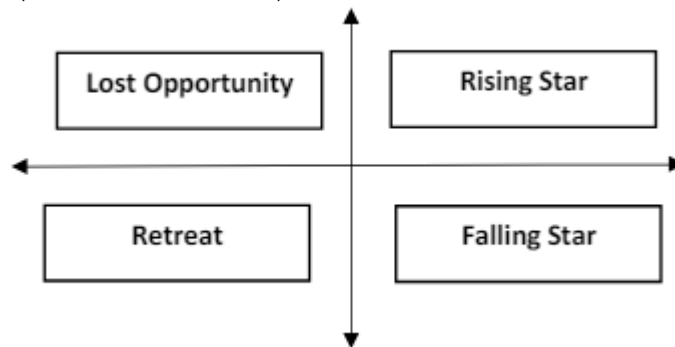


Figure 2. Product Market Share Position

Source: Patone et al. (2020)

X-axis: Export market share growth

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

Y-axis: Product market share growth

$$\frac{\sum_{t=1}^T \left(\frac{X_t}{W_t} \right)_t \times 100\% - \sum_{t=1}^T \left(\frac{X_t}{W_t} \right)_{t-1} \times 100\%}{T}$$

Description:

X_{ij} : The Export value of Indonesian cinnamon commodities to destination countries (the Netherlands, China, India and Thailand) (US\$)

W_{ij} : The export value of world cinnamon commodities to destination countries (the Netherlands, China, India and Thailand) (US\$)

X_t : Total value of Indonesia's exports to destination countries (the Netherlands, China, India and Thailand) (US\$)

W_t : Total value of World exports to destination countries (the Netherlands, China, India and Thailand) (US\$)

T : Analysis period 2004 - 2021

X-Model Potential Export Products

X-Model Potential Export Product is a method that combines the RCA method and the EPD method. This method is used to cluster the potential for product development in a particular region. This clustering is used to focus the trade market. The X - model potential export product prioritizes commodities into four parts into optimistic markets, potential markets, less potential markets, and non-potential markets (Falatehan, 2022; Nurhayati, 2020).

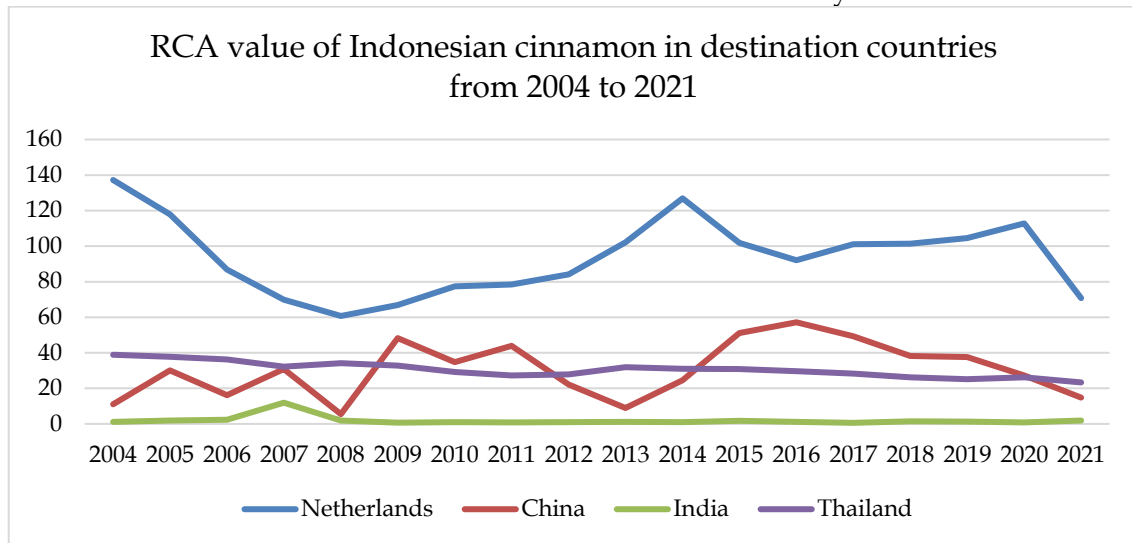
Table 2. Clustering of X - Model Potential Export Products

RCA (Competitiveness)	EPD (Market Position)	X - Model (Market Development Potential)
> 1	Rising Star	Optimistic Market
	Lost Opportunity	Potential Market
	Falling Star	Potential Market
	Retreat	Less Potential Market
< 1	Rising Star	Potential Market
	Lost Opportunity	Less Potential Market
	Falling Star	Less Potential Market
	Retreat	Non-potential Market

Source: Ministry of Trade (2013)

RESULTS AND DISCUSSION

Based on the results of the analysis using the RCA method during the period 2004 to 2021, the comparative advantage of Indonesian cinnamon commodities in each market has a quite varied comparative advantage. Where cinnamon commodities have different RCA values in each year and each market.



Source: Secondary Data Processed (2023)

Figure 3. Results of the RCA Value of Indonesian Cinnamon in Destination Countries from 2004 to 2021

The comparative advantage of Indonesian cinnamon in the four destination countries has a positive value. Where the average RCA value for the Netherlands destination country is 94,06. China by 30,65. India by 1,87. Thailand by 30,50. Indonesian cinnamon has a strong comparative advantage in destination countries.

However, Indonesia must continue to improve and maintain the comparative advantage of cinnamon to deal with changes in product share caused by other exporting countries. These results are in line with research from Rambe & Malau (2023), where cinnamon exports from 2002 to 2020 in the

European Region had strong competitiveness in the Netherlands market with an average RCA index of 77,92. In the Asian Region, Indonesian cinnamon has strong competitiveness in India with an average RCA index of 3,25 and Thailand with an average RCA index of 34,06. According to research by Nurhayati (2020), the competitiveness of Indonesian cinnamon in the Netherlands has an average RCA value of 68,70 from 2007 to 2016.

Further analysis to measure the market position of Indonesian cinnamon products in destination countries using EPD. Table 3, the results of the EPD analysis show that the market for Indonesian cinnamon commodities is different, but there are two export destination countries for cinnamon commodities that are in a less favorable position because they are in a lost opportunity position. The results of the EPD estimation of Indonesian cinnamon in destination countries show that the position of Indonesian cinnamon in the destination countries of China and India is in a rising star position. This shows that the level of Indonesia's cinnamon export market share is increasing in the destination countries of China and India.

Table 3. Results of EPD analysis of Indonesian Cinnamon from 2004 to 2021

Country of Destination	Average Export Market Share Growth (%)	Average Product Market Share Growth (%)	Market Position
Netherlands	-0,0010921	0,0000029	Lost Opportunity
China	0,0008800	0,0000508	Rising Star
India	0,0000680	0,0000023	Rising Star
Thailand	-0,0007880	0,0000205	Lost Opportunity

Source: Secondary Data Processed (2023)

The condition of Indonesian cinnamon exports in the destination countries of the Netherlands and Thailand shows a lost opportunity position. This shows that the level of the Indonesian cinnamon export market has decreased in the destination countries of the Netherlands and Thailand. This is in line with research from Santoso et al. (2022) which states that from 2011 to 2020, the market share of Indonesian cinnamon products showed a decline in the Netherlands market. The decline in Indonesian cinnamon exports in the Netherlands indicates a lack of competitiveness of Indonesian cinnamon. This could be due to the regional economic recession in 2008. In addition, in 2015 the economic slowdown of European countries and the European Union was caused by the negative trade value of countries in the European Region, so that competition between exporters intensified in countries. In the Thailand market, Indonesian cinnamon products from 2011 to 2020 experienced changes in market position every year. Where in 2011 and 2016 Indonesian cinnamon was in a lost opportunity position. In 2012, 2015, and 2017 Indonesian cinnamon was in the rising star position. In 2013 and 2020 Indonesian cinnamon was in a falling star position. In 2014, 2018, and 2019 Indonesian cinnamon is in a retreat position. The change in the market position

of Indonesian cinnamon to the Thailand market does not affect cinnamon exports. This is because Thailand is one of the target export destination countries.

Further analysis to determine the potential development of the Indonesian cinnamon export market in destination countries using the x-model potential export products. Table 4, shows the results of the analysis of x-model potential export products of Indonesian cinnamon commodities that are different.

Table 4. Results of x-model potential export products

Country of Destination	Average RCA	EPD	Market Development Potential
Netherlands	94,06	Lost Opportunity	Potential Market
China	30,65	Rising Star	Optimistic Market
India	1,87	Rising Star	Optimistic Market
Thailand	30,50	Lost Opportunity	Potential Market

Source: Secondary Data Processed (2023)

Based on table 4, the potential development of the Indonesian cinnamon export market in the destination countries of China and India is in an optimistic development market position. Meanwhile, the destination countries of the Netherlands and Thailand are in a potential market position. However, the destination countries of the Netherlands and Thailand have strong competitiveness despite being in a lost opportunity position.

CONCLUSIONS AND RECOMMENDATIONS

Export activities are very important for every country including Indonesia. Export activities can increase foreign exchange and expand trade relations between countries. One of the spice commodities that continues to be developed in production in order to carry out export activities by Indonesia is cinnamon. Based on the results of the analysis of export market potential in destination countries using the x-model potential export products, it is concluded that Indonesia's cinnamon export destination countries are in the optimistic market in China and India. While the export destination countries of Indonesian cinnamon in the potential market in the destination countries of the Netherlands and Thailand.

Recommendations that can be made by the government to increase cinnamon production are to reduce the conversion of agricultural land into settlements, provide agricultural insurance to farmers so that farmers are more courageous in taking risks during the planting process, and increase the expansion of agricultural land. In addition, to overcome the fluctuating price of cinnamon. Farmers can intercrop with seasonal crops between cinnamon plants.

REFERENCES

- Agricultural Data and Information Systems Center. (2022). Statistical of National Non Leading Estate Crops Commodity 2020 - 2022. Ministry of Agriculture: Jakarta
- Anggrasari, H., Perdana, P., & Mulyo, J. H. (2021). Comparative and competitive advantages of Indonesian spices in the international market. *Agrica Journal*, 14(1), 9-19
- Astuti, R. D. (2018). Analysis of Competitiveness and Factors Affecting Indonesian Cinnamon Exports to Major Importing Countries.
- Bustami, B. R., & Hidayat, P. (2013). Analysis of the competitiveness of export products in North Sumatra province. *Journal of Economics and Finance*, 1(2), 14876.
- Falatehan, A. F. (2022). Competitiveness Analysis of Indonesian Cinnamon Exports in the United States Market. *Indonesian Journal of Agriculture Resource and Environmental Economics*, 1(2), 96-108.
- Food and Agriculture Organization (FAO). (2023). Countries by commodity Exports. https://www.fao.org/faostat/en/#rankings/countries_by_commodity_exports accessed August 1, 2023 at 12:11.
- Firmansyah, F., Widodo, W., Karsinah, K., & Oktavilia, S. (2017). Export performance and competitiveness of Indonesian food commodities. *JEJAK: Journal of Economics and Policy*, 10(2), 289-301.
- Hanafi, R. U., & Tinaprilla, N. (2017, March). Competitiveness of Indonesian cocoa commodity in international trade. In *Agribusiness Forum: Agribusiness Forum* (Vol. 7, No. 1, pp. 1-20).
- Hermawan, I. (2015). Competitiveness of Indonesian spices in the ASEAN market in the pre- and post-global economic crisis period. *Scientific Bulletin of Trade Research and Development*, 9(2), 153-178.
- Indelman, I., Andrianus, F., & Kamarni, N. (2022). Determinants of Indonesian Cinnamon Commodity Exports. *Jurnal Ekonomikawan*, 22(1), 1-15.
- Iskandar, S., Jauhari, H., Mulyana, A., Dewata, E., Yamin, M., & Marwa, T. (2012). Analysis of determinant factors influencing cinnamon exports and prices in Indonesia.
- Nugraheni, S. R. W., Amaliah, S., Panjaitan, I., Yulisyawati, I., & Malau, F. (2021). Strategy to Improve the Competitiveness of Indonesian Construction

- Services Sector. *Journal of Development Economics And Policy*, 10(2), 176-200.
- Nurhayati, E. (2020). Analysis of Indonesia's cinnamon export development. *Ecoplan*, 3(1), 1-11.
- Patone, C. D., Kumaat, R. J., & Mandei, D. (2020). Analysis of the competitiveness of Indonesian palm oil exports to export destination countries China and India. *Journal of Efficiency Scientific Periodicals*, 20(03).
- Pramessti, F. S., Rahayu, E. S., & Agustono, A. (2017). Analysis of Indonesian cassava competitiveness in the international market. *SEPA: Journal of Agricultural Socioeconomics and Agribusiness*, 14(1), 1-7.
- Pribadi, E. R. (2016). The development of Indonesia's cinnamon production and exports. *Warta of Industrial Plant Research and Development*, 2(2), 10-14.
- Rambe, K. R., & Malau, L. R. E. (2023). Competitiveness level and factors affecting Indonesia's cinnamon trade flow. *AGROMIX*, 14(1), 28-38.
- Rochdiani, D., & Wulandari, E. (2023). Competitiveness Analysis and Factors Affecting Indonesian Cinnamon Exports. *Economies*, 11(2), 55.
- Sa'diyah, P. F. I., & Darwanto, D. H. (2020). Indonesian cinnamon competitiveness and competitor countries in international market. *AGRARIS: Journal of Agribusiness and Rural Development Research*, 6(2), 123-135.
- Santoso, S. I., Pos, L. S. P., & Nurfadillah, S. (2022). Competitiveness Analysis of Indonesian Cinnamon Exports In The World Market. *Agrisociconomics: Journal of Agricultural Social Economics*, 6(2), 402-421.
- Sundari, M. T., Darsono, D., Sutrisno, J., & Antriyandarti, E. (2023). Analysis of trade potential and factors influencing chili export in Indonesia. *Open Agriculture*, 8(1), 20220205.
- Supriana, T., Pane, T. C., & Khaliqi, M. (2022). Export of Indonesian cinnamon in international market: competitiveness and performance. *Journal of Central European Agriculture*, 23(3), 704-713.
- Wardani, M. A., & Mulatsih, S. (2017). Analysis of Competitiveness and Factors Affecting Indonesian Tire Exports to the Latin American Region. *Journal of development economics and policy*, 6(1), 81-100.