

ANALYSIS OF THE COMPETITIVE POSITION OF INDONESIAN PEPPER IN THE INTERNATIONAL MARKET

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Abstract

The world pepper price, which tends to decline, and the increasing production and quality of pepper from competing countries, have also made it difficult for Indonesian pepper to increase its export volume and value. This study aims to, 1) analyze the structure of the Indonesian pepper market in the international market, 2) analyze the potential competitiveness of Indonesian pepper in terms of comparative and competitive advantages in the international market, 3) analyze the specialization position of the Indonesian pepper trade in the international market. The data used is data for the period 2010-2019.

The results of this study are known that the market structure of Indonesian pepper commodities in the United States and Germany is monopolistic. Meanwhile, in the other three main export destination countries, namely Vietnam, India, and Singapore, the market structure of Indonesian pepper commodities is an oligopoly. Based on the average value of RCA, Indonesian pepper commodities have a comparative advantage in five main export destination countries, namely Vietnam, India, the United States, Germany, and Singapore. The market position of pepper commodities in the two main export destination countries, namely Vietnam and India, is in the falling *star* position. Meanwhile, in the other three main destination countries of Indonesian pepper, the average value is in a *Retreat* position.

The conclusions of this study show that the market structure of Indonesian pepper commodities in the United States and Germany is monopolistic, while in other countries such as Vietnam, India, and Singapore the market structure is oligopoly. Indonesian pepper commodities have a comparative advantage in five destination countries with an average RCA value of more than 1. The market position of pepper commodities in Vietnam and India is *the falling star* position, while in the United States, Germany, and Singapore, the average value is in the *Retreat* position. Indonesian pepper commodities in 4 main export destination countries, namely Vietnam, the United States, Germany, and Singapore are at the maturity stage, while in India it is at the growth stage.

Keywords: Pepper; Comparative Advantage; To Competitive Lead; Competitiveness; RCA

INTRODUCTION

Pepper commodities have the lowest average growth in export value compared to other spice commodities, namely the average growth decreased by 7% in a period of five years. However, pepper remains a commodity with a relatively high export

value compared to other spices, although it tends to experience a decrease in its export value. Based on FAO data from 2013-2017 presented in the Agricultural Center (2019), the main centers of pepper production in the world are in five countries, namely, Vietnam ranks first as the largest pepper-producing country in the world with an average production of 185 thousand tons or contributing 31.63% and Vietnamese pepper production is increasing every year. Indonesia ranks second with a contribution of 14.58% with a stagnant total production volume from 2013 to 2017, the third place is occupied by Bulgaria followed by India and Brazil.

The decrease in pepper export volume in Indonesia occurred due to the lack of added value based on pepper raw materials or downstream industrial businesses that have not yet developed even though the development of pepper in Indonesia is very potential. There are still many challenges faced by pepper farming in Indonesia. One of the challenges of pepper farming in Indonesia is related to the downstream industry (input factor), processed industry, service industry, finance, and marketing. In addition, Indonesia also exports pepper in the form of granules as much as 46% where the granulated pepper has a lower selling value compared to pepper that has been processed as pounded or mashed. As a result, pepper farming in Indonesia has not been able to provide optimal added value to the increase in farmers' income so pepper farmers have changed professions to get a better income. Another challenge faced by pepper farming is that most pepper entrepreneurs in Indonesia are community plantations that are synonymous with traditional management.

Based on this description, it is necessary to research the analysis of the competitiveness of Indonesian pepper in the International Market. This research aims to, 1) analyze the structure of the Indonesian pepper market in the international market, 2) analyze the potential competitiveness of Indonesian pepper in terms of comparative and competitive advantages in the international market, 3) analyze the specialization position of Indonesian pepper trade in the international market. The limitations of this study focus on seeing the competitiveness of Indonesian pepper in five main importing countries, namely Vietnam, India, the United States, Germany, and Singapore.

RESEARCH METHODS

Data Types and Sources

Time *series* data were selected for 2010-2019. And the Cross Section data used covers the five main destination countries of Indonesian pepper, namely Vietnam, India, the United States, Germany, and Singapore.

Data Analysis

Herfindahl Index (HI)

The calculation of market share is carried out using the following formula:

$$PE_{ij} = \frac{NE_{ij}}{NE_d}$$

Information:

- Peij = Country pepper market share (i) in the export destination country (j)
- NEij = Export value of pepper country (i) in the country of the export destination (j)
- NEd = Total export value of pepper of all countries in the destination country (j)
- i = Exporter country
- j = Export destination country
- d = World

The results of the formula are then used to measure the market structure of a country in the international trade of a commodity, namely using the *Herfindahl Index* formula as follows:

$$HI_{ij} = PE_{ij1}^2 + PE_{ij2}^2 + PE_{ij3}^2 + PE_{ijn}^2$$

Description:

HI_{ij} = Herfindahl index value of Indonesian pepper

PE_{ij} = Market share of pepper commodities country i in export destination country

j

i = Country of Indonesia

jn = Number of peppers exporting countries involved in the world pepper trade

The value of this *Herfindahl Index* ranges from 0-1 (10,000 which is the square of 100%). If the HI value is close to 0, it indicates that the market structure of the industry in question tends to the *competitive market*. If the index is worth >1 or (10,000) then the market structure of the industry tends to be monopoly and the distribution of market share is very uneven in an industry.

Revealed Comparative Advantage (RCA)

The calculation of RCA is carried out using the following formula:

$$RCA_{li} = \frac{NE_{li}/NT_{li}}{NE_d/NT_d}$$

Description:

RCA_{li} = Level of competitiveness of Indonesian pepper commodities

NE_{li} = Export value of pepper commodities from Indonesia to each country where Indonesian pepper exports are exported (USD)

NT_i = Total export value of all commodities from Indonesia to each country where Indonesian pepper exports are exported (USD)

NE_{ld} = Export value of pepper commodities from all countries to each country where Indonesian pepper exports are exported (USD)

NT_d = Total export value of all commodities from all countries to each country where Indonesian pepper exports are exported (USD)

Analysis Export Product Dynamic (EPD)

Systematically, the EPD method is formulated as follows:

X axis: export market share growth axis

$$X = \frac{\sum_{t-1}^t \left(\frac{NE_{li}}{NE_d} \right) (t) \cdot 100\% - \sum_{t-1}^t \left(\frac{NE_{li}}{NE_d} \right) (t-1) \cdot 100\%}{t}$$

Y-axis: commodity market share growth axis

$$Y = \frac{\sum_{t-1}^t \left(\frac{NT_{li}}{NT_d} \right) (t) \cdot 100\% - \sum_{t-1}^t \left(\frac{NT_{li}}{NT_d} \right) (t-1) \cdot 100\%}{t}$$

Information:

NE_{li} = Export value of pepper commodities from Indonesia to each country where Indonesian pepper exports are exported (USD)

NT_i = Total export value of all commodities from Indonesia to each Indonesian pepper export destination country (USD)

NE_{ld} = Export value of pepper commodities from all countries to each country where Indonesian pepper exports are exported (USD)

NT_d = Total export value of all commodities from all countries to each Indonesian pepper export destination country (USD)

t = Number of years analyzed (10 years, period 2010-2019)

t - 1 = previous year

Analysis *Trade Specialization Index* (TSI)

TSI Indonesian pepper can be formulated as follows:

$$TSI_{li} = \frac{NE_{li} - NI_{li}}{NE_{li} + NI_{li}}$$

Information:

TSI_{li} = Value of Indonesian Pepper Trade Specialization Index

NE_{li} = Export value of pepper commodities from Indonesia to each country to exports of Indonesian pepper (USD)

NI_{li} = Import value of Indonesian pepper to each country where Indonesian pepper exports are exported (USD)

If the value is positive above 0 to 1, then the Indonesian state can be categorized as an exporter. If the value is negative or below 0 to -1 then Indonesia tends to be a pepper importer country.

RESULTS AND DISCUSSION

The *Herfindahl Index* (HI) analysis in this study was used to determine the structure of the pepper market in the market of the main export destination country as well as measuring the control of the market share of each country involved in the pepper trade. The HI analysis showed that the average value of Indonesian pepper in the five major export destination countries had the highest value in the Vietnamese market of 4,323.74 and the lowest value in the German market with an average HI value of 1,424.99. The average value of Indonesian pepper HI in the Vietnamese market indicates an oligopoly market structure which means that in the Vietnamese market, pepper exporting countries have a high level of dependence on one another in the event of changes in output and prices made by one of the exporting countries. In the Indian market, the average value of Indonesian pepper HI is the second largest, which is 2907.48. The average value of Indonesian pepper HI in the Indian market indicates that the oligopoly market structure is the same as in Vietnam. This HI also shows that in the Indian market, pepper exporting countries also have a high degree of dependence on one another in the event of changes in output and prices made by one of the exporting countries. In the United States market, the average value of HI Pepper Indonesia is 1506.63. The average value of HI Indonesian pepper in the United States market signifies a monopolistic market structure. Of the 66 countries exporting pepper to the United States, the largest exporters are Brazil, India, Vietnam, and Indonesia.

One of the challenges for Indonesian pepper to enter the United States market is by meeting the standards of the *FDA (Food and Drug Administration)* which regulates the food processing industry, especially in production and labeling standards. The U.S. and consumers are demanding stricter rules related to food labels, advertising,

packaging, and other nutritional claims made by manufacturers. In the German market, the average value of Indonesian pepper HI is the lowest at 1424.99. The average value of HI Indonesian pepper in the German market signifies a monopolistic market structure. The level of competition for pepper in Germany is high because the number of exporters in the year was 72 countries. In the Singapore market, the average value of Indonesian pepper HI is 2665.99. The average value of Indonesian pepper HI in the Singapore market signifies the oligopoly market structure. The oligopoly market structure shows that in the Singapore market, pepper exporting countries have a high level of dependence on one another in the event of changes in output and prices made by one of the exporting countries.

The comparative advantage analysis of Indonesian pepper was carried out using the RCA analysis tool. Indonesian pepper in the five main export destination countries has a negative trend where the RCA value of Indonesian pepper tends to decrease over the last ten years, from in 2010-2019. Indonesian pepper in Vietnam has an average RCA value of 42.09. Indonesian pepper in India has a trend that tends to be negative with an average RCA value of 5.67. The United States has a trend that has tended to be negative over the past 10 years with an average RCA of 9.71. In Germany, the average RCA value of Indonesian pepper also has a trend that tends to be negative. Even so, the RCA value of Indonesian pepper in Germany has increased in the last year, namely 2019 when the RCA value of the German state rose to 28.49. The fifth main destination country, namely Singapore, has a trend that tends to be negative with an average RCA value of 8.67. Despite having a negative trend, the average RCA value of Indonesian pepper in the five major export destination countries has an average RCA value of more than one which means that Indonesia has a comparative advantage in pepper commodities in the five countries.

In this study, the EPD method was used to determine the competitive advantage of Indonesian pepper in 5 main export destination countries, namely Vietnam, India, the United States, Germany, and Singapore during the 2010-2019 period which will then be grouped into 4 indicators, namely *Rising star*, *Falling star*, *Lost opportunity*, and *Retreat*. The position of the Indonesian pepper market in Vietnam and India is in the *Falling Star* position which means that the Indonesian pepper market still has a slight advantage despite the very slow shrinkage or expansion of the market. Meanwhile, the position of the Indonesian pepper market in the United States, Germany, and Singapore is in a retreat position, where the *retreat* is a condition of growth in the export market share of dynamic products and the market share of pepper commodities which is very decreased.

The TSI method is used to analyze whether Indonesia is specialized as an importer or exporter country in the destination country. This method shows the average TSI value of Indonesian pepper in the highest main export destination countries is in the Singapore and United States markets, yes 0.99, then Germany with an average value of 0.97, then Vietnam with an average value of 0.88, finally the lowest average TSI value is in the Indian market of 0.07. Pepper Indonesia in the markets of Vietnam, United States, Germany, and Singapore is already at the stage of maturity which shows that Indonesian pepper has entered the stage of standardization of the technology used and has strong competitiveness so that Indonesia has a position as a *net exporter* country. Meanwhile, the Indian market has strong competitiveness but is still in the stage of developing competitiveness.

CONCLUSIONS AND SUGGESTIONS

The conclusions of this study are that Indonesian pepper commodities in the United States and Germany have a monopolistic market structure with each country having an average HI value of 1506.63 and 1424.99; while in other countries such as Vietnam, India, and Singapore the market structure is an oligopoly with each country having an average HI value of 4323.74; 2907.48; and 2655.99. Indonesian pepper commodities have a comparative advantage in 5 destination countries with an average RCA value of more than 1. The market position of pepper commodities in Vietnam and India is *the Falling Star* position, which means that it still has little advantage, while in the United States, Germany, and Singapore, the average value is in the *Retreat* position, which means dynamic market share growth. Indonesian pepper commodities in the four main export destination countries, namely Vietnam, the United States, Germany, and Singapore, are at the maturity stage, while in India they are at the development stage.

Suggestions that can be given from this study are, 1) Indonesia needs to improve the quality of pepper or harmonize SNI Pepper Indonesia with quality standards requested by the international market, 2) improve *mutual recognition* arrangements (MRA) with pepper export destination countries, 3) conduct training and guidance to farmers to improve the application of GAP (*Good Agriculture Practice*) in cultivation pepper by farmers, GHP (*Good Handling Practice*) on postharvest handling and GMP (*Good Manufacture Practice*) at the pepper processing stage, through the establishment of appropriate institutions, and 4) for further research is expected to be able to analyze the competitiveness of Indonesian pepper commodities in depth in each subsystem analyzed and can add the number of export destination countries or analyze all countries (international markets) directly.

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