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Competitiveness Analysis of Exported Indonesian Black Tea in International Market

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Black tea is processed from tea plant and generated from fermented tea leaves. Black tea has become one of the favourite commodities from Indonesia sub-sector plantation. Research aimed to analyze the structure of world black-tea market, comparative advantage and competitive advantage of Indonesian black tea in world market, and Indonesia's trading position of black tea commodity from 2010 to 2019. Herfindahl Hirschman Index (HHI), Concentration Ratio (CR), Revealed Comparative Advantadge (RCA), Export Dynamic Product (EPD) dan Trading Specialization Index (TSI) were the analytical instruments used in this research. Benchmarking countries were Kenya, Sri Lanka, India, and China. Meanwhile, the countries of destination of exported black tea were Malaysia, Russia, Pakistan, Germany, and the USA. Research results are the structure of world market of black tea is moderate oligopoly. Indonesia shows comparative advantage for its black tea in the countries of exporting destination. Indonesian black tea does not show competitive advantage in the countries of exporting destination. Indonesia's trading position of black tea commodity is as an exporting country.

1. Introduction

Indonesia is the country that fills the demand of the world's society in agricultural products, especially with its industrial plantation produced by plantation subsector. Apart from satisfying the demand of the world's society, in general, agricultural sector in Indonesia provides job opportunities, good investment in foreign exchange income resulted from the agricultural-products export, and contribution in achieving national Gross Domestic Product (GDP). Indonesia produces manufactured black tea (with fermentation) and green tea (without fermentation). The world's largest black-tea exporting countries in the last five years are: China, India, Kenya, Sri Lanka, and Germany. As the country who contributes to world demand for black tea, Indonesia ranked the 11th level (ITC, 2020).

Compared with green tea, black tea is one of the leading commodities investing the biggest foreign exchange income to the country through exporting activities, considering that the world price and demand of tea is always rising . Although, Indonesia is potential to increase the value of black tea export in world market, it has to be considered that Indonesia still depends on tea export. This situation threatens the national tea development because the price of Indonesian tea is highly influenced by world tea demand and supply. The price of Indonesian tea will decrease if world tea supply is abundant, thus local companies will be suffering [17]. Government is supposed to watch that issue by issuing policies that can encourage Indonesian tea manufacture to compete with other countries as the competitors . Based on the above description, this research aimed: 1) analyze the structure of black-tea world market, 2) analyze the comparative and competitive benefits of Indonesian black tea in international market, and 3) analyze the Indonesia's rank of black-tea world market in international market.

2. Method

This research used descriptive and quantitative method. Data obtained by using time series and cross section data from 2010 to 2019. Data source from the Ministry of Industry, Food and Agriculture Organization (FAO), and International Trade Center (ITC), was obtained through the internet. Other sources of information were taken from books and journals.

2.1 Herfindah Hirschman Index (HHI) was used to indicate market share of an industry [10] [6] [26] [30]. HHI can also be used to calculate market concentration of a commodity (Flamini and Naldi, 2018). The formula in HHI method is illustrated, as follows (Wibowo, 2019).

$$\mathbf{HHI} = \sum_{i=1}^{n} \boldsymbol{Si^2}$$

Where:

1. HHI : Herfindahl Hirschman Index
2. Si : percentage of company market segment -I
3. N : number of companies observed

2.2. Concentration Ratio (CR) was used to calculate the share of total trading in an industry, based on the biggest market segment of a company [10] [26] [27] [28]. The value of concentration ratio often used is CR4 and CR8, based on the number of big companies (4 and 8) in an industry [10] [26] [27] [28]. In math, the concentration ratio is illustrated with formula, as follows:

$$\mathbf{CR4} = \mathbf{W1} + \mathbf{W2} + \mathbf{W3} + \mathbf{W4}, \mathbf{Where\ we} = \frac{\mathbf{Si}}{\mathbf{St}}$$

Where:

1. Wi : market segment of commodity I in a country or a company
2. Si : trading value of commodity I in a country or a company
3. St : total trading of commodity I

Table 1. Level of Market Concentration

Level	CR4	HHI
High	80%-100%	HHI = 1
Moderate	50%-80%	0,1 < HHI < 1
Low	0%-50%	0 < HHI < 0,1

Source: Miar and Batubara, 2019

In general, the comparison between Herfindahl Hirschman Index (HHI) and Concentration Ratio (CR) in table 1 is illustrated as follows:

1. Low market concentration signifies the tendency of complete competitive market or monopolistic market.
2. Moderate market concentration signifies the tendency of oligopolistic market.
3. High market concentration signifies the tendency of high-level monopolistic or oligopolistic market.

2.3. Revealed Comparative Advantadge (RCA) is used to analyze comparative advantage or competitiveness of commodity in a country. Provided that an exported product from a country

shows higher percentage of total export than market segment of product in world total export, it can be concluded that the country has comparative advantage of production and export [18] [19] [20] [30]. The RCA formula is illustrated as follows .

$$\boldsymbol{RCA} = \frac{\boldsymbol{Xij/Xit}}{\boldsymbol{Wj/Wt}}$$

Where:

1. Xij : Indonesia's export value of commodity j to country i
2. Xit : Indonesia's total export value to country i
3. Wj : World export value of commodity j
4. Wt : World total export value

The result of RCA calculation describes the image, i.e. value. If RCA value < 1, comparative advantage of a country towards certain commodities in international market is low (weak). Meanwhile, if the RCA value > 1, comparative advantage of a country towards certain commodities in international market is high (strong).

2.4. Export Dynamic Product (EPD) used to measure the dynamic position of Indonesian black-tea market in the country of export. Competitive advantage analysis is used to measure market competition of a commodity that has some aspects as the industrial environment of a complex country and the relationship between industry and stakeholders to produce export commodity advantage of a country [9] [21] [22] [30]. The X-line is formulated in math, as follows .

$$\frac{\sum \text{nt}=1 \left(\frac{Xi}{Wi}\right)\text{t x } 100\% - \sum \text{nt}=1 \left(\frac{Xi}{Wi}\right)\text{t} - 1 \text{ x } 100\%}{T}$$

The Y-line is formulated in math, as follows:

$$\frac{\sum_{t=1}^{n}\left(\frac{Xt}{Wt}\right)t \times 100\% - \sum_{t=1}^{n}\left(\frac{Xt}{Wt}\right)t-1 \times 100\%}{T}$$

Where:

1. Wi : export value of world product i
2. Wt : world total export value
3. Xi : Indonesia's export value of product i
4. Xt : Indonesia's total export value

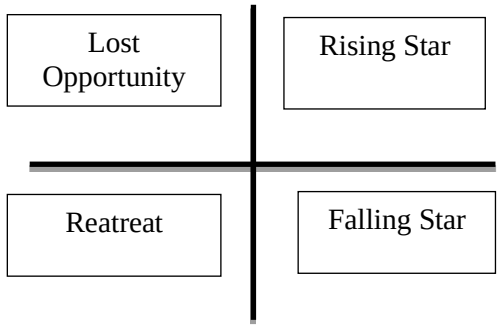

Figure 1. EPD Matrix
Sourcer: Mulatsih and Wardani, 2017

According to fig 1, Rising Star is the stage where a country achieves higher level of market segment, therefore the trade development is growing fast. Further, Lost Opportunity is the stage that indicates a country lost market segment of dynamic products. The third stage is Falling Star where a country is achieving more market segment of non-dynamic products. The last stage is Retreat, indicates the products that are unwanted by the market [30].

2.5. Trade Specialization Index (TSI) is a method analysis to analyze the development stage of a product in a country. TSI describes if Indonesia can be either an exporter or importer of a product (Kemendag, 2008). This index shows a comparison between the difference of export value and import value . The ISP formula is illustrated, as follows

$$\boldsymbol{ISP} = \frac{\boldsymbol{Xi-Mi}}{\boldsymbol{Xi+Mi}}$$

Where:

1. Xi : export value of product i
2. Mi : import value of product i

TSI identifies the growth stage of a product in trading in five steps (Kemendag, 2008):

1. Introduction, with ISP value, ranked from -1,00 to -0,50
2. Import substitution, with ISP value, ranked from -0,50 to 0,00
3. Growth, with ISP value, ranked from 0,01 to 0,80
4. Maturity, with ISP value, ranked from 0,81 to 1,00
5. Re-import, with ISP value, descending from 1,00 to 0,00.

3. Result and Discussion

Market Structure Analysis and Commodity Competition of World Black Tea

The Black tea commodity is the yield of harvested tea-leave fermentation. Based on the data of world black tea, the average HI value is 0,124 and CR4 value is 63,63%. The progress of HHI and CR4 value is illustrated on the following table:

Table 2. HHI and CR4 Value of World Black-Tea Commodity

World Black-Tea Commodity			
Year	**Number of Eksporter (Country)**	**Herfindahl Hirschman Index Value**	**Concentration Ratio (%) Value**
2015	141	0,131	64
2016	149	0,123	62,35
2017	150	0,137	66,6
2018	153	0,116	62,12
2019	151	0,111	63,08
Average		**0,124**	**63,63**

Source: ITC, 2020 (processed data)

The HHI and CR4 method resulted same conclusion on the stage of world black-tea commodity. Based on the HHI and CR4 value, world black-tea commodity yields moderate market concentration level, which indicates that the black tea market is on the stage of oligopoly. The countries with the biggest market segments are: Kenya, Sri Lanka, India, and China

Comparative Advantage Analysis of Indonesian Black Tea Commodity and Competing Countries

The comparative advantage of Indonesian black tea in the country of destination is obtained through the Revealed Comparative Advantage (RCA) method. Based the RCA value resulted within period of 2010 to 2019, Indonesia showed comparative advantage as the exporting country. The highest value of RCA is occupied by Germany, with the average value 11,52. Meanwhile, the lowest value is occupied by Russia, with the average value of Pakistan.

Table 3. The Average RCA Value of Indonesian Black Tea and Competing Countries in Country of Destination

Black Tea Commodity in Market of Destination						
No	**Eksporter (Country)**	**Average RCA Value in Last 10 Years**				
		Malaysia	**Rusia**	**Pakistan**	**Germany**	**USA**
1	Kenya	2236,470	318,77	110	197,74	257,61

2	Sri Lanka	202,520	302	6,4	361,41	46,28
3	India	3,620	26,34	1,7	35,22	9,07
4	China	2,210	0,14	0,02	1,12	0,71
5	Indonesia	6,540	9,06	1,33	11,52	3,16

Source: ITC, 2020 (data processed)

Based on the table, Indonesia shows comparative advantage in all countries of destination as the RCA value resulted is higher than 1 (RCA value > 1). However, Indonesia is supposed to improve its comparative advantage of black tea to compete Kenya, India, and Sri Lanka with high level of the average RCA value in Malaysia, Russia, Germany, and the USA, which are the countries of destination of Indonesian black tea, compared to Pakistan. Meanwhile, China shows the lowest level of the average RCA value because it focuses more on green-tea export commodity .

Market Position Analysis on Indonesian Black Tea Commodity Code HS 0902030 in Country of Destination

In international market, trading position of a country is divided into two activities, namely export and import. Exporting country is the country who ships and trades commodities to other countries, while the importing country is the country who purchases and imports commodities from other countries . Trading position of a country is determined with the Trade Specialization Index (TSI) method.

Table 4. The Average TSI Value of Indonesian Black-Tea Commodity in Country of Destination

No	Countries of Destination	Average TSI
1	Malaysia	0,97
2	Russia	0,99
3	Pakistan	1
4	Germany	0,98
5	U S A	0,99

Source: ITC, 2020 (data processed)

Indonesia shows the average TSI value approaching 1 for black tea commodity in the country of destination within the period of 2015 t o2019. Meanwhile, the average TSI value = 1 only occupied by Pakistan. Malaysia, Russia, Germany, and the USA are ranked between 0,95 and 1.

Competitive Advantage Analysis of Indonesian Black Tea Commodity Code HS 0902030 in Country of Destination

Competitive advantage of a country's export commodity can be determined with Export Dynamic Product method. Indonesia has the biggest countries of destination, i.e.: Malaysia, Russia, Pakistan, Germany, and the USA. Based on the data, Indonesia has not shown competitive advantage in the country of destination

Table 5. Average EPD Value of Indonesian Black Tea Commodity in Country of Destination

Black Tea Commodity in Market of Destination											
No	Exporter (Countries)	EPD Value in Last 10 Years									
		Malaysia		Russia		Pakistan		Germany		USA	
		X	Y	X	Y	X	Y	X	Y	X	Y
1	Kenya	20,450	36,53	14,29	3,06	25,25	**6,34**	6,45	2,09	2,41	3,94
2	Sri Lanka	-14,680	-13,84	-11,84	-12,1	136,83	-12,16	-7,98	-8,57	-6,62	-7,52
3	India	11,34	5,2	3,56	7,89	-9,27	-6,88	1,89	2,53	-1,44	6,72
4	China	0,390	7,22	0,36	5,39	3,86	7,35	7,85	0,19	-2,39	1,52
5	Indonesia	-4,770	-2,95	-6,98	5,72	-18,32	-9,95	-5,14	-3,86	-10,36	-0,34

Source: ITC, 2020 (data processed)

Indonesia shows the stage "Retreat" for Malaysia, Germany, and the USA. Meanwhile, for Pakistan and Russia, Indonesian black tea shows the stage "Lost Opportunity"

4. Conclusion

Based on the research, the average value of HHI and CR4 is 0,123 and 63,63%. This value indicates that world black tea competition is moderate oligopoly with 4 countries as the biggest market segment owners. Based on the RCA result, Indonesia shows comparative advantage in the country of destination with the RCA value of its black tea higher than 1 (RCA Value > 1). Further TSI method yielded average value between 0,90 – 1. Thus, Indonesia has become a country that exports black tea to the country of destination, which indicates that Indonesia has made the standardization for the exporting black tea, both the quality and processing technology. Furthermore, based on the EPD calculation, Indonesia's competitive advantage occupies 'Retreat' position in Malaysia, Germany, and the USA. It signifies those countries do not want Indonesia to re-export its black tea commodity.

Therefore, Indonesian government is supposed to prepare alternative commodities, which are more dynamic and have ultra-competitive advantage to compete with other countries' industry in the same market. However, in Pakistan and Russia, Indonesian black tea shows the stage of 'Lost Opportunity', means Indonesia has lost its black-tea market segment in those

countries.

Government should make new policies to control the conversion of tea farming by increasing the number of the land area of tea production for National Big Plantation (Perkebunan Besar Nasional – PBN) and reviewing the policy of 10% Value Added Tax (VAT) that has made Private Big Plantation (Perkebunan Besar Swasta – PBS) and Plasma Plantation (Perkebunan Rakyat – PR) lost their motivation in producing black tea. The VAT policy has increased production cost for companies. Furthermore, Government needs to provide incentives for national tea farmers in PBN, PBS, and PR to perform the regeneration of national tea plantation. Indonesia's comparative advantage in the countries of destination of black tea has to be increased by reinforcing market segment, especially in the countries of origin However, Indonesia has not shown competitive advantage for its black tea commodity in the country of destination. This situation can be changed if the quality of exported black tea is improved. The last thing is the value of imported black tea within the period of 2010-2019 was increased that led to the situation where the value of national tea was decreased because the price of imported tea was cheaper than the price of national tea with low quality.

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