

## Analysis of The Competitiveness of Indonesian Coffee in The Export Market

**Rahayu Widyantini**

*Indonesia Export Training Center*

*Directorate General National Export Development, Ministry of Trade*

*Jl. Letjen S.Parman no 112 Jakarta Barat 11440,*

[rwidyantini@yahoo.com](mailto:rwidyantini@yahoo.com)

**ABSTRACT:** *Coffee is one of the Indonesia's leading products. It contributed to 2.7% of the world's exports and ranked number fourth as the world coffee producers in 2018. Indonesian coffee export has declined during the 2014-2018 at 5%. Similarly, production capacity has decreased too by 5.6% from 2017-2018. The global value chain for coffee is dominated by a relatively small number companies, mostly comes from foreign companies. As the result, the stakeholders involved in the coffee industry are not is not performing in the maximum result for expanding the overall value produced. This study aims to understand the competitiveness of Indonesian coffee in global market using the Revealed Comparative Advantage (RCA) and the Diamond Porter's theory. This study utilized secondary data to calculate the RCA index and descriptive data from government report to explain the Diamond Porters theory. The results show that Indonesian RCA index is about 2,8 in 2018. The RCA value index is above the value of 1, means that Indonesia has good competitiveness in the global market. Based on this qualitative analysis, internal factor shows that Indonesia has a lower productivity as compared to the other top four exporting countries. Total demand of Indonesian coffee export is fluctuated but domestic demand shows an increase trend. There are only six big local company that processed additional values to the coffee. The Indonesia export destination country is also shown as the competitive market.*

**Keywords :** *Competitiveness, Coffee, Indonesia.*

**ABSTRAK:** Kopi adalah salah satu produk unggulan Indonesia. Kopi berkontribusi 2,7% dari ekspor dunia dan peringkat nomor empat sebagai produsen kopi dunia pada tahun 2018. Akan tetapi, ekspor kopi Indonesia menurun selama 2014-2018 pada 5%. Demikian pula, kapasitas produksi mengalami penurunan sebesar 5,6% dari 2017-2018. Rantai nilai global untuk kopi didominasi oleh sejumlah kecil perusahaan, kebanyakan perusahaan asing. Akibatnya, para pemangku kepentingan yang terlibat dalam industri kopi tersebut tidak memberikan hasil maksimal dalam memperluas nilai keseluruhan yang dihasilkan. Penelitian ini bertujuan untuk memahami daya saing kopi Indonesia di pasar global menggunakan Revealed Comparative Advantage (RCA) dan teori Diamond Porter. Penelitian ini menggunakan data sekunder untuk menghitung indeks RCA dan juga data deskriptif dari laporan pemerintah untuk menjelaskan teori Diamond Porters. Hasil penelitian menunjukkan bahwa indeks RCA Indonesia adalah sekitar 2,8 pada tahun 2018. Nilai index RCA diatas 1 membuktikan bahwa Indonesia mempunyai daya saing yang bagus di pasar global. Berdasarkan analisis kualitatif tersebut faktor internal menunjukkan bahwa Indonesia memiliki produktivitas yang rendah dibandingkan dengan empat negara pengekspor teratas lainnya. Total permintaan ekspor kopi Indonesia berfluktuasi tetapi permintaan domestik menunjukkan tren peningkatan. Hanya ada enam perusahaan lokal besar yang telah memproses nilai tambah pada kopi. Negara tujuan ekspor Indonesia juga terbukti sebagai pasar yang kompetitif.

**Kata kunci :** daya saing, kopi, Indonesia

## **INTRODUCTION**

Coffee is one of the commodities that is currently in high demand in the world (Trademap, 2018). World coffee consumption in 2016 to 2017 increased by 1.6% (ICO, 2017). In Indonesia, the level of consumption has increased by around 8% between 2016 and 2017 (ICO, 2017). Indonesia is the eleventh largest coffee exporter in the world in 2018 after the previous two years placed seventh position (Trademap, 2018). However, Indonesia experienced decline in coffee exports between 2017 and 2018 by 31% (Trademap, 2018) but still Indonesia is coffee producer number five in the world in 2017/2018 according to data from the International Coffee Organization. Coffee produced by Indonesia is still dominated by Robusta species.

Attractive coffee prices in the international market provide more opportunities for export players who are starting to target coffee as their export commodity. Indonesian coffee exports experienced a significant increase in year 1990 about 421,833 tons because in that year the coffee export quota was not implemented (Lubis, 2002). After the coffee export has been restricted, the export have fluctuated and in year 2018 Indonesia coffee export is about 274,264 tons.

Indonesia is also among the top ten coffee producers in the world (Trademap, 2018). From year to year Indonesian coffee exports to the world market have fluctuated. In 2014 Indonesia's total exports to the world market reached 9,924.71 tons, and finally in 2016 the total volume of Indonesian coffee exports to the world market was 8,829.62 tons which dominated by unroasted coffee of Arabica and Robusta types with HS code of 090111 (Trademap, 2018). Indonesia's coffee export destination is still dominated by America, European countries, Japan and Canada (Trademap, 2018).

There are several researches about commodities competitiveness that has been made, such as in Ragimun (2012), who analyzed the competitiveness of cocoa. Based on his result, Indonesian cacao has a good comparative advantage although it is still far from Ivory Coast and Ghana. This is evidenced by the average Indonesian Cacao RCA value above 4 at last ten years.

In a study conducted by Wulandari (2013) with the entitled "Analysis of the Competitiveness of Indonesian Sweet Potatoes in International Markets". She use a quantitative analysis using the Herfindahl Index (HI), Concentration Ratio (CR), and RCA (Revealed Comparative Advantage). From the results it can be concluded that the competitiveness of Indonesian sweet potatoes is still lower as compared to the USA and China, even though Indonesia actually has a comparative advantage. In addition, the market structure of Indonesian sweet potato commodity is Oligopoly market where the concentration ratio of the four largest producers has the level of concentration ratio (CR4) of more than 40%. While in a qualitative analysis using the Diamond Porter theory, it was concluded that the competitive advantage of Indonesian sweet potato commodities are natural resources. The role of the government that has issued a policy regarding of production, marketing, and trade of sweet potatoes. Those regulation make Indonesian sweet potatoes still has opportunities in the international market.

If we compare coffee commodities with the two commodities above, Indonesian coffee also has a good comparative and competitive advantage in global market (Narulita, 2014). Indonesian product that has value in the export market needs to be studied its competitiveness in the export market, the approach of RCA value and the Diamond Porter's analysis is used in this study to understand the competitiveness of Indonesian coffee in the global market and the potential of Indonesia to improve global competitiveness.

## Literature Review

According to Hady (2004), competitive advantage is the advantage possessed by a country or nation to be able to compete in international markets. According to the concept that was first developed by Porter, the definition of the competitive advantage is if the nation can compete in the international market with four main factors. The factors are conditions factor, demand conditions, related industries and supporting competitive industries (related and supporting industries), market structural conditions, competition and industrial strategies (companies, strategies, structures, and competition) (Porter, 1998). According to Porter (1998) in Siahaan (2008) a country's competitive advantage includes the availability of the role of resources and the competitiveness of international companies in various industries. The competitive advantage can be reach by the company from the world's best competitors due to pressures and challenges. They benefit from having strong domestic competitors, aggressive regional-based suppliers, and demand from local customers. The most important resources, such as high labor expertise; technology; and sophisticated management systems, are created through investments by people and company. The other attributes that determine the competitive advantage of the national industry are the condition of resource factors, supporting and related industries, and competition, structure, and corporate strategy. These attributes are supported by the role of opportunity and the role of government in increasing the competitiveness of national industry competitiveness and together form a system known as national diamond. The national diamond model consisting of four determinants of national competitive advantage. These four attributes are factor conditions, demand conditions, related and supporting industries, and firm strategy, structure, and rivalry.

The four attribute of Porter theory is explained as below:

### A. Factor Condition

Factor conditions in a certain country refer to the natural, capital and human resources available. Some countries are for example very rich in natural resources will have higher competitive than other countries which have not. Porter's argument, the main key factor of production is "created" not obtained from inheritance. Furthermore, the scarcity of resources (factor disadvantage) often helps countries become competitive. Many resources have the possibility of being wasted, when scarce can encourage innovation.

### B. Demand Condition

A larger market means more challenges, but also creates more opportunities to grow. The presence of sophisticated demand conditions from local customers also pushes companies or countries to grow, innovate and improve quality.

### C. Related and supporting industries

The existence of competitive supporting industries and related industries will also affect the competitiveness of its main industries. The upstream industry will supply input for key industries cheaper price, better quality, fast service, right delivery time.

### D. Firm strategy, structure, and rivalry.

The level of competition in industry is one of the driving factors for companies to compete and continue innovation. This market structure can be known by using the Herfindahl Index in export destination country. If Herfindahl Index value close to zero, the market structure will be a competitive market.

The coffee market share of a country is calculated by comparing the country's coffee export with total world coffee export, as follow the formula:

$$HI = S_{12} + S_{22} + S_{32} + \dots + S_{n2} \dots \dots \dots \{1\}$$

Source : Saxena, 2016

Where :

HI : Herfindahl Index

Si : Market share of export country i in the world  
 n : number of countries that involve in the world coffee trade

For further analyzing the competition factors, Revealed Comparative Advantage (RCA) analysis is included in this work by the comparative position of Indonesian exports of coffee compared to other countries in the global coffee market. But this index cannot distinguish between increases in resource factors and the application of appropriate trade policies.

The RCA index is formulated as follows:

$$RCA = \frac{\left\{ \frac{x_{ij}}{\sum_i x_{ij}} \right\}}{\left\{ \frac{\sum_i x_{ij}}{\sum_i \sum_j x_{ij}} \right\}} \dots\dots\dots \{2\}$$

Source: Laursen, K, 1998

Where:

- RCAij : The comparative advantage (competitiveness) of Indonesian coffee
- Xij : The value of exports of Indonesian coffee commodities of year t
- $\sum_i X_{ij}$  : The total export value of all Indonesian products
- $\sum_j X_{ij}$  : Total value of world coffee exports
- $\sum_i \sum_j X_{ij}$ : The total value of exports of all

products in the world

If the RCA value obtained is greater than one, it can be said that Indonesia has a comparative advantage in related commodities and has strong competitiveness (Ballasa, 1965). If the RCA value is less than one, Indonesia does not have a comparative advantage to the commodity, or the commodity is weak. The higher the RCA value, it has high export strength in market (Ballasa, 1965)

**METHODOLOGY**

The data source used is from secondary data taken from website UNCOMTRADE, ICO, and Trademap which accessed in July 2019. The data taken from year 2014 to 2018. The secondary data which obtained is processed to find out the RCA index, Herfidahl index and qualitative methode on attributes on the Diamond Porter theory.

**RESULT AND DISCUSSION**

Indonesia is the number 5 coffee producer in the world, Indonesia's coffee exports are quite volatile from 1990 to 2017 but show a fairly good trend (ICO, 2018). As seen in the following figure 1:

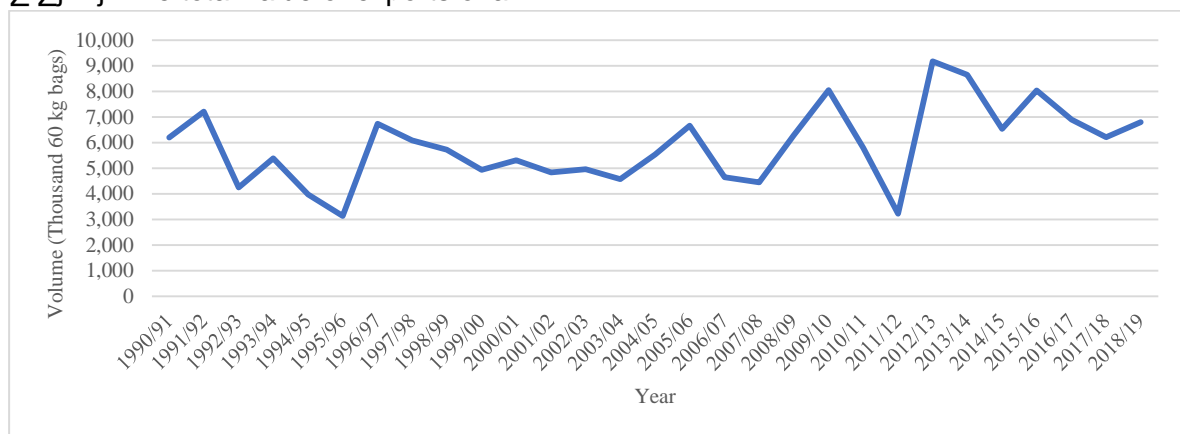


Figure 1. Indonesia Coffee Export in Volume

Source : ICO, 2018, data processed

At the figure 1 shows that the Indonesian coffee export fluctuated during 1990 to 2018. Indonesian coffee production is also fluctuated during these years. The decline

in Indonesian coffee exports was caused by the declining amount of coffee production. While the demand for coffee

on the world market has increased from year to year.

Analysis of Indonesian Coffee Competitiveness in the Global Market is

approached by looking at the quantitative value of RCA and the diamond porter method approach. Based on secondary data, then it is processed to obtain the RCA value with the following results:

Table 1. Indonesia RCA Index Value

Year	Coffee Export (US\$)		Export all Comodity (US\$)		RCA
	Indonesia (Xij)	World ( $\sum_i X_{ij}$ )	Indonesia ( $\sum_j X_{ij}$ )	World ( $\sum_i \sum_j X_{ij}$ )	
2014	1,039,609	31,978,104	176,036,194	18,998,271,302	3.5
2015	1,197,735	30,491,777	150,366,281	16,559,730,227	4.3
2016	1,008,549	30,379,775	144,489,796	16,035,998,691	3.7
2017	1,187,157	31,951,167	168,810,043	17,727,326,137	3.9
2018	817,790	30,836,019	180,215,034	19,227,544,946	2.8

Source : Uncomtrade, 2018, data processed

Based on the value of RCA from 2014 to 2018 it was found that the RCA value is above the value of 1 (shows in table 2 bellow). This means that Indonesia has good competitiveness in the global market. Indonesia RCA value fluctuates during 2014-2018, it caused by the demand and supply of Indonesian coffee in world

market. The highest RCA value was obtained in 2015 with a value of 4.3, but in that year the volume of Indonesian coffee exports was not maximal. RCA value is compared among top 3 coffee producer countries. The following table is an overview of RCA 3 of the largest coffee producing countries in the world:

Table 2. RCA Of Top 4 Countries

Year	RCA			
	Indonesia	Brazil	Vietnam	Colombia
2014	3,5	16,0	11,5	27,3
2015	4,3	15,8	12,0	39,2
2016	3,7	13,8	7,9	41,9
2017	3,9	11,8	9,6	37,9
2018	2,8	11,4	8,0	34,9

Sumber : UNCOMTRADE, 2018, data processed

Based on the table 2 above, if we compare, Indonesia RCA value is lower than the other top 5 coffee producer. Eventhough, the value is above 1. Colombia has the strongest RCA value, means that Collombia is the strongest coffee exporters in the global market. Colombia was number three coffee exporters (by exports value) in the world in 2018. The number one of coffee exporters was taken by Brazil followed by Vietnam (Trademap, 2018). The top 3 of coffee producers was taken by Brazil, Vietnam and followed by Collombia (ICO, 2018). This data can be concluded that the big

producer country (which have big amount of product) will have big value of export. This mean, if Indonesia want to be a coffee leader market, then Indonesia should increase the production capacities.

**Diamond Porter Analysis**

1. Internal Factor Condition

The factors that influence the competitiveness of Indonesian coffee are natural resources, human resources, information technology, and infrastructure. Indonesia as the fifth largest coffee

producer in the world has a tropical climate that is suitable for the climate needed by coffee to grow (TPSA, 2017). Coffee productivity depends on available land, coffee seedlings, fertilizers, labor and infrastructure that support the processing of coffee beans into ready-to-consume coffee. Labor is an internal factor and the

largest input in primary coffee production in Indonesia, where Indonesia is still carrying out labor-intensive production processes (TPSA, 2017). Land preparation, planting coffee protection plants, maintaining and controlling pests, harvesting and processing are carried out by human labor.

Indonesian coffee productivity can be seen in the following table, where from

2014 to 2017 Indonesian coffee productivity experienced fluctuations.

Table 3. Indonesian Coffee Productivity

Year	Land (Ha)				Production (Ton)				Productivity (Ton/Ha)
	Smallholders	Government	Private	Total	Smallholders	Government	Private	Total	
2014	1.183.664	22.389	24.462	1.230.515	612.877	14.293	16.687	643.857	0.5232
2015	1.183.244	22.366	24.391	1.230.001	602.428	19.703	17.281	639.412	0.5198
2016	1.180.556	22.509	25.447	1228.512	602.160	19.838	17.306	639.304	0.5203
2017	1.179.769	22.525	25.493	1.227.787	599.902	19.922	17.705	637.529	0.5192

Source : ICO, 2018, data processed

Indonesian coffee productivity is still below that of other major coffee exporting countries such as Brazil, Vietnam and Columbia. In 2017 Brazil's coffee production was around 56,740 tons, Vietnam reached 30,540 tons, Columbia reached 13,824 while Indonesia was

around 10,802 tons (Trademap, 2018). One of the reason of Indonesia has low productivity is that Indonesia still use labor intensive production during the planting seed until the harvest processed.

## 2. Demand Condition

The composition of domestic demand consists of households, the food and beverage industry, and coffee cafes. About 65% of Indonesian coffee is exported. Domestic coffee consumption

continues to increase every year, this shows a good trend for demand for Indonesian coffee. As shown in figure 2, Indonesian coffee consumption during 2010 to 2016 is tend to rise.

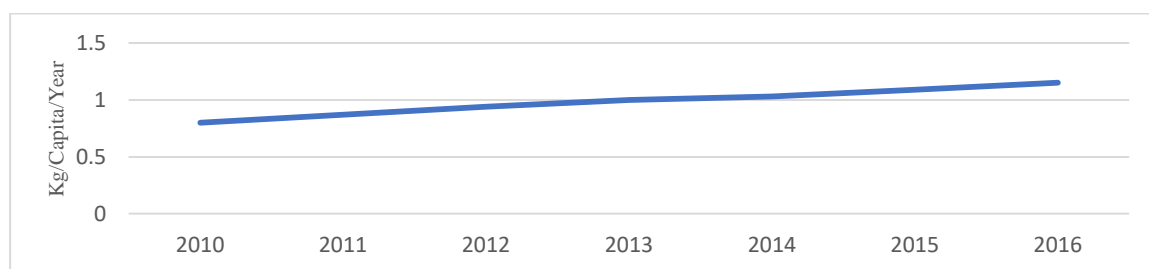


Figure 2. Indonesian Coffee Consumption

Souce : ICO, 2018, data processes

The demand for Indonesian coffee products is almost 65% intended for the export market. The destination countries of Indonesian coffee exports are still dominated by America, Japan, Malaysia

and European countries (such as Italy, German and United Kingdom). America is the main destination for Indonesian coffee exports in the 2014-2018 period. The following is the development of exports to

the three main destination countries for Indonesian coffee from 2014 to 2018.

Table 4. Indonesia Export Destination Countries  
(in Thousands \$)

Importers	Exported value in				
	2014	2015	2016	2017	2018
USA	295.988	281.159	269.941	256.466	253.773
Japan	101.366	104.962	86.511	82.420	84.375
Malaysia	60.845	7.0.809	71.432	86.968	70.889
Egypt	32.435	39.538	41.171	52.718	56.974
Italy	60.638	84.005	66.404	79.665	54.025
Germany	84.733	88.424	90.189	104.021	42.831
United Kingdom	35.503	46.300	40.554	51.819	24.487
Singapore	21.334	30.065	15.962	18.812	24.335

Source : Uncomtrade, 2108, data processed

### 3. Indonesian Coffee Processing Industry

Related industries and supporting industries have an important role in increasing the competitiveness of Indonesian coffee. In the industry related to coffee exports, supplying the raw material industry and its supporting industries, has a role in developing processed coffee products (TPSA, 2017). Household industries are spread throughout the coffee producing regions. The coffee processing industry that

processes raw materials into ground coffee spread throughout the coffee producer centers in Indonesia, such as in Lampung, Aceh, Bengkulu, North Sumatra, Bali, South Sulawesi, Irian Jaya. Some companies that process coffee into instant coffee or ground coffee include PT Sari Incofood Corporation (North Sumatra), PT Mayora Indah Tbk (Banten), PT Santos Jaya Abadi (East Java), PT Nestle Indonesia (East Java) and PT Aneka Coffee Industry (East Java), PT Torabika Semesta.

### 4. Market Structure

The structure of the Indonesian coffee market in the export market is analyzed by using the Herfindahl Index data available on trademap.org as secondary data. Based on the calculation of the Herfindahl index value for the ten destination countries for Indonesian exports in 2018, it was found that the average of Herfindahl index value was 0.141. If the value is close to zero, it can be said that the market structure in export destination countries tends to be competitive market, meaning that Indonesia is not a determinant of prices in export destination countries but as followers of other countries that also supply coffee in export destination countries (saxena, 2016). The following is the index value for ten export destination countries.

Table 5. Concentration Index In Indonesia Export Destination Countries

Importers	Concentration of Supplying Countries
United States of America	0,1
Germany	0,11
France	0,27
Italy	0,13
Netherlands	0,17
Japan	0,14
Canada	0,18
United Kingdom	0,08
Belgium	0,09
Spain	0,14
Average	0,141

Source: Trademap, 2018, data processed

## CONCLUSION AND RECOMMENDATION

Based on the results of the analysis of Indonesia's competitiveness position in the Global market using the Diamond Porters theory approach, it was found that:

- The competitiveness of Indonesian coffee products is based on the calculation of RCA in 2014 with a value of 4.3 and in 2018 with a value of 2.8. This proves that Indonesian coffee has good competitiveness.
- Based on theory Diamond Porter, four attributes that influence to competitiveness Indonesian Coffee in global market are:
  - Internal factor such as productivity, technology, manpower is contributing to the coffee competitiveness. Indonesia is the top 5 coffee producer in the world, but the productivity is still left behind compare to Brazil, Vietnam and Colombia.
  - Indonesian coffee demand is increase in domestic and overseas, about 65% coffee product intended for export market. Domestic demand shows increase trend during year 2010 until 2010, which means that it is a good sign for coffee producers to increase the competitiveness in domestic and world market.
  - Indonesian coffee processing industry is spread throughout

coffee plantations region in Indonesia. This companies have an important role in increasing the competitiveness of Indonesian coffee. In the industry related to coffee exports, supplying the raw material industry and its supporting industries, has a role in developing processed coffee products. There are 6 big processed coffee companies that operated in Indonesia. If Indonesia want to increase the competitiveness, Indonesia should increase the number of coffee manufacture.

- Indonesia market concentration in ten export destination countries is about 0,14 which means those ten markets structure tend to be competitive market. Indonesia is not a country that determines prices but as a follower of market price determinants.

Based on the conclusion above, there are some recommendations that can be offered:

- The Indonesian coffee sector is still characterized by low productivity and tends to be stagnate, which inhibit export supply. The world demand factor from Indonesia is fluctuating and



sometimes decreases, this condition is not due to demand declines but more due to the supply factor from Indonesia which tends to decline in certain years. To increase productivity, the role of government is needed to promote the dissemination of good agricultural practices throughout the coffee farming sector and foster a greater cooperation among farmers.

- World has a good demand of Indonesian coffee. To meet the world demand, Indonesia has to pay attention in increasing productivity and products quality. Indonesia can supply world class coffee quality by offering the specialty coffee. Specialty coffee has a high demand in the developed countries markets, especially with the certification attached to the coffee trade, such as organic certification, rain forest alignment certificate, trade fair certificate. Therefore, it is needing the government assistance to socialize these certifications procedure and help in accessing funding for farmer to gain the certification.
- Indonesian coffee processing can increased the competitiveness, by adding the value to the export final product can increased the value in global market. Indonesia can offered the processed coffee such as roasted or soluble coffee. But some export destination countries still apply high tariffs and non-tariff barriers for ready-to-drink coffee. This requires the active participation of negotiators to reduce import duty or other regulations, so that the ease of access to the Indonesian value-added coffee market will be more open.

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