

The Indonesian Natural Rubber Export Competitiveness in Global Market

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How to Cite: Zuhdi, F. and Anggraini, R.S. (2020). The Indonesian Natural Rubber Export Competitiveness in Global Market. *Int. J. Agr. Syst.* 8(2): 130-139

ABSTRACT

As one of the largest natural rubber exporters in the world, Indonesia has a potential to globally conquer the natural rubber export market. Furthermore, natural rubber gave a positive contribution to economy due to supplying foreign exchange for the country. This condition was indicated from a high Indonesian natural rubber export value to the global market. Therefore, the aim of this study was to measure the Indonesian natural rubber export competitiveness in global market. The methods in this study used Revealed Comparative Advantage (RCA) and Constant Market Share (CMS). The result showed that the Indonesian natural rubber export still had competitiveness in global market, but in a declined trend. One cause of declined Indonesian natural rubber export competitiveness in global market was due to low quality product of natural rubber. Moreover, land control was still dominated by the community plantation, therefore necessary performed a dissemination related to cultivation technological use to improve the Indonesian natural rubber productivity.

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Keywords:

Competitiveness; export; natural rubber.

1. Introduction

Natural rubber is one of important export in Indonesia along with palm oil, coffee bean, and tea leaves. Currently, Indonesia is the second largest exporter of natural rubber after Thailand and followed by Malaysia. These three countries even conquer almost 70% of world market share (Tanielian, 2018). Daulika et al. (2020) stated that natural rubber gave a positive contribution to economy due to supplying foreign exchange for the country. This condition was indicated from a high Indonesian natural rubber export value to the global market. Directorate General of Plantations of Indonesia (2020) stated that the Indonesian natural rubber export in 2017 reached 5.1 billion US dollars or inclined to 1.7 billion US dollars (51.3%) from the previous year. However, as seen from a wider period, the Indonesian natural rubber tends to be fluctuated. This condition is based on the policy of each exporter country that tightens rules related to the synthetic natural rubber import.

The Indonesian natural rubber production from 2002-2019 tended to increase. The average production of natural rubber during the period was 3.48% per year. This condition was followed with the improvement of land area, but with a lower

percentage of 0.57% in 2002-2017 (Center for Agricultural Data and Information Systems, 2020). Most Indonesian natural rubber productions are exported to various countries in the world. USA and Japan become the largest importers of Indonesian natural rubber as each of these countries has shares of 22.13% and 20.17% in 2019 (Trade Map, 2020; UN Comtrade, 2020).

The Indonesia's potential to become the largest exporter is widely opened. This condition happens as only Thailand and Indonesia statistically becomes the largest natural rubber exporter in the world. Meanwhile, Malaysia and Vietnam which also the natural rubber exporter do not have large market share. In 2019, Indonesia has the market share of 26.50% and Thailand on the same period has the market share of 33.07% (Trade Map, 2020; UN Comtrade, 2020). In other words, there is a market share gap of 6.57%. Based on the data of Rubber Statistical Bulletin (2018) in Lindung and Jamil (2018), the world's natural rubber consumption increased until 8.93% during 2015-2017 as one of which was because of the development of automotive industry in China. This opportunity is surely taken by Indonesia to perform an improvement of natural rubber export, therefore can compete in the global market and as one of national economical supply. Lindung and Jamil (2018) added that more opened market also caused a tighter natural rubber competition, therefore the market strength finally declines that can prevent new competitor to enter. Indonesia also has an opportunity to be the world's largest producer as the main competitors, namely Thailand and Malaysia, are low in land area and difficult to obtain cheap workers, thus can become comparative and competitive superiority for Indonesia in order to improve the rubber industry (Ministry of Industry, 2007).

One way that can be performed to compete in the global market is by developing competitiveness. Tambunan (2004) stated that Indonesian export highly relied on comparative and competitive superiority factors as the main assessment of competitiveness level. Oktaviani and Novianti (2009) added that the competitive superiority owned by one country was expected to enrich the country. Based on this theory, this study was aimed to analyze and measure the competitiveness position of Indonesian natural rubber in global market

2. Materials and Methods

This study used time series secondary data for 17 years (2002-2019) collected from various sources such as United Nations Comtrade Database (UN Comtrade) and International Trade Center. The data collected was grouped into three average periods, namely period I (2002-2007), period II (2008-2013), and period III (2014-2019). The aim of data collection was to facilitate the study result interpretation. This study object was natural rubber export encoded as HS 4001, while the three largest natural rubber exporter countries was obtained as the study subject. These three countries were Indonesia, Malaysia, and Thailand.

The study method used was a descriptive quantitative using Revealed Comparative Advantage (RCA) and Constant Market Share (CMS) analysis tools. These two methods were used to analyze the Indonesian natural rubber export competitiveness along with Malaysia and Thailand in global market.

The RCA method used to analyze the natural rubber export competitiveness to global market. Zuhdi and Suharno (2016) and Basri and Munandar (2010) stated that RCA is a dynamic measurement method and capable of analyzing the competitiveness level.

The RCA was used in many studies to measure the comparative superiority change from various sectors, mainly agricultural sector (Granabetter, 2016; Li and Bender, 2002). The RCA concept is a ratio between market share from the country product in global market and export share from a country against the world's total export (Zuhdi and Suharno, 2016). Mathematically, RCA can be calculated using the following formula (Saboniene, 2009):

$$RCA = \frac{\left(\frac{X_{ki}}{X_{ti}}\right)}{\left(\frac{W_k}{W_t}\right)}$$

Whereas X_{ki} is a natural rubber export value (HS 4001) from i country (US\$), X_{ti} is a total export from i country (US\$), W_k is a total export value of world natural rubber (HS 4001) (US\$) and W_t is the world's total export value (US\$).

Apridar (2014) in Muslika and Tamami (2019) stated that the determination of RCA was when one country had a greater RCA value than 1 ($RCA > 1$), then the country commodity had a tough comparative superiority or strong competitiveness. Otherwise, when the RCA value was smaller than 1 ($RCA < 1$), then the country commodity had a low comparative superiority or weak competitiveness.

Constant Market Share (CMS) is an empirical analysis tools used to identify the country's export performance and structural change in the international trade (Capobianco-Uriarte et al., 2017; Widodo, 2008). In this study, CMS was used as a tool to analyze the natural rubber export growth source. Oktaviani et al. (2016) stated that CMS approach could be used to measure the industry trade dynamic in one country. This approach is based on the comprehension that the export growth rate of country can be smaller, similar, or higher than the world's average export growth rate. Permatasari and Rustariyuni (2015) stated that the export growth of a country could be explained into three effects, namely commodity composition, market distribution, and competitiveness effect. Tsyzynski (1951) in Sintia et al. (2017) stated that CMS model was used to identify the country's competitiveness dynamics.

$$q^1 - q^0 = r q^0 + \{(ri)q^0\} + \{q^1 i - q^0 i - ri q^0 i\}$$

(1) (2) (3)

Whereas q^0 is a natural rubber export value from i country on $t-1$ year. The q^1 is a natural rubber export value from i country on t year. The ri is a natural rubber import growth in global market. The r is a total export growth in global market. (1) Market distribution effect; (2) Commodity composition effect; (3) Competitiveness effect.

$$r = \frac{(w(t) - (w(t-1)))}{(w(t-1))}$$

Whereas r is a growth for all exports to the target market. The $w(t)$ is an export in i market on t year and $w(t-1)$ is an export in i market on $t-1$ year.

3. Results and Discussion

The world's natural rubber export nowadays is 64.8% conquered by Indonesia (28.8%) and Thailand (35.92%). This condition strengthens the position of Indonesia as the largest natural rubber export in the world. As one of the largest natural rubber producers in the world, most Indonesian natural rubber export is exported abroad in the form of natural and synthetic rubber. This condition may be due to low rubber

consumption in the country as only reaching 16%, therefore there is still a natural rubber production surplus can be exported (Hendratno, 2015).

3.1 The Development of Indonesia's Natural Rubber Exports

Based on Central Statistics Agency of Indonesia (2018) data, the rubber plantation in Indonesia based on the business activity is divided into Large Plantation (LP) and Community Plantation (CP). Large plantation comprised Country's Large Plantation (CLP) and Private Large Plantation (PLP). The natural rubber production development in Large Plantation (LP) from 2016-2018 tended to be fluctuated. In 2016, the CLP natural rubber production was 238.02 thousand tons and increased into 249.29 thousand tons in 2017 or increased into 4.73%. Meanwhile, in 2018, the CLP natural rubber production decreased into 230.36 thousand tons or 7.59%. The natural rubber production in Private Plantation (PP) and Commodity Plantation also had a fluctuation. In 2016, the PLP and CP natural rubber production were 365.18 thousand tons and 2 754.75 thousand tons respectively, then increased into 380.91 thousand tons (PLP) and 3 050.23 thousand tons (CP) in 2017 or increased into 4.31% and 10.73%, respectively. In 2018, the PLP and CP natural rubber production decreased into 288.74 thousand tons and 3 005.03 thousand tons or decreased into 24.2% and 1.48%.

In I-II period, the Indonesian natural rubber export increased based on the export volume and decreased based on market share sector. The Indonesian export volume in these periods increased into 22.07% from 1 958 820 tons (period I) to 2 391 217 tons (period II) with a decreased market share of 3.42% from 32.58% (period I) to 29.16% (period II). On the same period, Thai and Malaysian export was decreased based on the export volume and market share sector. Thai export decreased into 0.84% from 2 981 680 tons (period I) to 2 956 454 (period II) with decreased market share of 13.54% from 49.60% (period I) to 36.06% (period II), while Malaysian export volume decreased into 3.64% from 879 438 (period I) to 847 384 (period II) with decreased market share of 4.30% from 14.63% (period I) to 1.33% (period II).

In period III, Indonesian export increased on export volume, but not accompanied by the increased market share. The Indonesian export volume on this period increased into 12.54% from 2 391 217 tons (period II) to 2 691 120 tons (period III) with decreased market share of 0.51% from 29.16% (period II) to 28.65% (period III). Furthermore, the development of Indonesian, Thai, and Malaysian natural rubber export share can be seen on Table 1.

Table 1. The Natural Rubber Export Share of Indonesia, Thailand dan Malaysia

	Period I (2002-2007)		Period II (2008-2013)		Period III (2014-2019)	
	Average export (tons)	Market share (%)	Average export (tons)	Market share (%)	Average export (tons)	Market share (%)
Indonesia	1 958 820	32.58	2 391 217	29.16	2 691 120	28.65
Thailand	2 981 680	49.60	2 956 454	36.06	3 478 697	37.03
Malaysia	879 438	14.63	847 384	10.33	659 415	7.02

Source: Processed secondary data (2020)

Thailand had an increased export volume and share on the period III. The increased export volume of Thailand was 17.66% from 2 956 454 tons (period II) to 3 478 697 tons (period III) with an increased market share of 0.97% from 36.06% (period II) to 37.03% (period III). On the same period, Malaysia had a decreased export volume and market share. The volume export of Malaysia decreased into 22.81% from 847 384 tons (period II) to 659 415 tons (period III) with decreased market share of 3.31% from 10.33% (period II) to 7.02% (period III). Table 1 showed that the Indonesian natural rubber export volume always increased on each period, however this increase was not followed by the increased market share on the same period. Differed from Thailand on period II, the export volume and market share decreased, then increased significantly on period III.

3.2 Revealed Comparative Advantage (RCA)

Besides market share, the natural rubber competitiveness level was also analyzed using RCA. Based on the calculation result of RCA value, the Indonesian and Thai natural rubber export on period I-III were fluctuated, whereas period II decreased and returned to increase on period III. On period I-II, the RCA value of Indonesia and Thailand decreased into 3.89 from 31.21 (period I) to 27.32 (period II) and 1.00 from 35.41 (period I) to 25.41 (period II), respectively, however period II-III returned to increase with 4.08 from 27.32 (period II) to 31.40 (period III) and 2.46 from 25.41 (period II) to 27.87 (period III). The RCA value of Malaysia decreased on period I-III into 3.12 from 11.00 (period II) to 7.88 (period III) and 1.89 from 7.88 (period II) to 5.99 (period III). The average RCA value of Indonesia, Thailand, and Malaysia to the global market can be seen on Table 2.

Table 2. The Average RCA Value of Indonesia, Thailand, and Malaysia to the Global Market

	Indonesia	Thailand	Malaysia
Period I (Average RCA)	31.21	35.41	11.00
Period II (Average RCA)	27.32	25.41	7.88
Period III (Average RCA)	31.40	27.87	5.99
Δ Period I – Period II	-3.89	-1.00	-3.12
Δ Period II – Period III	4.08	2.46	-1.89

Source: Processed secondary data (2020)

Based on the following result, it can be defined that Indonesia and Thailand has greater competitiveness level of rubber export than another challenger (Malaysia). The study of Sattayawaksakul and Choi (2016) resulted the high calculated RCA value of Indonesia and Thailand. The RCA value of Indonesia was relatively higher than Thailand, although from export volume and market share sector, Indonesia was still lower than Thailand. This condition indicates that the Indonesian natural rubber export to the global market is relatively contributed to the Thailand country's economy, but with a lower concentration than Indonesia. Moreover, lower RCA value of Thailand than Indonesia was caused by the declined export value of Thai natural rubber due to inclined country consumption, whereas the natural rubber total consumption of Thailand reached 397 595 tons Soekarno (2009) in (Lindung and Jamil, 2018).

3.3 Constant Market Share (CMS)

The continued analysis related to competitiveness was through the Constant Market Share (CMS) analysis. Based on the calculation result of CMS presented on Table 3, on period I, there was a market share growth difference of Indonesian natural rubber export against the standard growth was caused by unfocused market distribution to countries with high import demand, but distributed into low import demand countries. This condition was based on the CMS value from the influence of market distribution with -10.21. Syahputra et al. (2014) added that low Indonesian natural rubber export to the importer countries was high due to other exporter countries apart from Thailand and Malaysia, such as Vietnam and Liberia, that started to increase the natural rubber export to the main export target country, while on period II and III, the influence of market distribution had positive values of 15.20 and 5.57. The increased influence of market distribution on period II and III indicated that Indonesia was capable of focusing to export natural rubber to the importer countries which had a great demand. On Table 4, the decreased volume of natural rubber export in USA on period II was 9.9% and China on period III was 26.46%. This decreased condition was led to the moved Indonesian natural rubber export market distribution and unable to fulfill the natural rubber demand from the main importer country.

The Indonesian natural rubber export commodity composition influence had a positive growth on period I-III. This condition indicated a high market demand against the Indonesian natural rubber. Harahap and Segoro (2018) added that one condition that caused high natural rubber demand was due to the automotive industrial recovery in importer country impacted on the industrial development, especially tire industry. However, on period II-III, the composition commodity influence growth declined although still in a positive value.

Table 3. The CMS Value of Indonesian, Thailand, and Malaysian Natural Rubber

	Indonesia	Thailand	Malaysia
Period I			
Market distribution influence	-10.21	7.42	-10.45
Commodity composition influence	3.64	2.91	2.01
Competitiveness influence	12.93	8.21	7.28
Export growth	31.71	26.13	21.17
Period II			
Market distribution influence	15.20	16.44	-0.11
Commodity composition influence	11.34	6.76	5.18
Competitiveness influence	-16.71	-15.53	-2.55
Export growth	15.52	14.64	11.70
Period III			
Market distribution influence	5.57	-0.54	2.13
Commodity composition influence	3.33	1.63	0.89
Competitiveness influence	-10.97	-5.44	-4.58
Export growth	-5.31	-0.48	-1.67

Source: Processed secondary data (2020)

Table 4. Indonesian Natural Rubber Export Volume in The Greatest Importer Country

	Period I (2002-2007)		Period II (2008-2013)		Period III (2014-2019)	
	Export average (tons)	Alteration (%)	Export average (tons)	Alteration (%)	Export average (tons)	Alteration (%)
World	7 494 189	100	8 340 368	11.29	9 494 478	13.83
USA	620 576	100	558 824	-9.9	591 642	5.87
Japan	279 876	100	365 094	30.44	451 425	23.6
China	213 363	100	425 484	99.41	312 880	-26.46

Source: Processed secondary data (2020)

The competitiveness influence during period I-III tended to be fluctuated but in a declined trend. This condition indicated that the CMS value, which was only positive on period I, while on period II and III had negative value. This value defined that there was declined quality and price of Indonesian natural rubber, therefore causing a decline demand on Indonesian natural rubber. Simultaneously, this condition influenced the Indonesian natural rubber export growth, especially on period III. The existence of export challenger from other countries apart from the main exporter countries made the global market share decline and finally impacted on the declined export growth. On the same period, Thailand and Malaysia also decreased the competitiveness level and impacted on the natural rubber export growth.

Competitiveness becomes the most dominant factor against the Indonesian natural rubber export development as well as other exporter countries. The influence of natural rubber export competitiveness in Indonesia was relatively greater than Thailand, especially on period III. This condition indicates that the longer Indonesian natural rubber export product, the lower its competitiveness level. The low quality of Indonesian natural rubber was related from the natural rubber business structure dominated by the community plantation (Ministry of Industry, 2007).

4. Conclusion

The Indonesian natural rubber export has a great potential and can become one condition to increase the country revenue. However, during the periods, competition among exporter countries in global market could not be prevented. The market share of Indonesia on period I-III always declined with the value of 32.58%, 29.16%, and 28.65%. However, on the same period, the Indonesian natural rubber export volume did not decrease, but increased on each period instead, this condition indicated that there was a competition in global market due to decreased market share not caused by the decreased country's natural rubber production. High demand of natural rubber in global market nowadays has triggered the rubber producing countries to perform an export, therefore causing the market share of Indonesia in global market decreases. This condition not only happens to Indonesia, but also another exporter, such as Malaysia, that also decreases its competitiveness on each period. Only Thailand that has no negative market share growth. Nevertheless, the decreased market share of Thailand (period II) was also followed by the decreased export quantity. The comparative superiority of Indonesian natural rubber was shown from the positive The

RCA value on each period, namely 31.21, 27.32, and 31.40 respectively and even more than the RCA value of Thailand on the last two periods with 25.41 and 27.87, respectively. This condition indicates that the natural rubber export of Indonesia to the global market is relatively contributed to the country's economy compared to Thailand and Malaysia. The calculation result of Constant Market Share (CMS) showed that the natural rubber export growth to global market had a positive average with declined trend. The declined natural rubber export growth of Indonesia to global market was dominantly influenced by decreased Indonesian natural rubber product competitiveness level. Moreover, market distribution also influenced the declined trend of Indonesian natural rubber export. Based on this condition, it can be concluded that the quality of Indonesian natural rubber is still low, thus the importer countries alters their importing activity from other countries. Therefore, a better business needs to be performed to inseminate the cultivation technology package to farmers in the community plantation, thus can perform a rubber plantation effectively and efficiently. This condition is expected to give an impact on quality recovery of natural rubber produced along with the increased production. An export strategy analysis to the potential importer countries also needs to be performed therefore the Indonesian natural rubber export market distribution can reach the target and profitable for the country's economy.

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