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Competitiveness and Export Position of Indonesian Whole Nuts Seeds in the International Market for the Period 2011-2022

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ABSTRACT: Indonesia is the largest nutmeg exporter in the world. Indonesian nutmeg tends to experience an increase in export volume every year. However, the development of nutmeg exports is still experiencing fluctuations during the 2011–2022 period. This research aims to analyse the export competitiveness of Indonesian whole nutmeg seeds in the international market and the competitive position of whole nutmeg seeds in export destination countries in the period 2011–2022. This research uses secondary data, namely in the form of time series data for 12 years, namely the years 2011–2022. The data were analysed using revealed comparative advantage (RCA) and dynamic revealed comparative advantage (DRCA) analyses. Research results using Revealed Comparative Advantage (RCA) show that Indonesian whole nutmeg seeds are competitive in the international market. Indonesian nutmeg in ten export destination countries is also competitive, with the highest competitiveness of whole nutmeg in Germany, Italy, and the Netherlands. Based on the Dynamic Revealed Comparative Advantage (DRCA) analysis, the results show that product competitiveness growth is always positive in Japan, leading to Japan's competitive position becoming a rising star in the fourth period (2020–2022).

KEYWORDS: Nutmeg, Competitiveness, Position, DRCA, RCA

INTRODUCTION

Indonesia is known as an agricultural country that has richness and diversity in the agricultural sector, which has played an essential role in the country's economy for many years. Indonesian agricultural exports have great potential as contributors to a nation's economy (Hermawan, I., 2020). According to research by the Central Statistics Agency (BPS, 2021), agricultural export results tend to increase based on volume or export value aspects, with the highest percentage change in volume occurring in 2017 at 20.99% and 14.02% in the percentage change in export value that occurred in 2020.

Table 1. Contribution of Agricultural Subsector GDP to National GDP 2017-2021

No.	Agricultural Subsector	Contribution of PDB (%)				
		2017	2018	2019	2020	2021
1	Crops	3,23	3,03	2,82	3,07	2,60
2	Horticultural Plants	1,45	1,47	1,51	1,62	1,55
3	Plantation crops	3,47	3,30	3,27	3,63	3,94
4	Farm	1,57	1,57	1,62	1,69	1,58
5	Agricultural and Hunting Services	0,19	0,19	0,19	0,20	0,19

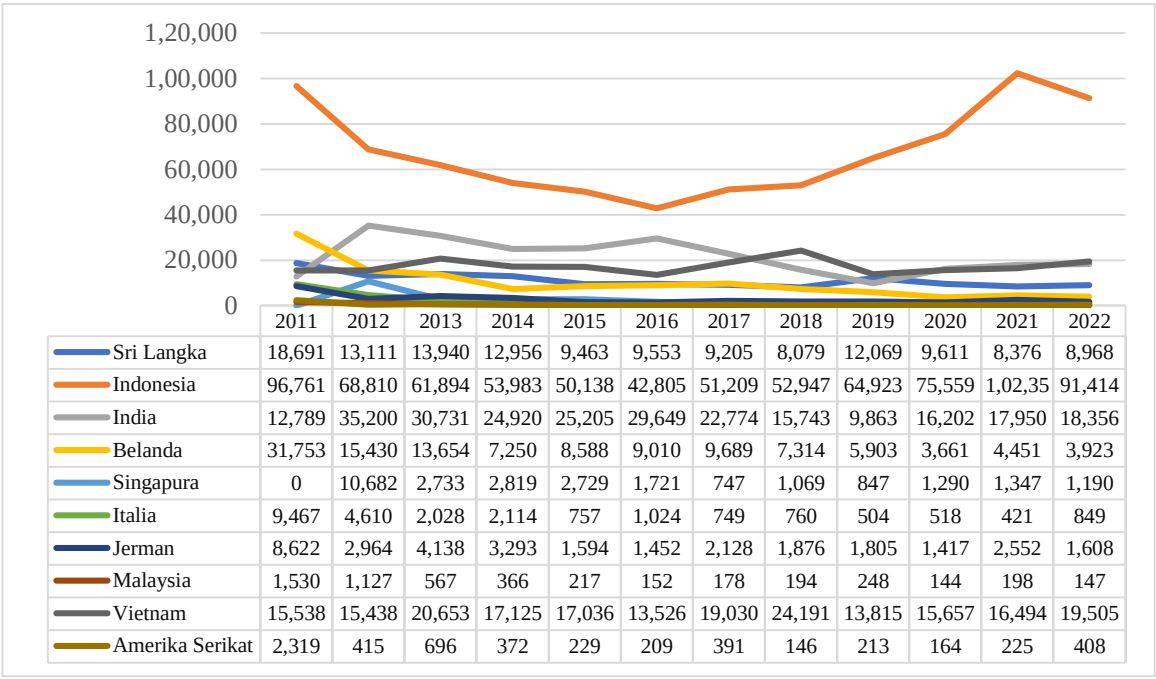
Source: Central Statistics Agency 2022

Table 1 shows that the national GDP experienced development in the period 2017 to 2021. Over the last five years, plantation crops, on average, have contributed to GDP (Suhartini, N. A. et al., 2021). In the agricultural subsector, the highest GDP contribution also comes from plantation crops. Thus, it can be concluded that the role of plantation crops is significant in increasing national income (Gordon, A., 2020).

Spice exports are one of the sources of significant export value for Indonesia (Nurjati, E., 2022). According to BPS (2020), the contribution of exports of medicinal, aromatic, and spice plants reached 32.47% in 2020. Several types of spice plants exported from Indonesia include pepper, nutmeg, ginger, cloves, cinnamon, and various other types of spices. Spices have many functions and benefits, including as a mixture of medicine and food and as an additive to aroma and taste in cooking (Santoso, N. A., et al., 2020).

Competitiveness and Export Position of Indonesian Whole Nuts Seeds in the International Market for the Period 2011-2022

As a nutmeg exporter, Indonesia also imports nutmeg products from neighboring countries. This is caused by the lack of adequate distribution of nutmeg from nutmeg production centers to areas that do not produce it (Nurhayati, E. et al., 2019). As a result, Indonesia has to incur more significant costs and risks to distribute nutmeg to areas that do not produce nutmeg. Nutmeg-producing countries continue to export their nutmeg due to increasing demand to meet the needs of a number of countries that cannot meet their domestic needs or do not produce it at all (Zuhdi F. et al., 2020). The development of the value of nutmeg exports from Indonesia and competing countries to the world from 2011 to 2022 is depicted in Figure 1.



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Sri Langka	18,691	13,111	13,940	12,956	9,463	9,553	9,205	8,079	12,069	9,611	8,376	8,968
Indonesia	96,761	68,810	61,894	53,983	50,138	42,805	51,209	52,947	64,923	75,559	1,02,35	91,414
India	12,789	35,200	30,731	24,920	25,205	29,649	22,774	15,743	9,863	16,202	17,950	18,356
Belanda	31,753	15,430	13,654	7,250	8,588	9,010	9,689	7,314	5,903	3,661	4,451	3,923
Singapura	0	10,682	2,733	2,819	2,729	1,721	747	1,069	847	1,290	1,347	1,190
Italia	9,467	4,610	2,028	2,114	757	1,024	749	760	504	518	421	849
Jerman	8,622	2,964	4,138	3,293	1,594	1,452	2,128	1,876	1,805	1,417	2,552	1,608
Malaysia	1,530	1,127	567	366	217	152	178	194	248	144	198	147
Vietnam	15,538	15,438	20,653	17,125	17,036	13,526	19,030	24,191	13,815	15,657	16,494	19,505
Amerika Serikat	2,319	415	696	372	229	209	391	146	213	164	225	408

Figure 1. Graph of the Country's Nutmeg Export Value in the International Market 2011 – 2022 (Thousand USD)
Source: *UN Comtrade, 2023*

Based on Figure 1, it can be concluded that Indonesia's export value is in the first place, followed by Sri Lanka, India, the Netherlands, and Vietnam, which will experience fluctuations until 2022. The highest export value for Indonesian nutmeg is US$ 102,350 in 2021. Dynamics of the export value of nutmeg fluctuates from year to year (Asrol, A. & Heriyanto, H. 2017). The trend in the export value of whole nutmeg is relatively positive, better than the trend in the export value of competing countries. However, the price of whole nutmeg seeds on the international market tends to decline. The price of whole nutmeg in 2012 was US$ 10.2 per kilogram and continued to decline by 8 percent per year, so in 2020, it reached US$ 4.72 per kilogram. Meanwhile, the world price for whole nutmeg in the same year was $5.61 per kilogram (Darma, R. et al., 2021).

Based on the background description above, the main objective of this research is to analyze the competitiveness of Indonesian whole nutmeg exports in the international market and analyze the competitive position of whole nutmeg seeds in export destination countries in the period 2011 – 2022.

RESEARCH METHOD

This research uses secondary data, namely time series data for 12 years, namely 2011–2022. Secondary data collected for this research is statistical data: production data, export and import data for Indonesian nutmeg, and competing countries, namely Sri Lanka, India, the Netherlands, Singapore, Italy, Germany, Malaysia, Vietnam, and the United States. This data was obtained from related agencies, including the Central Statistics Agency (BPS), the International Trade Center which was traced via the internet network, the United Nations Trade, the Directorate General of Plantations of the Republic of Indonesia, the Commodity Futures Trading Supervisory Agency, and the Food and Agriculture Organization (FAO), Industrial Data and Information Center of the Indonesian Ministry of Industry.

Data analysis

***Revealed Comparative Advantage Analysis* (RCA)**

Comparative advantage can be measured using the Revealed Comparative Advantage (RCA) analysis tool, which is used to measure the level of competitiveness. Many studies measure the level of competitiveness/advantage of a type of product or group of products in the export market. The method for calculating RCA, according to (Salvatore, 1997), is as follows:

RCA= (Xij / Xj) / (Xiw / Xw)

Information:

Xij = Export value of nutmeg commodities from the exporting country
Xj = Total export value of all commodities from the exporting country
Xiw = World export value of nutmeg commodities
Xw = Total export value of all world commodities

The RCA ratio value < 1 indicates an unfavorable position in exports (relative disadvantage), meaning that the commodity has weak competitiveness. Meanwhile, on the other hand, RCA > 1 indicates a relative advantage, meaning that the commodity in question has relatively more substantial competitiveness compared to certain commodities with the same product in other countries. If RCA = 1, it means that the competitiveness of the commodity is comparable to the competitiveness of the same commodity in world exporting countries.

Dynamic Revealed Comparative Advantage (DRCA)

DRCA analysis is a continuation of RCA, so this analysis is carried out after carrying out RCA analysis. DRCA complements the shortcomings of RCA analysis, which is static so that it cannot see changes in competitiveness in each period that occurs over a certain period. The DRCA Index can be used to analyze changes in comparative advantage over each period. DRCA is formed by decomposing RCA growth into several components (Ulfah T. et al., 2020).

Changes in the position of competitiveness during the period 2011–2022 will be divided into four periods so that the explanation of the competitiveness of the whole nutmeg is more informative and detailed. Measuring competitiveness using DRCA can categorize market positions into six, namely: 1) Rising star: If the share of world nutmeg in the market of the export destination country increases more than the increase in the share of Indonesian nutmeg commodities in the market of the export destination country; 2) Falling star: If Indonesia's share of nutmeg increases while the export share of the world market in the destination country decreases; 3) Lagging retreat: If the share of Indonesian nutmeg falls less than the decline in the share of world nutmeg in the market of the export destination country; 4) Lost opportunity: If Indonesia's share of nutmeg decreases, while the world share of nutmeg in export destination countries increases; 5) Leading retreat: If the share of Indonesian nutmeg experiences a decline more significant than the decline in the share of world nutmeg in the market of the export destination country; and 6) Lagging opportunity: If Indonesia's share of nutmeg increases, but this increase is less than the increase in the share of world nutmeg exports in export destination countries. The DRCA analysis calculation formula is as follows:

$$\frac{\Delta RCAij}{\text{RCAij}} = \frac{\Delta(\frac{Xij}{Xj})}{\frac{Xij}{Xj}} - \frac{\Delta(\frac{Xiw}{Xw})}{\frac{Xiw}{Xw}}$$

Information:

RCAij = RCA value of the exporting country's nutmeg commodity
Xij = Export value of nutmeg commodities from the exporting country
Xj = Total export value of the exporting country's commodities
Xiw = World export value of nutmeg commodities
Xw = Total export value of all world commodities

RESULTS AND DISCUSSION

Competitiveness of Whole Nutmeg Seeds in International Markets

The level of competitiveness of Indonesian nutmeg and nine other exporting countries over the last twelve years (2011-2022) is based on the RCA value indicator for each country. Indonesia's export value of whole nutmeg is the highest export value of whole nutmeg in the world, followed by India and Sri Lanka. Even though Indonesia's export value is far above Sri Lanka, the competitiveness of Indonesia's whole nutmeg seeds is always far below that of Sri Lanka (Anggrasari, H., et al., 2021). This is due to the high proportion of the export value of whole nutmeg seeds to the total export value of all commodities in Sri Lanka. This

means that whole nutmeg is a superior product in Sri Lanka. Since 2012, Sri Lanka has been the most competitive exporting country in the world, exporting whole nutmeg with a relatively negative competitive growth of 6.117 percent per year (Figure 2). The decline in Sri Lanka's competitiveness was caused by a change in export volume, which was relatively decreasing. Sri Lanka is listed as the third largest exporter of whole nutmeg seeds in the world, supplying 5 percent of the total world trade value of whole nutmeg seeds in 2020, with a value of US$ 5 million. Asrol and Heriyanto (2017) stated that Indonesia and Sri Lanka are nutmeg-exporting countries with competitiveness compared to other exporters, with RCA values from 2007 to 2016 of 19,554 and 31,289, respectively.

Indonesia, as the world's first and most significant producer and exporter of whole nutmeg seeds, has relatively strong competitiveness, as reflected by an average RCA value of > 4, namely 51.68 according to the RCA index indicator. Indonesia's RCA value is the second largest value in the world after Sri Lanka. However, the growth in the competitiveness of Indonesia's whole nutmeg seeds is better than that of Sri Lanka, as seen in Figure 2. The RCA of Indonesia's whole nutmeg seeds has a positive growth of 4.38.

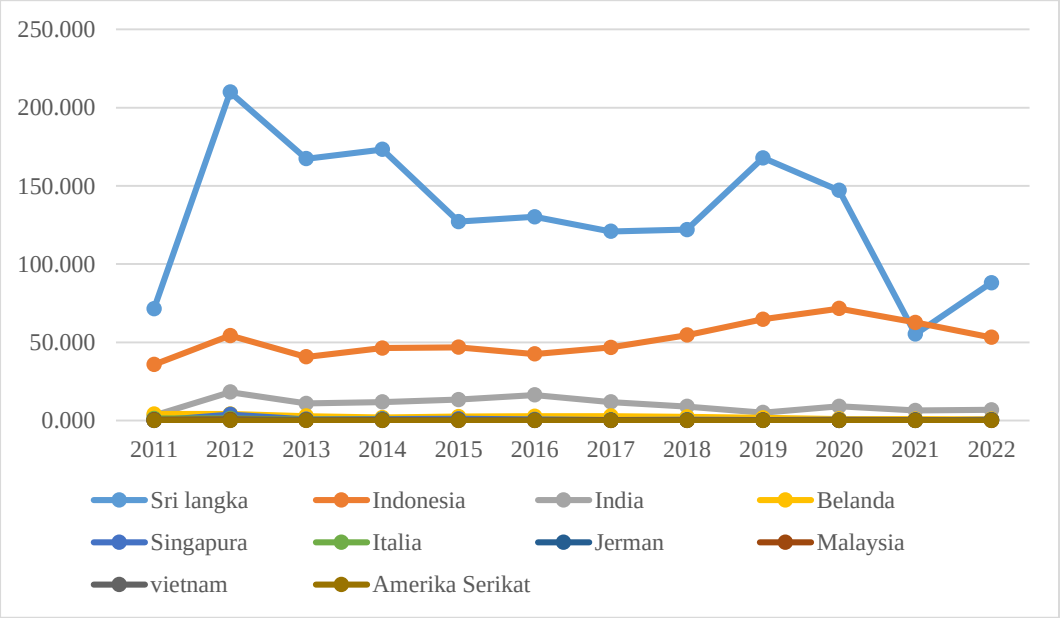


Figure 2. Revealed comparative advantage (RCA) value of world whole nutmeg exporters for the period 2011–2022. Source: Processed Data, 2023

Despite this, Indonesian whole nutmeg seeds experienced a decline in competitiveness twice, namely in 2013 and 2016. The decline in competitiveness was caused by the loss of market share for Indonesian whole nutmeg seeds. There was a change in the composition of Vietnam's import volume as the leading trading partner; in that year, many of Vietnam's imports shifted to India (Purba, H. J., et al., 2021).

Competitiveness of Whole Nutmeg Seeds in Export Destination Markets

The RCA calculation is used to measure the level of comparative advantage of a commodity in a country. RCA is calculated by comparing the export performance of particular products from that country to the total commodity exports to the destination country and also comparing the export performance of that product to total world exports (Assagaf M. et al., 2021). Strong competitiveness compared to other exporters must be accompanied by selecting the right export market. One way to select markets can be seen based on the competitiveness of Indonesian whole nutmeg seeds in a country (Jannah A. et al., 2022). Indonesian whole nutmeg has strong competitiveness in the ten export destination countries, as indicated by the average RCA value > 4, as presented in Table 2.

Table 2. RCA Calculation Results for Indonesia's Whole Nutmeg Exports in International Countries

Year	Countries									
	Vietnam	Amerika Serikat	Belanda	Jerman	Cina	Jepang	Italia	Pakistan	India	Arab
2011	85,20	65,47	53,15	128,99	85,11	19,69	155,55	16,05	1,73	0,85
2012	47,24	133,13	126,38	58,86	66,46	22,01	128,58	15,21	25,61	0,37

2013	4,21	110,55	133,52	66,26	16,96	23,54	191,31	1,11	4,50	0,17
2014	25,80	77,87	110,96	135,82	23,08	27,22	344,98	0,22	5,93	1,54
2015	16,82	89,07	134,92	987,28	85,71	28,98	382,81	3,75	9,66	1,36
2016	27,47	99,49	136,68	954,79	39,02	29,06	239,05	9,67	2,10	9,39
2017	40,72	93,65	118,38	676,54	39,02	29,18	132,54	11,94	9,98	30,36
2018	45,53	96,66	132,11	254,91	48,29	31,31	206,40	19,24	27,47	29,69
2019	50,49	93,33	170,64	219,92	57,33	35,47	228,06	15,97	25,67	33,21
2020	42,75	9,23	151,43	310,76	42,79	35,86	175,41	13,07	10,77	16,29
2021	45,53	94,09	123,52	323,94	36,96	38,84	193,15	16,10	13,92	15,11
2022	42,20	74,96	98,87	311,74	36,40	43,68	164,60	12,71	8,53	29,08
Average	39,50	86,46	124,21	452,48	114,76	30,40	211,87	11,25	12,16	13,95

Source: Processed Data, 2023

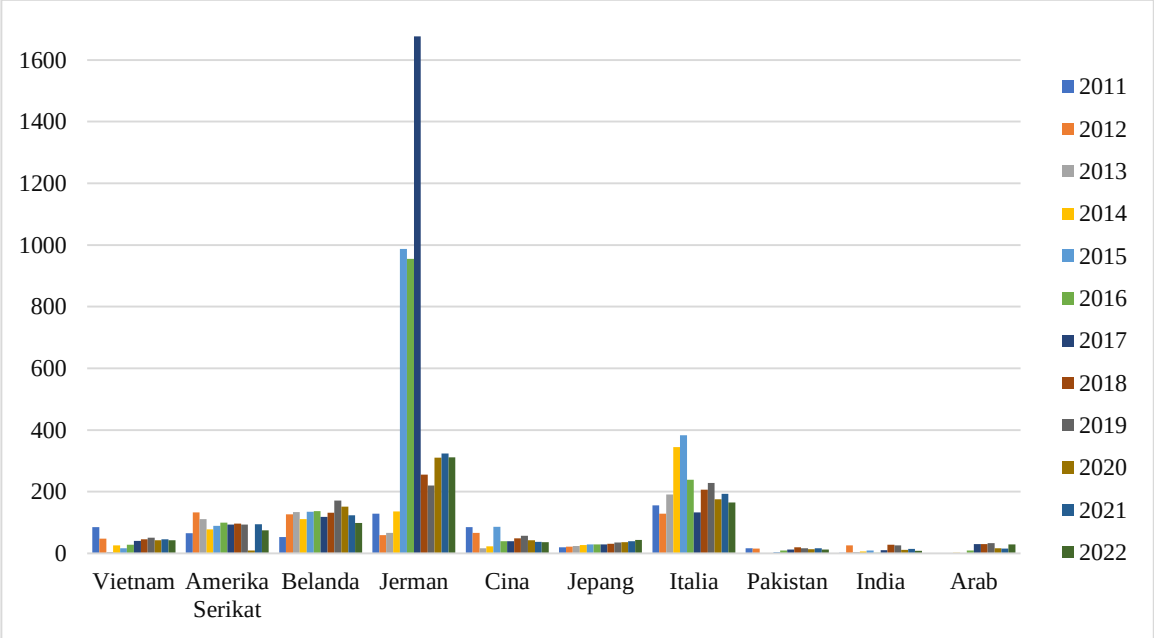


Figure 3. RCA of Indonesian whole nutmeg seeds in export destination countries in 2011 - 2022.
Source: Processed Data, 2023

The RCA calculation was carried out on Indonesian nutmeg products for ten international countries by considering the export value and data on the availability of Indonesian nutmeg exports to these countries during the 2011-2022 period. These international countries include Vietnam, the United States, the Netherlands, Germany, China, Japan, Italy, Pakistan, India, and Arabia. Overall, during the 2011-2022 period, the ten countries showed an average RCA value of more than one. This shows the level of comparative advantage and firm competitiveness in these countries (Simanjorang et al., 2020).

In this research, Germany is the international market country for whole nutmeg, which has the highest average RCA value compared to other international market countries, namely 452.48. During the period studied, 2020 was the year with the highest RCA value for Indonesian nutmeg exports, with a value of 1676.54 recorded in Germany. This is because there was an increase in Indonesian nutmeg exports to Germany in 2017 compared to the previous year, namely US$ 26.68 million, reaching US$ 47.23 million in 2016. Germany is the fourth largest importer of Indonesian whole nutmeg, with an export proportion of 5 percent. In 2017, the competitiveness of Germany increased threefold so that it was superior to the competitiveness of Italy. This is because, in that year, the value of Indonesian exports of whole nutmeg to Germany increased quite significantly. In contrast, the value of world exports of whole nutmeg to Germany decreased (Samhina L. et al., 2023).

Other international countries also have RCA values that fluctuate every year. It can be seen that in the Netherlands in 2017, the RCA value in this country experienced an average decrease of 13.4%. This is also because, in the 2017 period, the trend in the value of Indonesian nutmeg exports to the Netherlands decreased by 52.61%. Indonesian exports that only focus on certain destination countries, such as the leading destination countries, have risks related to economic shocks, changes in policies, regulations, or import restrictions in the destination country, which could result in a decline in Indonesia's export performance

(Mazzlin, N. E., et al., 2022). Indonesian nutmeg experienced export rejection due to the strict implementation of regulations regarding the safety and cleanliness of nutmeg products by importing countries. Generally, the countries that refuse are the European Union, the United States, and Japan. The rejection of nutmeg is generally caused by the aflatoxin content in Indonesian nutmeg, which exceeds the specified maximum limit.

Competitive Position of Indonesian Whole Nutmeg Seeds in Export Destination Markets

Analyzing the competitive position of Indonesian whole nutmeg seeds in export destination countries was carried out using Dynamic Revealed Comparative Advantage (DRCA) analysis. The dynamic DRCA or RCA analysis calculation is carried out by grouping the analysis years into four periods, namely period one year 2011-2013, period two years 2014-2016, period three years 2017-2019, and period four years 2020-2022. The results of dynamic RCA calculations, as shown in Table 3, show that during the four periods, Indonesia's whole nutmeg export competitiveness always experienced positive growth in Japan. Purba et al. (2021) also stated that the dynamic competitiveness of nutmeg in Japan shows a positive trend, with competitiveness increasing every year. Meanwhile, the growth in competitiveness has consistently decreased over the four periods in the United Arab Emirates. The decreasing market share of Indonesian whole nutmeg seeds in Arabia caused the decline.

Table 3. (Revealed comparative advantage) Dynamic RCA of Indonesian whole nutmeg seeds in destination countries in 2011-2022

Countries	Period 1	Period 2	Period 3	Period 4
	(2011-2013)	(2014-2016)	(2017-2019)	(2020-2022)
Vietnam	-0,86	0,04	0,47	-0,04
Amerika Serikat	-0,26	0,25	-0,01	-0,05
Belanda	-0,13	0,18	-0,01	0,14
Jerman	0,22	-0,2	1,74	-0,002
Cina	-10,69	0,27	0,32	-2,12
Jepang	0,14	0,06	0,05	0,21
Italia	2,28	-0,28	-0,12	-0,19
Pakistan	-5,37	29,35	0,72	-0,64
India	-1,87	-0,17	12,46	-2,46
Uni Emirat Arab	10,39	3,89	1,71	-0,62

Source: Processed Data, 2023

The dynamics of Indonesia's competitiveness in export destination countries can be seen per period. In more detail, in period one (2011-2013), the competitiveness performance of Indonesian whole nutmeg exports experienced positive growth in four countries, while competitiveness growth in the other six countries was negative. The highest competitiveness growth in period 1 occurred in the United Arab Emirates because the highest market share occurred in Arabia.The competitive performance of Indonesia's whole nutmeg seeds in the second period (2014-2016) experienced an increase, as indicated by an increase in the number of countries experiencing positive growth to seven countries, while three other countries experienced negative growth. In period 2, the highest competitiveness growth occurred in Pakistan, with a DRCA value of 29.35. The market in Pakistan experienced very significant growth in competitiveness due to a relatively high increase in the value of Indonesian exports to Pakistan in 2016.In period 3 (2017-2019), Indonesia's competitiveness performance was stagnant because it was still the same as in period 2, where positive competitiveness growth occurred in 7 countries and negative in 3 countries. The highest DRCA value in period 3 occurred in India, with a value of 12.46. This was caused by a significant increase in the export value of Indonesian whole nutmeg seeds to India by 29 percent in 2018. This increase was also influenced by demand for imports of whole nutmeg seeds from India, which rose by 16 percent.Period 4 (2020–2022) shows a very significant decline in Indonesia's competitive performance. Positive growth in competitiveness only occurred in 2 countries, while eight other countries experienced negative growth. This is due to the decline in Indonesia's market share in destination countries as a result of the decline in Indonesian nutmeg production from 2018 to 2020 by 2 percent. The highest DRCA value in period 4 occurred in Japan, meaning that the growth in competitiveness in Indonesia in period 4 was highest in the Japanese market.

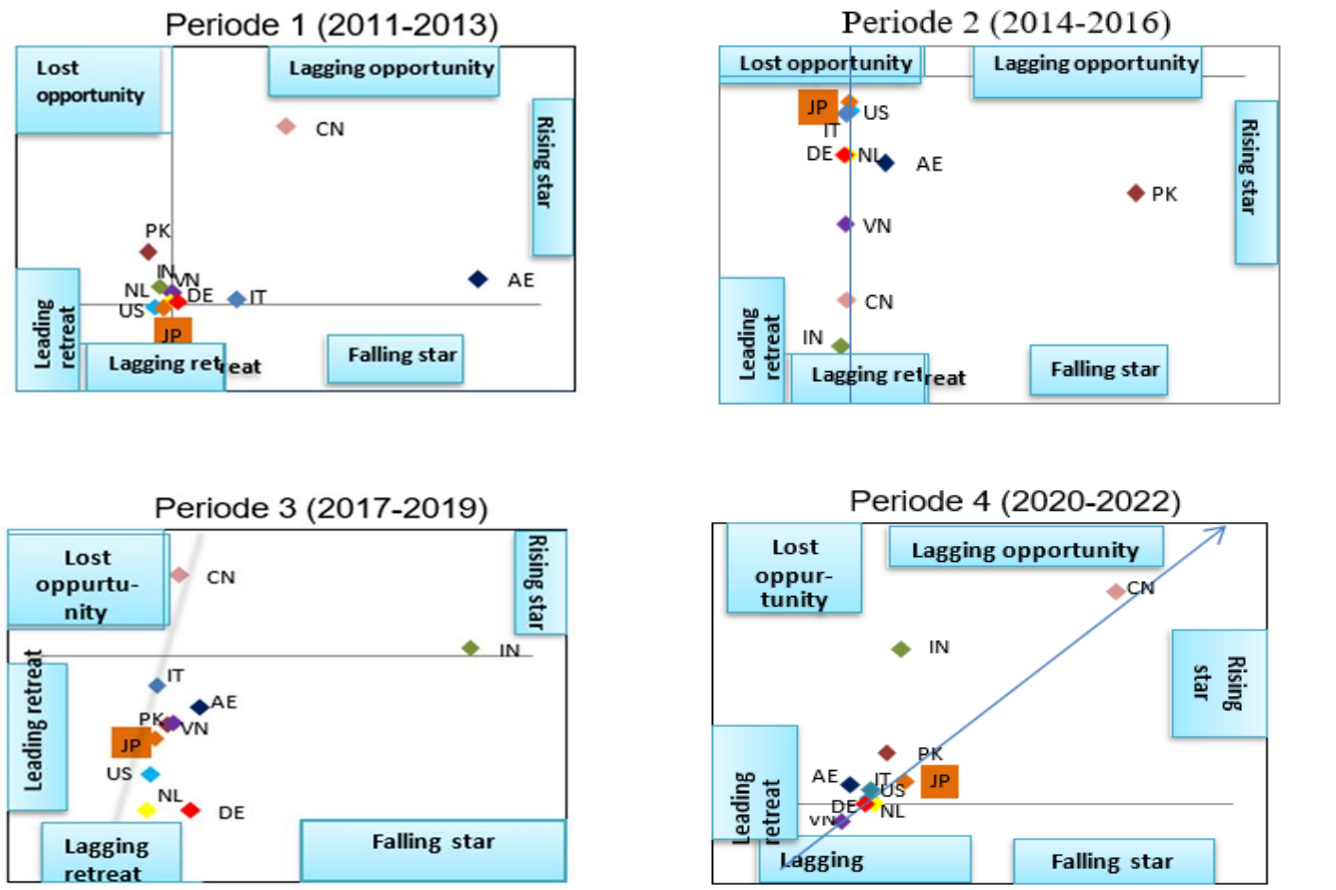


Figure 4. Competitive position of Indonesian whole nutmeg seeds in export destination countries in 2011–2022. AE = Uni Emirat Arab, JP = Jepang, CN = Cina, NL = Belanda, DE = Jerman, PK = Pakistan, IN = India, US = Amerika Serikat, IT = Italia, dan VN = Vietnam.

The competitive position of Indonesian whole nutmeg exports in ten export destination countries is presented in the diagram of the competitive position of whole nutmeg seeds (figure 3). In period 1 (2011-2013), Indonesia's competitiveness of whole nutmeg succeeded in being in a rising star position in three countries, namely Germany, Italy, and Arabia, all three of which were the fourth, seventh, and most significant importers of Indonesian whole nutmeg. Tenth. This position shows that the increase in Indonesia's share of whole nutmeg exports in the three countries has increased higher than the increase in the share of world exports in these three countries.

In period 2 (2014-2016), Indonesia failed to maintain its competitive position in export destination countries, so not a single export market succeeded in achieving a rising star. Nevertheless, successful export restructuring is still occurring in India, Italy, and Germany, which are in leading retreat positions. On the other hand, Indonesia's market share in Vietnam as the leading importer is at a lagging retreat, the same as the position in China, the Netherlands, and Japan.The competitiveness of Indonesian whole nutmeg seeds in period 3 (2017-2018) reached a rising star position in China and India. Meanwhile, Italy, as the export market with the highest competitiveness, is still in a leading retreat position. On the other hand, Vietnam, as the largest importer, is in a falling star position where export restructuring is less successful.In period 4, when Indonesia's competitive position in other countries shifted down, Japan's position shifted up to a rising star position, whereas during periods 1 to 3, Japan was in a lagging retreat. This increase was due to the increase in Indonesia's market share with Japan. The position of competitiveness in Italy has shifted from leading retreat to lagging opportunity. Meanwhile, the position in Vietnam is moving from falling star to leading retreat.

CONCLUSION

The results of calculations using the RCA method to analyze the competitiveness of Indonesia's whole nutmeg have high competitiveness in the international market. Indonesia as the first most significant producer and exporter of whole nutmeg in the world. It has relatively strong competitiveness, as reflected by the average RCA value > 4, namely 51.68, in accordance with the RCA index indicator. Indonesia's RCA value is the second largest value in the world after Sri Lanka. However, the growth in the

competitiveness of Indonesia's whole nutmeg seeds is better than that of Sri Lanka, as seen in the RCA of Indonesia's whole nutmeg seeds, which has a positive growth of 4.38.Based on the dynamic growth of competitiveness and development of competitive position over four periods, the export market for the two products that have the best growth is in Japan, with consistently positive growth. In the first period (2011-2013), the rising star position of Indonesia's whole nutmeg competitiveness was in three countries, namely Italy, Germany, and the United Arab Emirates. However, in the fourth period (2020-2022), Indonesia's whole nutmeg is in the rising star position in only one country, namely Japan.

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