

## Competitiveness Analysis of Malaysian and Indonesian Sago Exports

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### Abstract

Sago is a potential commodity for economic development in rural areas such as Southeast Asia. Meanwhile, Malaysia and Indonesia play an important role as sago producers globally, and so were close competitors in the Asia region. Market issues are always rising as the main issues among the exporters. Based on the previous studies, Indonesia holds the title as the largest plantation of sago meanwhile, Malaysia was estimated to be the third-largest in terms of plantation of sago but has been the biggest exporter for the sago compare to Indonesia. Therefore, this issue is significant to be discussed. The research indicates the competitiveness of sago between Malaysia and Indonesia to know which countries have the most market share in three decades. Malaysia and Indonesia both are the largest exporters of sago in the region. Thus, the aim of this research is to analysis the competitiveness between these two largest exporters of sago. This paper were purposes to analyse Malaysia and Indonesia's comparative advantage from 1988 to 2019 by using export growth rate and the Balassa index RCA to find patterns of variation across parts of the world over different export data segments. There are also In RCA and RSCA methods conducted to solve the skewness problem in the data. The results from the analysis shows that Malaysia has almost total dominance of comparative advantage for sago export. Meanwhile, Indonesia was not consistent in the export for sago market compare to Malaysia.

**Keywords:** Competitiveness Analyses, Exports, Sago, Malaysia, Indonesia, Agricultural

### Introduction

Sago or Metroxylon sago is an endogenous palm species found throughout Southeast Asia, especially in Malaysia, Indonesia, Papua New Guinea, and the Philippines, as well as

Micronesia, Fiji, and Samoa in the Pacific Ocean (Johnson, 1976; Lim et al., 2020). Sago had been predicted to be the "huge source of the twenty-first century" in the early 1990s. Malaysia produces 190,000 tons of sago and is the world's biggest exporter, with a record of 25,000 tonnes exported in 2010. The fact is highly been highlight by the Premier of Sarawak, Datuk Patinggi Abang Haji Abdul Rahman Zohari Tun Abang Haji Openg, that Sarawak is now (2017) the world's largest sago exporter, sending more than 24,000 to 40,000 tons of sago items to Peninsular Malaysia, Japan, Taiwan, Singapore, and other countries each year (The Official of Sarawak portal, 2021; Lim et al., 2020). The primary export destinations are ASEAN countries such as Japan, Taiwan, and Australia. However, it is just 0.05 percent of the world's starch demand. Sago is one of the major agricultural commodities contributing to Sarawak's revenue. This state exports sago starch between RM 80 million and RM 90 million annually.

Sago is a species of palm that contains starch and is used for a variety of purposes, including food, pharmaceuticals, and modified starch for manufacturing use. The global sago plantation is estimated to cover 2.5 million hectares, with 92 percent of the plantation located in Indonesia and Papua New Guinea. Malaysia has a planting area of 62 thousand hectares, compensating around 2.5 percent of the world's sago crops. The production of sago starch in Sarawak has excellent potential to contribute to food safety because it uses low ethanol energy compared to other food crops. Simultaneously, the biomass produced from sago crops can also be managed systematically through fiber ceramics, thus giving added value to commercialization efforts that directly increase sago operators' income in rural areas in the state. The global demand for starch was forecast to increase by 7.7% a year, or 3.85 million tonnes. By 2020, Malaysia's sago crop region is expected to reach 250 thousand hectares and yield 2.4 million tonnes.

Sago starch is more affordable and stable in price than starch derived from other materials. Hence, it makes sago an alternative source that is viable in starch production. The global demand for starch increases, creating Malaysia's opportunities to develop the sago industry on a larger scale. Like the other commodities price, the commodity also facing the same issue and risks. The smallholders have to diversify their economic activities to earn more income by planting crops like banana, pineapple which recorded good demand outside this country. The sustainability of sago exports is crucial to ensure sustainability in producing this commodity among Sarawak smallholders. This implicitly retains the status of sago as a culturally important asset in term rural area in Mukah more specifically in the Melanau and Iban community.

In the context of the rural sector, this commodity has contributed to the rural economic development, especially among the Melanau community in the central region, such as in the Mukah district such as in Dalat, Oya, Mukah, Balingian, and other districts. Besides, the Iban community also produced raw sago material to supply the material to be processed to produce end products, especially by the Melanau community. The commodity also plays a vital role in cultural activities, house materials, and food sources among the Melanau community (Girsang, 2014). Refer to Karim et al., (2008). Sago was also used as a biomass and poultry industry in the rural area.

In this modern age, sago production is also transforming and becomes more efficient. So, local sago entrepreneurs started building sago processing plants to improve annual production performance—the sago cultivation in Sarawak's central area, which is in Mukah, Betong, and Dalat. There are eight sago processing plants sago, including (1) Sago Link Sdn Bhd (formerly known as Grand Safeways Sdn Bhd), (2) Nitsei Sago Industries Sdn Bhd, (3) Nee Seng Ngeng & Sons Industries Sdn Bhd, (4) CL Nee Sago Industries Sdn Bhd, (5) Song Ngeng

Sago Industries Sdn Bhd, (6) Ubom Sago Sdn Bhd, (7) Shimada Sago Sdn Bhd, and (8) Herdsen Sago Industries Sdn Bhd (Craun Research, 2021).

Table 1

Sago export destination countries (MPIC, 2014).

Export Destination	Quantity (Tan)	Value (RM)	Price/Tan (RM/Tan)
Malaysia	28939.91	40,461,702.00	1,398.13
Japan	12904.00	17,405,516.00	1,348.85
Singapura	2688.00	4,542,402.00	1,689.88
Thailand	1334.00	2,184,604.00	1,637.63
Vietnam	824.00	1,462,400.00	1,774.76
Sabah	199.76	253,537.00	1,269.20
Filipina	44.00	71,628.00	1,627.91
China	22.00	22,000.00	1,000.00
Total	4,695,566	66,403,789.00	1,414.18

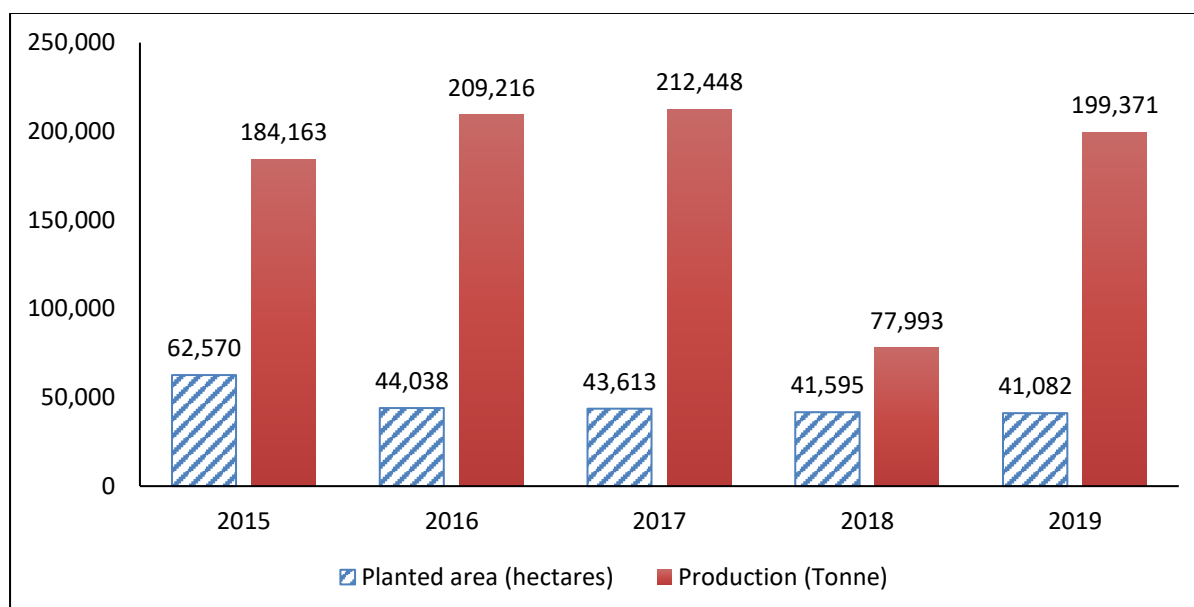


Figure 1: Malaysia sago performance 2015-2019. Source: Agrofood Statistic (2019)

Based on the Agrofood statistic 2019, in Figure 1 shown the performance of Malaysia sago from 2015 until 2019, and only during 2018 that Malaysia is having a decline in term of plantation area and production, however, Malaysia manages to gain huge production at 2019. The planted area is not grown more than 100, 000 hectares, which were the point where Malaysia is far away compare with the Indonesia and Papua New Guinea. The world’s sago crop is estimated at 2.5 million hectares of which 92 percent are located in Indonesia and Papua New Guinea, but even Malaysia was the third largest sago plantation, Malaysia has a better record as it is the world’s largest exporter of sago with more than 190,000 tons in 2019 (Dasar Komoditi Negara, 2012).

For this reason, it is a vital issue to be discussed in this research, as the Indonesia supposed to have more competitive as their having largest planted area compare to Malaysia. Therefore, the research aims to analyze the comparative advantage between Malaysia and Indonesia from 1988 to 2019. Using the Balassa index RCA, this research will find patterns of

variation across parts of the world over different export data segments. There are also In RCA and RSCA methods conducted to solve the skewness problem in the data.

### **Literature Review**

Several studies have indicated the importance and potential of the sago product. According to Pratama et al (2018), the sago plant producers play an essential role in promoting economic growth in the village of Kepulauan Meranti. This is shown by the results, which showed that the various players in the sago trade value chain place a varying importance on different orders of activities, from beginning with seed suppliers right up to the smallholders. Some other study also finds the sago's has the potential to compete in the international trade market, since the sago starch is significantly underutilised when compared to regularly used starches such as maize and potato starches in the global starch market (Zhu, 2019).

The fact that sago needs several years to mature is one of the reasons why it does not produce much in the world market. According to Yamamoto (2011), it takes for a sucker to develop from sucker planting or emergence to flowering point, which is when it's ready to be harvested, differs greatly between varieties. The growth cycle ranges from 10 to 25 years. Furthermore, soil types and soil nutritional requirements influence the growth time of sago palms. Some sago plantations in Timika (Papua, Indonesia) mine tailings reached maturity about eight years after they were planted in fertile soil and with proper care. Palms can take 15 years or longer to achieve maturity in bad soil, such as deep peat in Sarawak (Tie, 1987).

The sago tree may take some time to be harvested but the potential of the sago palm to flourish in places where other plants are unable to thrive is its most intriguing feature. A muddy location that supports non-submerged pneumatophore (breathing roots) and is rich in minerals, organic matter, and slightly acidic brownish groundwater is the ideal growing habitat for the plant. Drought, flood, severe wind, and fire are among situations that the sago palm can withstand (Ehara et al., 2018; Dimara et al., 2021). According to another researcher, Kainuma (2015), the sago palm will thrive in humid sediment soils of low pH without soil amendments, including drainage and pH, implying that the soil condition can be maintained while preventing farmland competition with other crops. As a result, the sago palm has lately gotten a lot of attention as a starch crop primarily for use as an important raw material. As a response, the sago palm has recently received a lot of publicity as a starch crop intended mainly for use as a raw material.

Some studies have highlighted the sago will be the next viable product in Sarawak. Interestingly, the study estimates that Indonesia and Papua New Guinea have 2,942,278 hectares and 1,020,000 sago plantation hectares. On the other hand, Malaysia was the third place with an estimation of 59,000 hectares of the sago plantation (Naim et al., 2016). However, a study indicates that Malaysia is the largest sago producer in the world and has export to Japan, Europe, America and Singapore over four thousand tons of sago per year (Othman et al., 2015). However, this export amount is deemed small as compared to the global Starch demand, which is expected to exceed 156.3 million metric tons by 2025, according to the report. It was driven by the indispensable use in both food and non-food sectors (Global Starch Industry, 2021).

The competitive between Indonesia and Malaysia in sago happens more than 30 decades. Export competitiveness, in which comparative advantage plays a crucial role, refers to the capability to sell in the global market (Gupta, 2015). A lot of studies already implement the competitiveness concept and identify that competitiveness may be assessed using a variety of index competitiveness metrics that help with quantification and interpretation of

internal and external performance factors (Ruzekova et al., 2020). As such, there were variety of analysts have studied India's T&C's export competitiveness. The majority of studies (Kathuria, 2018; Dhiman and Sharma 2017; Kannan 2018;) examined export competitiveness using Balassa's RCA (1965). By measuring the RCA and complex RCA, Kathuria (2013) investigated the competitive advantage of India's apparel industry (HS codes 61 and 62). In the case of HS Code 61, India has remained successful between 1995 and 2003. According to Kim (2019), indicate that India maintained export competitiveness in T&C in the United States during the study era, despite increased rivalry in the US sector following the phase-out of the MFA in 2005.

The others researcher also using the same methods to do comparisons in others commodity. The researchers examine the determinants of processed tomato market competition and do a comparative study between Spain and Portugal. The Revealed Comparative Advantage (RCA), the Revealed Symmetric Comparative Advantage (RSCA), and the Grubel-Lloyd predictor were used in this analysis as structured indicators (GL). Price remains the most important factor in processed tomato exports, according to the findings. (De Cepeda and Bernabéu, 2019). Khalid et al (2021), in the studies has evaluate the trade competitiveness of the cotton crop for the world's top ten cotton exporters using revealed comparative advantage indices and relative competitive advantage indices such as Revealed Comparative Advantage (RCA), Revealed Symmetric Comparative Advantage (RSCA), Relative Import Advantage (RMA), Relative Export Advantage (RXA), and Relative Trade Advantage (RTA). According to the results, Pakistan has a favorable and comparative advantage in cotton exports despite getting a disadvantage in cotton imports and no specialization in its exports.

In this research, by using export growth, RCA, In RCA and RSCA the analysis was conducted to study the competitive of sago between Malaysia and Indonesia. Based on the previous studies, Malaysia was estimated to be the third-largest in terms of plantation of sago but have been the biggest exporter for the sago in the world. As the previous studies also mentions the Sago commodity can be the potential product to Malaysia, more preciously to Sarawak. The research indicates the competitiveness of sago between Malaysia and Indonesia to know which countries have the most market share in three decades from 1989 to 2019.

## **Methodology**

While contentious and enigmatic, international competitiveness has achieved recognition and continues to draw the interest of scholars and decision-makers around the world. In other words of trade, it means a nation that gives its merchants an edge and is reliable in maintaining its commercial advantage over the rest of the world (Bobirca and Paul-Gabriel, 2011). Competitiveness is a dynamic term in a globalised world that being utilised to examine economic progress. (Capobianco-Uriarte et al., 2019). Depending on the intent of the study, various indexes may be used for assessment of competitive advantage. According to the research literature (Mania and Rieber, 2019), export diversification is important as a catalyst to sustainable economic growth. Strong export activities create a positive impact to drive fair trading in the market (Monreal-Pérez and Geldres-Weiss, 2019). Therefore, the export element is indeed one of the most important indicators of international competition.

## **Revealed Comparative Advantage (RCA)**

Comparative advantage principle has been extensively used in experimental science social research in terms of empirical studies. In fact, there already many previous studies make this as one of the fundamental phenomena of foreign trade theory to extract the commodity

pattern of comparative advantage. However, the comparative advantage notion faces a calculation challenge since it is indicated in terms of relative autarkic price relationship that cannot be observed in post-trade balance. Since trade figures show post-trade positions, this is the case (Sharma and Dietrich, 2007). According to Ballance et al., (1987), it is absolutely true that there is significant between economic situation and competitive advantage:

$$ES \rightarrow CA \rightarrow TPC \rightarrow RCA \quad (1)$$

The economic situation (E.S.) in the diverse culture and different trading countries essentially determines the international trend of comparative advantage (C.A.). Comparative advantage (C.A.) will concentrate on international trade, production, and consumption (TPC). The correlation within E.S, C.A, and TPC can be interpreted as an attempt to identify what global trade theorists have been attempting to determine: what economic factors decide competitive advantage, which leads to trade, and how it affects the economic indices of "revealed comparative advantage (RCA). Specifically, the RCA's merchandise export index was found to be the percentage of a country's total export value by that was in a particular market sector (Balassa and Noland, 1989). Below is the original RCA formula:

$$RCA = (X_{ij}/X_j)/(X_{iw}/X_w) \quad (2)$$

Where X stands for exports, i, j and refers to industry (product category), country, and w respectively as the world. The index considers the size of a country's economy or market, allowing for a robust comparison across countries and various industries' output globally. Table 2 shows the Balassa's RCA index can be divided into four levels:

Table 2  
RCA classification

Stage	Range	Level comparative
4	$4 < RCA$	comparative advantage (high)
3	$2 < RCA \leq 4$	comparative advantage (Moderate)
2	$1 < RCA \leq 2$	comparative advantage (low)
1	$0 < RCA \leq 1$	comparative advantage (zero)

### Revealed Symmetric Comparative Advantage (RSCA) Index

RSCA is measured using the export share of a country's total exports and divided by the world's export proportion of the same section to total world exports. This calculation can show one country's benefits compared to other international trade countries (Balassa, 1965). The formula for RSCA is as follows:

$$RSCA_{in}^t = \left( \frac{X_{ij}^t / X_i^t}{X_{wj}^t / X_w^t} - 1 \right) / \left( \frac{X_{ij}^t / X_i^t}{X_{wj}^t / X_w^t} + 1 \right) \quad (3)$$

Where  $RSCA_{ij}^t$  is the revealed symmetric comparative advantage for country  $i$  for product  $j$  at year  $t$ ;  $X_{ij}^t$  are the export for country  $i$  for product  $j$  at year  $t$ ;  $X_i^t$  are the total export for country  $i$  at year  $t$ ;  $X_{wj}^t$  are the world export for product  $j$  at year  $t$ ;  $X_w^t$  are the total world export at year  $t$ .  $RSCA_{ij}^t$  have a range between a negative one and a positive one, where if RSCA is more

than zero, the country has a comparative advantage in that product and otherwise for less than zero. Product  $j$  in the current study refers to sago. This study calculates the RSCA by using annual data from 1989 till 2019 to understand its dynamics across time.

### Export Index of Revealed Comparative Advantage using in version (INRCA)

The inversion of RCA is use to exclude the skewness problem in RCA estimation. This also reduces the RCA index's flaws by capturing a rigorous estimate of export commodity productivity. The general rule is that when  $\ln RCA > 0$ , there is a comparative advantage, so there is a comparative disadvantage when it is less than 0.

$$\text{Export Growth Rate} = \left( \left( \frac{\sum_{pw} X^1_{sw}}{\sum_{pw} X^0_{sw}} \right)^{\frac{1}{n}} - 1 \right) \times 100 \quad (4)$$

Export growth rate known as the annual compound percentage difference in export total output over two years. By using the percentage growth rate, it will take between -100% (if exchange ceases) and +. A zero value means the exchange value remains unchanged. Based on the formula,  $P$  denotes the source country collection,  $w$  denotes the world country set,  $X^0$  denotes the bilateral total export flow during the start time,  $X^1$  denotes the bilateral total export flow during the end period, and  $n$  denotes the duration of cycles. Growth rate is one of the most important metrics used to measure economic development in any field of economic operation. Sometimes the average is measured at company level to classify 'dynamic industries.'

### Data

This study's data were collected from UN COMTRADE (trade data) and used H.S. Code at a 6-digit level, 110819 (others starch; respectively sago starch).

### Discussion of Results

Table 3

*Various comparative advantage for Sago.*

Methods	RCA		ln RCA		RSCA	
	Indonesia	Malaysia	Indonesia	Malaysia	Indonesia	Malaysia
1989	0.0692	3.4599	-1.1598	0.5391	-0.8705	0.5516
1990	0.0291	5.1543	-1.5368	0.7122	-0.9435	0.6750
1991	0.0421	4.9184	-1.3755	0.6918	-0.9192	0.6621
1992	0.1633	4.9027	-0.7869	0.6904	-0.7192	0.6612
1993	0.2729	3.4060	-0.5641	0.5322	-0.5713	0.5461
1994	0	3.5437	0	0.5495	-1.0000	0.5598
1995	0.4955	4.4815	-0.3050	0.6514	-0.3374	0.6351
1996	6.7142	2.6703	0.8270	0.4266	0.7407	0.4551
1997	2.3305	2.9448	0.3674	0.4691	0.3995	0.4930
1998	0.0955	3.8885	-1.0199	0.5898	-0.8256	0.5909
1999	0.7147	3.7086	-0.1459	0.5692	-0.1664	0.5752
2000	0.4046	3.1973	-0.3930	0.5048	-0.4239	0.5235
2001	2.2648	4.1403	0.3550	0.6170	0.3874	0.6109
2002	0.5002	3.7643	-0.3009	0.5757	-0.3332	0.5802
2003	0.2633	2.7544	-0.5795	0.4400	-0.5831	0.4673

2004	0.4669	3.2265	-0.3308	0.5087	-0.3634	0.5268
2005	1.0347	4.5669	0.0148	0.6596	0.0171	0.6407
2006	0.7043	4.5172	-0.1523	0.6549	-0.1735	0.6375
2007	0.8015	4.8911	-0.0961	0.6894	-0.1102	0.6605
2008	0.7946	4.3837	-0.0999	0.6418	-0.1145	0.6285
2009	0.6861	4.4994	-0.1636	0.6532	-0.1862	0.6363
2010	0.7261	3.7042	-0.1390	0.5687	-0.1587	0.5748
2011	2.3588	4.3723	0.3727	0.6407	0.4045	0.6277
2012	0.9436	3.6602	-0.0252	0.5635	-0.0290	0.5708
2013	3.2017	3.0990	0.5054	0.4912	0.5240	0.5121
2014	1.5190	3.0809	0.1815	0.4887	0.2060	0.5099
2015	1.7777	3.9777	0.2499	0.5996	0.2800	0.5982
2016	1.5210	3.8054	0.1821	0.5804	0.2067	0.5838
2017	1.3809	3.3939	0.1402	0.5307	0.1600	0.5448
2018	1.4733	3.6249	0.1683	0.5593	0.1914	0.5676
2019	1.3598	3.7888	0.1335	0.5785	0.1525	0.5824

Source: UN COMTRADE data

Table 4

*Export Growth Rate*

Years	Export growth of Indonesia sago (%)	Export growth of Malaysia sago (%)	World growth rate for sago export (%)
1990	-44.4875	98.7867	87.6966
1991	62.1144	9.6204	19.5966
1992	284.7142	0.7132	24.4170
1993	99.0775	-11.7228	37.8493
1994	-100.0000	23.6207	10.4382
1995	243.6210	64.3528	37.7593
1996	1681.2865	-24.2010	49.0300
1997	-62.9191	10.3954	6.7711
1998	-96.4806	15.4129	-0.2500
1999	614.3929	5.4518	-5.0557
2000	-37.8971	-13.8850	-9.6824
2001	374.3581	8.4523	6.8380
2002	-75.6669	4.6200	4.7924
2003	-42.1694	-15.3304	7.7662
2004	80.3047	22.5844	1.1820
2005	130.3216	37.4733	5.9537
2006	-18.2905	14.4766	14.7098
2007	34.5417	23.8523	20.9755
2008	43.5937	22.0720	38.4800
2009	-19.3926	-10.8571	26.8305
2010	61.0875	17.0263	-13.5762
2011	328.7953	37.9301	25.3196
2012	-56.6959	-2.7609	38.2502
2013	226.0075	-14.9978	-0.1657
2014	-56.5386	-3.1474	-2.7576



2015	-1.7391	8.5186	-1.2645
2016	-14.7585	-6.1622	-9.0526
2017	6.5347	2.9645	-1.5042
2018	3.8527	10.6293	0.8965
2019	-21.4677	-7.6169	0.5576

Source: UN COMTRADE data

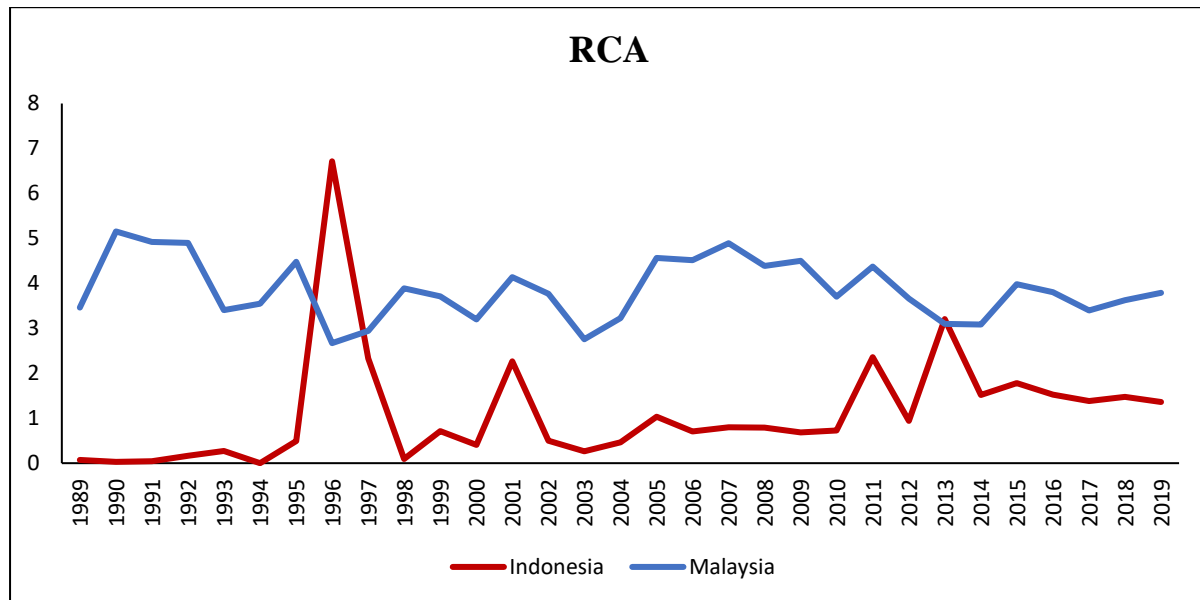


Figure 2: RCA index. Source: UN COMTRADE data

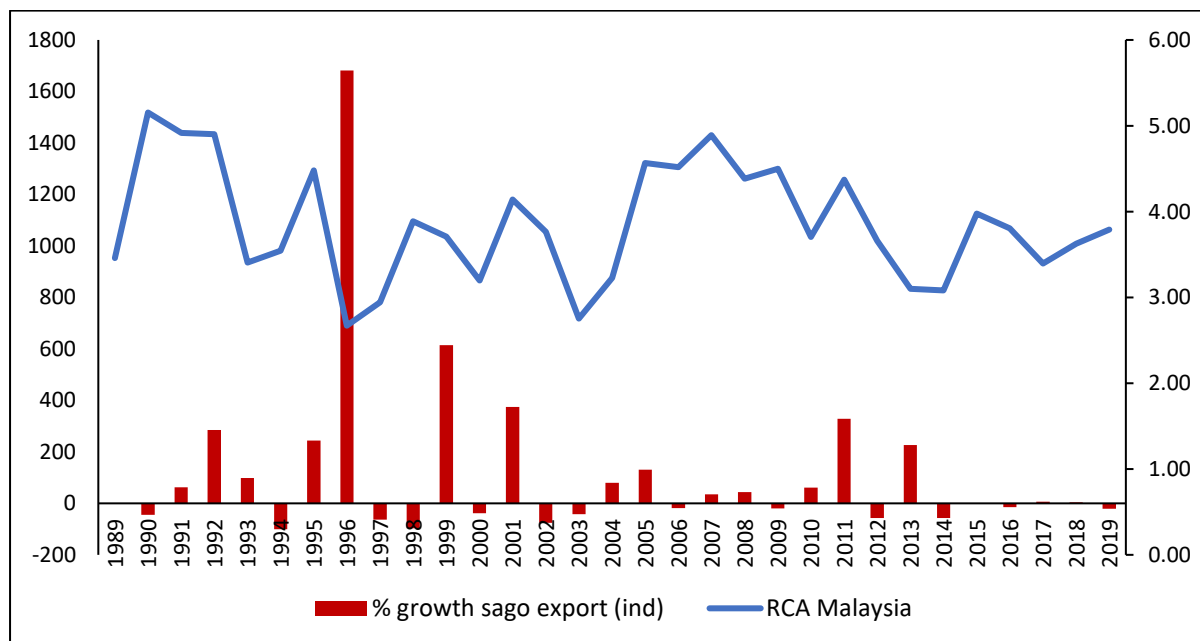


Figure 3: Compare between growth on sago export (Indonesia) and RCA (Malaysia).

The RCA, In RCA, and RSCA values for the total sago export between Malaysia and Indonesia shown in Table 3. The RCA index graph between Malaysia and Indonesia regarding the sago export production in Figure 2 shows that Malaysia has strong dominant from years 1989 until 2019. Still, Indonesia manages to overtake Malaysia for less than two years between the middle of 1995 to 1997. This can be identified in Figure 3, that also shows Indonesia have

huge growth export rate in 1996. The Table 4, show the analysis of growth rate between Malaysia and Indonesia from 1990 to 2019. Export growth rate is one of the vital indicator to shown the competitiveness and enable the studies to allocate a detail on the percentage of export flows between Malaysia and Indonesia.

Malaysia indicates a strong starting with 98.79 % in 1990, compare with Indonesia, which declines 44.49 % of the export growth rate. The highest value by Indonesia during 1996 which is 6.7142 (RCA) and strong growth rate by 1681%. It is shown that Indonesia has strong potential to be number one exporter of sago and this because there has the biggest plantation area sago commodity. During these years, Malaysia becoming second-biggest exporter of sago and shows a decline (24.20%) in growth rate of sago, however the world sago export shows an increase of 49.03% because of huge amount of sago from Indonesia. This unreal event happens after two years after Indonesia have a null value for RCA and was a proof that Indonesia cannot constantly stay competitive and after huge increasing in 1995, the Indonesia sago market for shows a shape drop from 1996 to 1998, then has a small percentage of increasing in volume of export but still under Malaysia's dominance. Behind a shape drop of value RCA index for Indonesia in 1996, Malaysia shows confident as the lead exporter of sago by overcoming the Indonesia by rising of the export growth which is ,10.40% and 15.41% during 1995 and 1998.

The Indonesia, on the other hand, has the opposite situation with having negative growth level of export rate of 62.92 and 96.48, respectively. The rivalry of Indonesia does not stop there with the increasing of growth rate of sago by 614.39% compare to Malaysia with only 5.45% in 1999. However, the increasing of growth for Indonesia does not mean huge impact in sago trade and proven by the value of RCA index, shown that Indonesia have loss the competitive advantage (values between: 0 to 1) from 1998 to 2000. It gives an open debate on the market and marketing operation for the Indonesia sago exportation condition. In the Figure 3, from 1988 to the middle of 1995, the RCA for Indonesia could not gain any competitiveness in the market even there was small increasing of growth for sago in between of these years. In the last three years at the end of the research, Indonesia manages to gain 6.53% sago of growth rate but slowly decline to 3.85% then lastly have negative value (21.47%). In term of the RCA Index, during this duration shown that the Indonesia only has low competitive advantage, compare to Malaysia is classify have moderate competitive advantage.

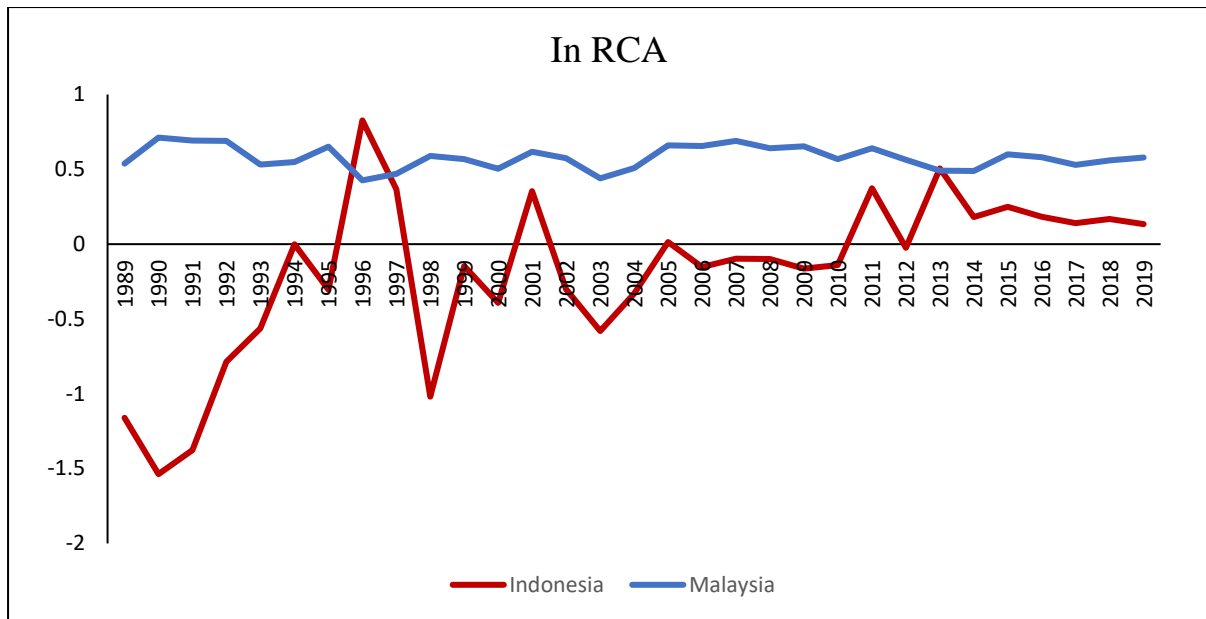


Figure 4: In RCA. Source: UN COMTRADE data

The inverted RCA index in Figure 4 eliminates the RCA index’s weaknesses by capturing a robust approximation. These transformations are also constructive for rendering data patterns more visible in range of 1 to -2. Malaysia somehow manage to stay at a moderate and high competence level as sago exporter and was shown a higher trend than Indonesia but only has a bit of competitiveness in the middle of 1995 to 1887. During 2013 the competitiveness as sago exporter has seen almost ties values between the two countries. However, based on the result Indonesia have snidely higher in 2013.

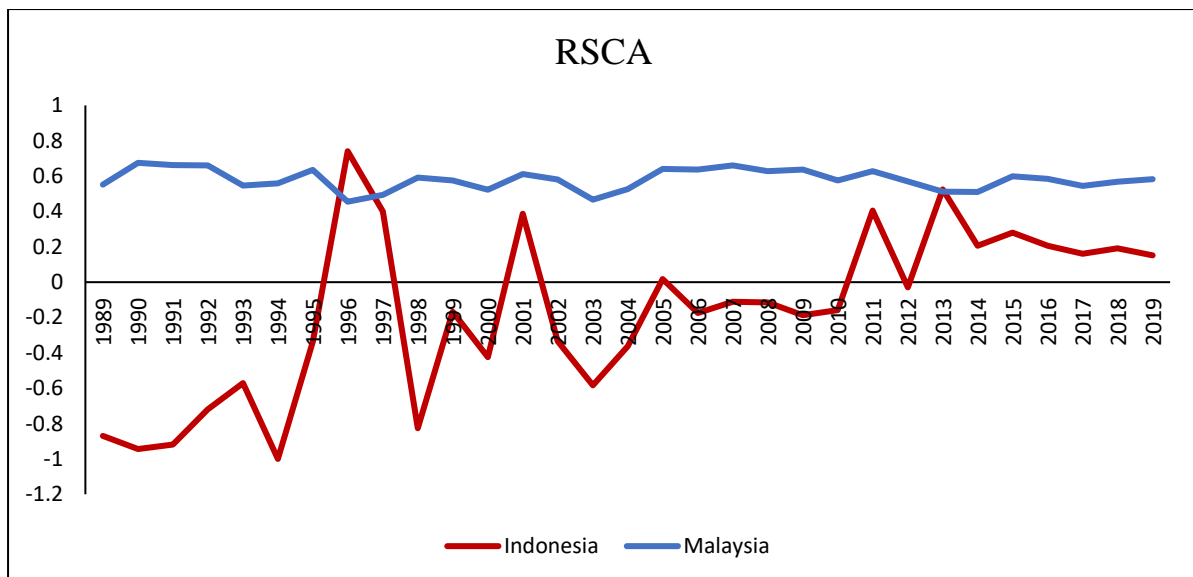


Figure 5: RSCA. Source: UN COMTRADE data

The RSCA in Figure 5 shows that Malaysia has a competitive solid advantage value from 1988 to 2019. Even Indonesia did highly over Malaysia in 1996, but Malaysia’s value of competitiveness is still in zone 4, that means Malaysia still has moderate level in term of competitive advantage. On the other hand, Indonesia successfully highly competitive in 1996 and 2013 only, and the value drop afterward. It is shown that Indonesia was inconsistent and

had four kinds of the competitive level, and most of it was no competitiveness level and weak competitive advantage stage. The same situation during the shape drop in after 1997 to 2000, then Indonesia hike a shape hike of the competitiveness value; however, it still not enough to compete with Malaysia. The last time, Indonesia can show competency in 2013 with a high level of competitiveness, then drop again afterward until 2019.

### **Conclusion**

The results obtained can be taken from the study's findings: 1) This study demonstrates of using of many approaches, which is export growth rate, RCA, In RCA, and RSCA, are very useful in assessing and comparing the comparative advantages of Malaysia and Indonesia in export commodities for sago in the global market. 2) Malaysia has almost total dominance of comparative advantage for sago export. However, Indonesia is not consistent in the export for sago market. It is crystal clear that sago's export for Indonesia was in the area weak and no comparative advantage in RCA, In RCA, and RSCA. Indonesia also regains intense competition in the middle of 1995 to 1997, which overtook the place as the biggest exporter for sago.

The same situation also happened in 2013, after the hike of export in Indonesia sago market has a solid competitive advantage. The export of sago for Indonesia inconsistent and unable to sustain the position as the biggest exporter of sago after Malaysia once increased production in 2014. This indicates have an argument that Indonesia still have strong factor to be the biggest sago exporter because having the biggest plantation area for sago commodity. 3) This study proposes that Malaysia, specifically Sarawak, government policies or projects to promote research and development (R&D) to accelerate sago tree production based on comparative advantages and competitive analysis. Despite the prevalence of other starches such as corn starch, potato starch, and others, Malaysia is currently the world's largest Sago producer. Nevertheless, its output volume is lower than the overall demand expected for the global starch market in 2025.

4) Based on statistical analysis using annual export growth, RCA, In RCA, and RSCA, the studies able to interpret the most competitive years is between 1995 to 2000. In 1996, Indonesia claims to be a strong competitor to Malaysia and 1997, still considered moderate in term of competitiveness. Even from 1998 until 2000, Indonesia can be classified have lose competitive advantage according to the RCA index, but in between 1998 and 1999, Indonesia shows the second high growth rate of sago in 30 years. However, Malaysia still overhead in term of RSCA index and that shows the consistency of Malaysia on exporting the sago commodity. 5) This research concludes that Indonesia may have bigger hectares in term of plantation of sago based on empirical research from the previous studies, but the results show that Malaysia does appear more dominant for competitive advantage in exporting sago.

As the results of the study obtained, Malaysia is indeed superior in exporting sago on the international stage. However, the area of Indonesian sago cultivation area comprises a much larger part of the land. This means that Indonesia has less portion in the world market for their sago commodity compare to Malaysia. At a time when almost every year in the close to 30 years since 1988, Malaysia has won a comparative advantage in sago production compared to Indonesia, however Malaysia should not be complacent and feel comfortable with the position of this sago market. Malaysia should be aware that with the opportunity for Indonesia to overtake Malaysian exports is high because Indonesia has an advantage in terms of soil quality and land area, it even has the largest sago cultivation area in the world. Therefore, the Malaysian government and more precisely, the Sarawak state government,

which is where sago productivity is grown, processed and manufactured should project more efforts in helping to strengthen the sago industry, which is also a traditional Melanau industry in Mukah, Sarawak.

Lastly, the conclusion can be made for this research, it is importance for the Sarawak government to have an initiative to increase the production of sago and make R&D for shorten the maturity of sago tree. Based on the Department of Statistics Malaysia (2020), the Malaysia gross domestic product in 2019 was around RM 1,421.5 billion, and from the agriculture sector exports rose by 0.9 percent in 2019 to RM 115.5 billion, up from RM 114.5 billion in 2018. The revenue from oil palm is definitely the main contributor which is 37.7 %, rubber 3 %, logging 6. 3% and other agriculture 25.9 %. The production of sago was considered small portion if compare with the oil palm because the oil palm was plantation is most state in Malaysia. Based on the report, Sarawak shipped 42,000 tons of dry sago starch worth as much as RM 89 million. This makes the claim as it is the fourth highest agricultural revenue earner for Sarawak after oil palm, pepper, and rubber (Department of Agriculture Sarawak, 2018). Sarawak, covering an area of 124,450 square kilometer is the largest state in Malaysia and the size palm oil plantation approximately around 1.59 million hectares or 26.9% of overall Malaysia planted area for this commodity (Parveez et al., 2020). This relatively this is one of the reasons that palm oil contributes a lot for Sarawak economy. Therefore, Sarawak government is expected to gain economic boom by expending the sago plantation in others district.

### **Limitation and Future Research**

As with every research, this analytical analysis has drawbacks, as we discuss the advantages over sago development between Malaysia and Indonesia. Impact on behavioral such as since market expansion or sales growth can be explained differently indicators (Delmar et al., 2003; Shepherd and Wiklund, 2009). Future research on market volatility may also involve other parameters or steps, may get the same conclusion or either encounter the contrast with our findings. In this research, the methods only been used was only RCA, In RCA and RSCA to extract competitive index that happen for the sago production between Malaysia and Indonesia. The limitations for this research are clear, as there are not many previous studies from an economic and business point of view in sago products. This is due to difficult acquisition of sago data.

### **Disclosure Statement**

No conflict of interest was reported by the authors.

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