Export Competitiveness of Thai Durian in China Market

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Abstract

The purpose of this paper is to examine the export competitiveness of Thai durian in China fruit market. Thailand is the world's largest durian exporter which accounts for 90% of the world production. The free trade agreement canceled the tariff of HS (07) and HS (08) chapters of the products (vegetables and fruits), resulting in rapid development of Thailand's tropical fruit in Chinese market. Although, China is the biggest importer of Thailand however Thailand is facing higher competition intensively with Malaysia and Vietnam. In methodology, this paper applied the revealed comparative advantage index, international market share rate, and export contribution rate of Thai durian. The results found that: (1) The durian trade between China and Thailand mainly based on the highway and waterway transportation. (2) China-Thailand free trade agreement between the two countries promotes the export trade of Thailand durian. (3) The RCA values of fresh durian in Thailand show that Thailand has a dominant comparative advantage in China.

Keywords: Durian market, Export competitiveness, Thailand-China fruit trade

1. Introduction

1.1 The Thai durian trade in the world market

Due to the tropical monsoon climate, Thailand is one of the most suitable countries for producing a variety of tropical fruits, and the different regional environments allow different types of fruit to be produced in each region in each season, which makes the year for different types of fruits in Thailand. Circulation into the market shows the great potential of Thai fruit production and market competitiveness. At present, Thai fruits are mainly exported in the form of fresh, frozen and dried fruits. Countries and regions that export include the United States, Europe, the Middle East and the Asia Pacific region. Fruit products make up a large proportion of the national economy and form the most important source of economy in Thailand. In 2011, Thailand exported a total of 1.447 million tons of vegetables and fruits with a total trade value of 12.025 million U.S. dollars, up 60.46% over 2010. Among them, the export of fresh, frozen and dried fruits was 1.187 million tons, the total trade value of 9.626 million US dollars, an increase of 76.99% over 2010. There are 234 varieties registered durians with the Thai government of which about 60-80 varieties are commercially cultivated. Of all the cultivated durian areas in Thailand, three main types of durians are Monthong 41%, Chanee 33%, and Kan Yau 5%. Durian becoming the main export fruit given Thailand's full potential to grow various types of durian and not to affect yields due to seasonal changes. Durian is native to Malaysia and East India, and then spread to the Philippines, Sri Lanka, Thailand, Vietnam and Myanmar, with a small amount of planting in Hainan, China.

Thailand is the world's largest exporter of durian, accounting for about 90% of the international market, followed by Malaysia and Indonesia. The average annual output of Thai durians during 2004-2011 is 646,900 tons, with the areas mainly concentrated in eastern and southern Thailand. As the volume of production increases, the total exports of durian and its processed products and the total value of trade are also on the rise. In 2011, Thailand exported about 289,700 tons of durians to the rest of the world with a total trade value of 186 million U.S. dollars. Among them, there are 271,900 tons of fresh durian, accounting for 156 million U.S. dollars; 13,300 tons of frozen durian, totaling 0.1883 billion U.S. dollars and 323 tons dry durian, which are worth 438 million dollars. As well as the processing of 3071 tons of durian, total 7.66 million US dollars. As compared with 2010, total exports and exports increased by 21.73% and 21.92% respectively. The Table 1 shows the countries that import Thai durian during 2008-2016.

| | 2008 | | | 2009 | | | 2010 | | |
|-----------|---------------|----------------------------|--------------|---------------|-----------------------------|--------------|---------------|----------------------------|--------------|
| Country | Qty. (Ton) | Value (million baht) | Ratio (%) | Qty. (Ton) | Value (million. baht) | Ratio (%) | Qty. (Ton) | Value (million baht) | Ratio (%) |
| Japan | 186.99 | 11.85 | - | 176.92 | 11.61 | - | 175.18 | 11.12 | - |
| Malaysia | 17.36 | 0.60 | - | 0.00 | 0.00 | - | 74.87 | 1.34 | - |
| USA | 1173.64 | 68.94 | - | 786.71 | 46.86 | - | 952.48 | 56.48 | - |
| China | 93888.86 | 1551.75 | - | 123891.63 | 2039.93 | - | 124784.24 | 2227.82 | - |
| Indonesia | 24071.04 | 452.14 | - | 27819.83 | 585.50 | - | 21897.29 | 470.85 | - |
| Hong Kong | 61513.33 | 734.49 | - | 86089.93 | 1180.77 | - | 47708.32 | 759.30 | - |
| Vietnam | 118.34 | 1.09 | - | 65.87 | 0.77 | - | 98.26 | 1.56 | - |
| Taiwan | 20476.62 | 257.01 | - | 15818.20 | 195.27 | - | 10254.32 | 109.43 | - |
| | | 2011 | | | 2012 | | | 2013 | |
| Country | Qty. (Ton) | Value (million baht) | Ratio (%) | Qty. (Ton) | Value (million baht) | Ratio (%) | Qty. (Ton) | Value (million baht) | Ratio (%) |
| Japan | 185.93 | 9.27 | 0.20 | 316.86 | 16.01 | 0.26 | 106.61 | 8.67 | 0.12 |
| Malaysia | 44.50 | 1.57 | 0.03 | 98.47 | 3.44 | 0.06 | 18.05 | 0.72 | 0.01 |
| USA | 739.44 | 47.75 | 1.02 | 126.16 | 11.93 | 0.19 | 143.35 | 14.20 | 0.19 |
| China | 142617.52 | 2500.20 | 53.63 | 204585.59 | 3944.48 | 63.67 | 198874.81 | 4305.40 | 58.62 |
| Indonesia | 26305.38 | 624.65 | 13.40 | 18082.79 | 424.00 | 6.84 | 4762.63 | 136.10 | 1.85 |
| Hong Kong | 84686.46 | 1225.39 | 26.28 | 111047.66 | 1524.25 | 24.60 | 147802.59 | 2569.08 | 34.98 |
| Vietnam | 147.89 | 1.97 | 0.04 | 388.60 | 7.31 | 0.12 | 2377.49 | 69.66 | 0.95 |
| Taiwan | 13667.26 | 177.63 | 3.81 | 15289.79 | 227.91 | 3.68 | 11364.45 | 188.81 | 2.57 |
| | | 2014 | | | 2015 | | | 2016 | |
| Country | Qty. (Ton) | Value (million baht) | Ratio (%) | Qty. (Ton) | Value (million baht) | Ratio (%) | Qty. (Ton) | Value (million baht) | Ratio (%) |
| Japan | 104.99 | 12.42 | 0.10 | 55.14 | 6.02 | 0.05 | 67.91 | 8.08 | 0.05 |
| Malaysia | 18.57 | 0.60 | - | 16.91 | 0.28 | - | 2573.81 | 74.41 | 0.43 |
| USA | 155.73 | 12.55 | 0.10 | 302.81 | 42.12 | 0.32 | 435.37 | 68.96 | 0.39 |
| China | 149949.23 | 5167.06 | 41.55 | 158792.47 | 6575.05 | 49.64 | 158080.62 | 8972.54 | 51.25 |
| Indonesia | 7270.90 | 284.64 | 2.29 | 5717.57 | 256.08 | 1.93 | 1959.26 | 129.94 | 0.74 |
| Hong Kong | 190338.69 | 6369.51 | 51.22 | 164615.25 | 5475.79 | 41.34 | 146320.96 | 4953.19 | 28.30 |
| | | | | | | | | | 1 < 20 |
| Vietnam | 9819.77 | 220.26 | 1.77 | 18233.06 | 491.12 | 3.71 | 84850.46 | 2869.43 | 16.39 |

Table 1. Durian trade data between Thailand and other countries (2008-2016)

Source: Thailand Office of Agricultural Economics, 2017.

The durian trade between China and Thailand has a long history. Thailand has always been the largest exporter of durian market in China. In 2008, the total export of durian in Thailand was 200,000 tons, with an export volume of 3.1 billion baht. Among them, the total amount of durians exported to China was 100,000 tons, accounting for about 50% of the total export volume and the export volume of 1,727 million baht, accounting for the total export volume of 2016, the total export volume of Thai durian was 420,000 tons with an export volume of 19.9 billion baht. Among them, the total amount of durians exported to China was 170,000 tons, accounting for 40% of the total exports and the export volume of 10.2 billion baht, accounting for the total exports about 51%. During 2008-2016, Thailand's fresh durian exports to China and the total amount of exports showed a rising trend year by year. In 2008, the total output of fresh durians to China was about 90,000 tons, accounting for 90% of all durian products. Its export value was 1.5 billion baht, accounting for 92% of all durian products. The export value was 9 billion baht, accounting for 30% of all durian products. In 2016, the total output of fresh durians to China was about 160,000 tons, accounting for 92% of all durian products. In 2016, the total output of transportation and storage technology, frozen durian market unusually hot. In 2008, Thailand exported a total of 9,000 tons of frozen durian to China valued at 99 million baht. By 2016,

Thailand exported 12,000 tons of durian, worth 1.118 billion baht. This shows that the frozen durian market has gradually become the new darling market in recent years. As a major exporter of Thai durian products, China has rapidly expanded its presence in the Chinese market since China and Thailand signed a free trade agreement in October 2003. In 2004, Thailand exported 27.54 tons of durians to the Chinese market with a total trade volume of 13.78 million U.S. dollars, up 600% year-on-year over 2003. In 2010, Thailand had sold about 133,000 tons of durians to China, equivalent to 58% of global exports of durians. The total export volume of all durian products in 2011 was 149,800 tons, with a total price of 91.66 million U.S. dollars. As the demand for tropical fruits in the Chinese market continues to increase, the export value of Thai durians is bound to continue to grow.

| | 2008 | | | .009 | 2010 | | |
|----------|-----------------|----------------|-----------------|----------------|-----------|----------------|--|
| Category | Qty. | Value | Qty. | Value | Qty. | Value | |
| | (ton) | (billion baht) | (ton) | (billion baht) | (ton) | (billion baht) | |
| fresh | 93888.86 | 15.52 | 123891.63 | 20.39 | 124784.24 | 22.28 | |
| frozen | 9164.72 | 0.99 | 11469.4 | 1.56 | 7580.27 | 1.47 | |
| dried | 310.81 | 0.75 | 96.97 | 0.76 | 141.01 | 0.85 | |
| Total | 103364.39 17.27 | | 135458 22.71 | | 132505.53 | 24.6 | |
| | 2011 | | 2 | 012 | 2013 | | |
| Category | Qty. | Value | Qty. | Value/ | Qty. | Value/ | |
| | (ton) | (billion baht) | (ton) | (billion baht) | (ton) | (billion baht) | |
| fresh | 142617.52 | 25 | 204585.59 | 3.94 | 198874.81 | 43.05 | |
| frozen | 6997.53 | 1.72 | 4602.74 | 1.53 | 4763.76 | 1.99 | |
| dried | 132.84 | 0.76 | 147.96 | 1.06 | 234.54 | 1.76 | |
| Total | 149747.89 27.47 | | 209336.3 | 6.54 | 203873.12 | 46.8 | |
| | 2014 | | 2015 | | 2016 | | |
| Category | Qty. | Value | Qty. | Value | Qty. | Value | |
| | (ton) | (billion baht) | (ton) | (billion baht) | (ton) | (billion baht) | |
| fresh | 149949.23 | 51.67 | 158792.47 | 65.75 | 158080.62 | 89.73 | |
| frozen | 8287.65 | 4.11 | 13392.38 | 11.14 | 12496.22 | 11.18 | |
| dried | 204.48 | 1.56 | 185.33 | 1.39 | 163.62 | 1.14 | |
| Total | 158441.36 | 57.34 | 172370.18 78.28 | | 170740.46 | 102.05 | |

Table 2. The export data of Thai Durian to China market (2008-2016)

Source: Thailand Office of Agricultural Economics, 2017.

1.2 China-Thailand zero tariff agreement

The trade between China and Thailand has a long history of implementing "zero tariff" on fruits and vegetables. Trade between Thailand and China developed rapidly after the establishment of diplomatic relations between China and Thailand in July 1975. Thailand is the 16th largest trading partner of China and the third largest trading partner of China in ASEAN countries. Thailand enjoyed trade of only 24.62 million U.S. dollars in 1975. By 2002, the bilateral trade volume had increased to 8.561 billion U.S. dollars. In recent years, the bilateral trade between China and Thailand has been increasing year by year. In 2003, Sino-Thai trade volume reached 6.737 billion U.S. dollars, up 50% over the same period of last year. According to Chinese customs statistics, the trade volume between China and Thailand hit a record high of 10 billion U.S. dollars for the first time in 2003, reaching 12.66 billion U.S. dollars, an increase of 47.9% over 2002. China exported 3.33 billion U.S. dollars to Thailand and 8.83 billion U.S. dollars. In 2003, the first zero-tariff agreement under the framework of the China-ASEAN Free Trade Area (FTA) cooperation was concluded. Trade tariffs between 108 kinds of vegetables and 80 kinds of fruit products were canceled between China and Thailand. Since the agreement was implemented for several years, fruit and vegetable trade between China and Thailand has made new progress. In terms of exports, China exported 82,000 tons of fruit and vegetables to Thailand from October to December in 2003 when the total export volume was only 49,000 tons in the first nine months of the year. In 2004, Thailand exported 162,000 tons of fruit and vegetables, up over 26% of the same period in 2003. On the import side, China imported 435,000 tons of fruit and vegetables from October to December 2003; imported 3,004,000 tons in 2004, up over 49.4% of the previous year: imported 12.34 million tons in January-October 2005, down 5.5% over the same period of last year. According to the official statistics of Thailand, from October 2003 to September 2004, Thailand's total trade volume of fruits and vegetables with China reached 3.8138 billion U.S. dollars, an increase of 73.12% over the implementation of the "zero tariff" agreement. The exports to and from China increased respectively 57.55% and 130.36%, Thailand's surplus was 1.6444 billion US dollars, an increase of 30.37%. Thailand's total exports to China amounted to 272.91 million U.S. dollars, including 81.56 million U.S. dollars in vegetables and 191.13 million U.S. dollars in fruits.

1.3 The competition of Thai durian in China market

Using United Nations data, Bloomberg reported that the value of Chinese fresh imports of durian fruit has climbed an average of 26 percent a year over the past decade, reaching US\$1.1 billion in 2016, and Thailand dominates that market currently (Wong, K, 2017). The durians that Chinese consumers come into contact with are mainly from Thailand, Malaysia and Vietnam. However, there are only two main players; Thailand and Malaysia. Among them, Thailand is the only country allowed to import fresh durians to China, as well as exported frozen durians. Malaysia exported frozen durians to China since 2011, while Vietnamese durians only entered China through border trade. Three main commercial Vietnamese durian four types are Sua Hat Lep, Hat Lep, Ri6, and Kho Qua Xanh. Among the three durian producing areas, Thailand has the highest degree of attention, with more than 140 million yuan. Malaysia ranks second with a focus on about 90 million yuan. Vietnam is the third and about 40 million yuan. Therefore, from China market, durian import policy and attention, Thailand ranked first. There are registered 234 varieties of Thai durian, but introduced to China's only Monthong, Chanee, and Kan Yaio. In Malaysia, there are more than 200 registered durian varieties, only Damanshan (D197) and S24 (D24) were currently being introduced into China. Obviously, fresh durian market in China: Thailand is a dominant due to favorable policies in the China fresh durian market. Thai durian has been allowed to directly export to China since 2003, and the number has been on an upward trend. It reached the peak of 10 years in 2013, about 320,000 tons, an increase of 64% over 2009. From 2014 to 2015, the fresh durian imports slightly decreased steadily, both of which were close to 300,000 tons. As of May 2017, 81,849 tons of durian imports have been completed, a decrease of 33.8% over the same period of last year.

In April 2011, for the first time, the Malaysian durian was permitted by the Chinese government to enter the Chinese market as a frozen product in 2011. As the Thai durian dominance in the Chinese market, just entering the Chinese market in order to avoid competition with the Thai durian, Malaysian shell-free frozen durian mainly enter the China market, intends to pass different product variety grades, product patterns, and market channels to avoid Thai durian in the low-end market competition, the main high-end market. Due to the high latitudes of Thailand's durian producing areas, natural latitude of 0 latitude in Malaysia is very suitable for durian growth. Therefore, the grade of durian in Malaysia is slightly higher than that of Thai durians. For example, Sultan D24 and Damansan D197 in Malaysia belong to durian High-end varieties. Therefore, the Malaysian durian by virtue of natural advantages more conducive to enter the high-end market. Malaysia's largest durian producer is Natural Food Industry Co., Ltd. currently accounts for the Malaysian exports of Chinese durian 70% market share. In addition, in order to avoid the problem of Thai durian being easily polluted and deteriorated in the absence of processing, the durian in Malaysia is husked and enucleated and then frozen into the Chinese market. Although Malaysian durian taste better however Malaysian durian, because of hulled, it takes some time to promote and educate Chinese consumers. Currently, lots of Malaysian durians are in catering channel sales and processed into a variety of desserts into China market. Sales of Malaysian durian in the China market have started to increase rapidly, perhaps due to the effective sales strategy of Malaysian durian and unfortunately the industrialization of Thai durian plantation has been relatively mature in Thailand.

The export of Malaysian frozen durian to China began 10 years ago and was mainly used for food processing in the early stage. Malaysian durian has not been exported overseas due to agricultural traditions and storage. Until 2009, the Malaysian Department of Agriculture developed the technique of preserving and storing durian and began to export durian. In 2010, the Malaysian durian unveiled at the Shanghai World Expo and began to walk into the Chinese public perception. Since 2011, Malaysia exported frozen durians to China monthly value about 1.1 million Malaysian ringgit (about 1.35 million yuan). In 2014, following the introduction of the frozen durian traceability system, China's demand for frozen durians from Malaysia increased by 10% and its monthly exports to China rose to 2 million ringgit (about 3.15 million yuan). In 2016, the market share of Malaysian frozen durian reached 140 million yuan. At present, fresh durian is more accepted than frozen durian because Chinese consumers are accustomed to the eating form of fresh fruit. Malaysia's Cat Mountain King and Sudanese King have long been regarded as excellent and well-known among the durians. This has further promoted Malaysia's

export of frozen durians to China. Over the past few years, with the prevalence of fresh durian and durian derivatives, as well as the promotion of Malaysian durian exports to China, the market for Malaysian frozen durians has been growing. Among them, the regular channels of frozen durian in China are 600 million yuan. Market capacity, is expected to continue to rise in the next few years. Frozen durian using speed freezing technology, the flesh is not and lumpy, but the cell molecules become firmer, easy to store: in the food safer, there is no rupture of peel bacteria breed; using IQF monomer freezing technology processing, With -18 °C freezer transport to China, to retain the true taste of ripe durian; storage period of up to two years. Whether it is Thai durian, or Malaysian frozen durian, the capacity of the domestic market continues unabated. Recently, Malaysian authorities announced that the market of frozen durian meat intended for export to China will increase from 50% to 75% due to the increasing demand for durian in the Chinese market. The Thai side will also increase the number of durians exported to China, while the first fresh durian landfall in China, also means that more Thai durian will flow into the Chinese market. Looking to the future, the prospects are bright, fresh durian, frozen durian and durian derivatives market is bound to flourish.

2. Methodology

This study applied three formulas to examine the competitiveness of Thai durian in China market; RCA, MS, and CI. Firstly, the Revealed Comparative Advantage (RCA) was first proposed by Bela Balassa, a U.S. economist, in 1965, also known as the Export Performance Index, to calculate Thailand's exports of natural rubber to China The comparative advantage. The RCA, in our view, has become the comparative advantage analysis that is often used in academia today. Some scholars and organizations at home and abroad have widely adopted the comparative advantage analysis method of this research method. The index refers to the ratio of the share of a country in exports of certain commodities to the total exports and the share of world exports in such exports as a share of world exports. The RCA index is a measure that is often used when analyzing a product of a country or region to determine if it has a comparative advantage. The implication is that the ratio of a country's share of certain exports to its total export value to the world's share of total world exports. When RCA> 1, the country has such a dominant comparative advantage as RCA <1, indicating that there is no dominant comparative advantage in the country.

The formula is:

$$RCA_{ij} = \frac{(X_{ij} / X_{it})}{(X_{wj} / X_{wt})}$$

 X_{ii} = a country a commodity export value;

 X_{it} = a country's total value of merchandise exports;

 X_{wi} = the export value of a commodity in the world;

 X_{wt} = the world total value of merchandise exports.

| Year | Thailand | Malaysia | Vietnam | | |
|------|----------|----------|---------|--|--|
| 2006 | 56.83 | N/A | N/A | | |
| 2007 | 54.27 | N/A | N/A | | |
| 2008 | 56.67 | N/A | 0.03 | | |
| 2009 | 53.86 | 0.00 | N/A | | |
| 2010 | 55.12 | 0.01 | N/A | | |
| 2011 | 52.01 | 0.09 | 0.01 | | |
| 2012 | 53.49 | 0.10 | 0.01 | | |
| 2013 | 56.33 | 0.29 | 0.02 | | |
| 2014 | 60.76 | 0.25 | 0.13 | | |
| 2015 | 54.66 | 0.59 | 3.52 | | |

Table 3. RCA analysis of durian in China market (2006-2015)Source: UN Comtrade database, 2017.

The results showed that Thailand showed a comparative advantage of 56.83 in 2006 and 54.66 in 2015 (RCA> 2.5), indicating that Thailand's fresh durian is very competitive in the China market. China has always been the number one exporter of Thai durian exports, and the sales of fresh durians in Thailand have been consistently high in the China market. Malaysia officially exported durian products to China in 2011, but in order to avoid the strong durian in Thailand, Malaysia mainly exports in the form of frozen durian, focusing on China's high-end market. Fresh durian in Malaysia, the display advantage index gradually increased in recent years, the momentum is strong. On the other hand, Malaysia, the display of Dominance Index was 0.01 in 2001 and has been increasing year by year to 0.59 in 2015. Although the value of RCA has no obvious competitive advantage, it is mainly due to Malaysia's export of frozen durian products to China. Compared with Thailand's fresh durian Large output, frozen Durian has many limitations, resulting in the current competitiveness of Malaysian durian is not enough. However, in all respects, the competitiveness of Malaysian durian in the Chinese market will be higher and higher, and the related durian products will also flow into the Chinese fruit market with the rising enthusiasm for domestic durian consumption. Vietnamese durian has also gradually poured into the Chinese fruit market in recent years. The display advantage index was 0.01 in 2006 and has risen to 3.52 in 2015, which has initially shown a significant comparative advantage (RCA> 2.5). As the demand for durian in the Chinese market continues Climbing, the future of Vietnamese durian in the Chinese market, the weight will be heavier and heavier.

Next, this study applied international market share (MS), also known as export market share (Export Market Share) refers to a country's total exports of certain products accounted for the proportion of the world's total exports, the international market share can reflect a country's products of international Changes in competitiveness or competitive position. The formula for the international market share index is as follows.

$$MS_{ij} = \frac{A_{ij}}{A} \times 100\%$$

 MS_{ij} = international market share index for country i category j products

 A_{ij} = total export volume of country i category j products to China market

 A_{wi} = total export volume of category j products exported to China market

It is generally believed that if the export market share of a certain product in a country is strongly correlated with the export competitiveness of such a product in the world, in addition, some economists in economists have proposed a more detailed definition of the export market share. If MS% of MS is 20%, it indicates that there is a strong export competitiveness of country j in category i; if $10\% \le MS < 20\%$, it indicates that category j in country i has strong export competitiveness; if 5% MS <10 %, Indicating that j class products of country i have general export competitiveness; if MS <5% or less, it indicates that i class j products have very weak export competitiveness.

| Year | Thailand | Malaysia | Vietnam | |
|------|----------|----------|---------|--|
| 2006 | 1.00 | N/A | N/A | |
| 2007 | 1.00 | N/A | N/A | |
| 2008 | 1.00 | N/A | 0.00 | |
| 2009 | 1.00 | 0.00 | N/A | |
| 2010 | 1.00 | 0.00 | N/A | |
| 2011 | 1.00 | 0.00 | 0.00 | |
| 2012 | 1.00 | 0.00 | 0.00 | |
| 2013 | 0.99 | 0.01 | 0.00 | |
| 2014 | 0.99 | 0.01 | 0.00 | |
| 2015 | 0.95 | 0.01 | 0.04 | |

Table 4. MS analysis of durian in China market (2006-2015)

Source: UN Comtrade database, 2017.

Table 2 shows that for a long period of time from 2006 to 2015, the Thai durian was almost monopolized in the Chinese market. Noting that China has approved the import of durians from Malaysia since July 2011, the move shows that China will further open up the fruit market, which may result in Thai fruits facing more intense competition in the Chinese market. Malaysian Durian with delicate taste, soft fragrance features, such as

nurturing a more resistant variety, its competitiveness will not be overlooked. Although the current situation of Thai durian and other tropical fruits still holds the overwhelming majority of the durian market in China, if other ASEAN countries increase their planting ability and produce more marketable fruits in the Chinese market, they will surely compete with Thai fruits in the Chinese market Share.

Finally, this paper used the export contribution rate to analyze the competitiveness of Thai durian. The contribution rate of exports refers to the proportion of exports of certain products in the total exports, which reflects the contribution of the exports of the products to the total exports. The contribution rate formula for exports is as follow. It is generally believed that the greater the ratio of export contribution, the stronger the export competitiveness of such products in the country.

$$C_i = \frac{A_{ij}}{A_i}$$

 C_i = the export contribution rate of country i's products in China market A_{ij} = the export volume of country i exported to China market on category j products A_i = the total of China export to China market

| Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CI | 0.007 | 0.007 | 0.008 | 0.010 | 0.007 | 0.007 | 0.010 | 0.011 | 0.016 | 0.022 |
| | | | | | | | (| | | |

Table 5. CI analysis of Thai durian in China market (2006-2015)

Source: UN Comtrade database, 2017

It can be seen from the calculation results that the export share of the Thai durian has generally risen, with a slight decrease in 2010, with the overall maintained at around 0.01. In 2010 and 2011, the export contribution rate of Thai durian was 0.07, both the lowest values in history. In 2010, the total output of Thai durian was 207,000 tons and 272,000 tons in 2010, both of which were the lowest in history, possibly due to the impact of the Malaysian durian entering the Chinese market, it is also related to the harvest of the domestic durian market in 2010. After 2011, the export share of Thai durian increased sharply from 0.01 in 2012 to 0.22 in 2015, the highest increase in recent years. With the increasing demand of consumers in the international market and the expansion of the planting area of the durian in Thailand, in the future, as a source of a large amount of economic income, durian is bound to have a sharp increase in its share of exports.

3. Discussion

From the analysis in figure 3, RCA> 1, Thailand has a dominant comparative advantage which confirmed that Thai durian has highest comparative advantage of durian in China market. Notice that Thailand had double digit when compared with Malaysia and Vietnam (in 2015, Thailand 54.66, Malaysia 0.59, Vietnam 3.52). The result from export market share (MS) in figure 4 proved that there is a strong export competitiveness of Thai durian (MS>1). The export contribution rate (CI) in figure 5 7of Thai durian has increased yearly from 0.007 in 2006 to 0.022 in 2015 which explained that Thai durian export in the last decade has risen positively. Thai durian has obviously export competitiveness when compared with other competitors such as Malaysia and Vietnam. The data revealed the significance statistically that durians from Thailand are by far ahead of rivals in term of export capability. In general, the export of Thai durian to China market is increasing significantly but still uncertain in some product types. In figure 2, there are three types of Thai durian products export to China fruit market; first, fresh durian seemed to be increasing in export however it was not impressive. The export quantity has fallen since 2012 significantly from over twenty thousand tons per year to under sixteen thousand tons per year. Although the figures seemed slightly to pick up in 2016 however it was fluctuated. Second, frozen durian seemed to have a bright future in China market. The figure showed that Thailand was able to increase the export of frozen durian annually since 2013, which means consumers prefer Thai frozen durian more than other competitors in China market. This figure proved that more works need to be done for frozen durian to improve the activities such as export promotions and market researches. Third, dried durian was not in favor for Chinese consumers, the export figures showed that the export number was low, unstable, and fluctuated every year. This study disclosed that out of three types of Thai durian products; fresh, frozen, and dried, merely frozen durian pleased Chinese consumers the most and remain the leading Thai durian products in the market. Therefore, the concerned state agency should pay higher attention to this matter.

4. Conclusions

Thailand is the biggest durian exporter in the world and to China. China-Thailand zero tariff agreement offers great opportunities for Thailand to develop fruit trade in China. Therefore, a deep study on the competitiveness of Thai durian in the Chinese market is of great significance to promote and improve the export status of Thai durian. Based on the general situation of fruit production and sales in Thailand and the demand of Chinese fruit market, this paper analyzed the current situation of trade between China and Thailand. It also compared the advantages and disadvantages between Thailand and other durian exporting countries. The article then used three indexes such as the comparative advantage index (RCA), the international market share (MS), and the export contribution rate (CI) to quantitatively examine the market competitiveness of the Thai durian, and carries on the comparative analysis with the main durian exporting countries. Thai durian continues to have a bright future in China market even though Malaysian and Vietnamese durians are becoming vital competitors. Therefore, more studies need to be done to enhance exporting for Thai durian. Further research may be focused on the potential provinces for Thai durian in China for doing the market research. It is important to know the point of view in particular provinces to create attractions and promotions.

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