Assessment of Competitiveness for Vietnam's Frozen Yellowfin Tuna Export Industry

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ABSTRACT

The competitiveness of the export industry is a matter of top concern by businesses, industries, governments of countries as well as researchers. Especially in the context that the growing economy expands international cooperation. As a result of this, the level of competition between economic sectors of countries around the world becomes more intense and fierce. Up to now, there are quite a lot of different views on competitiveness. And many different tools are proposed to assess the competitiveness of a country's export industry. However, there is still no unified theoretical framework for a comprehensive approach to this issue. Vietnam is a country rich in aquatic resources. According to data published by the Food and Agriculture Organization of the World (FAO), in the period 2015 - 2018, Vietnam is one of the 10 countries with the largest saltwater extraction in the world and also one of the 10 countries that are largest seafood exporter in the world with 5% market share (in 2018). Regarding tuna products, this is also the main export product of Vietnam. Although there are many types of export tuna products, not all products are Vietnam's strengths. Within the scope of this article, we evaluate the competitiveness for the export industry of Vietnam's yellowfin tuna products through a number of quantitative indicators and on the basis of comparison with fishing countries in the East Sea, including China, Philippines, Thailand and Indonesia. The obtained results show that, for this product, Vietnam's competitiveness is very weak in the international market. Therefore, this is not an item in which VN has a comparative advantage.

Keywords: competitiveness; export; frozen yellowfin tuna; Vietnam.

INTRODUCTION

In the context of an open economy and strong international trade trends, exports have become more important contributors to the economic growth of each country. Tuna, in particular, is a food that is consumed a lot and is popular in countries around the world. Therefore, trade for this item in recent years is also very developed. According to statistics from the World Bank, the total value of tuna exports in the world in recent years is about 2 billion USD, of which Vietnam is one of the 10 largest tuna exporting countries in the world.

Considering the entire tuna export industry, tuna is one of Vietnam's main export seafood products. Moreover, Vietnam is also a country with many strengths in this export item. In general, because there is a large sea area with an exclusive economic zone of 1000000 km2, with a fairly large tuna reserve of about 600,000 tons and an abundant labor force with rich experience, Vietnam has strengths in both the field of exploiting, processing and exporting tuna. Currently, in the waters of Vietnam, there are many types of tuna. However, among the many types of tuna caught in Vietnam, not all of them have strengths and are highly competitive in the world market.

Besides, according to the assessment of the Vietnam Association of Seafood Exporters (VASEP), Vietnam's seafood export industry in general has achieved results that are not commensurate with the available potential.

That is due to outdated fishing methods, poor post-harvest preservation quality, and small production scale. And the inevitable consequence of the above problems is that Vietnam's competitiveness is quite low in the international market.

The correct assessment of competitive competence for the export industry of a country will contribute to finding out the strengths and weaknesses that affect the competitiveness of the export industry in general and tuna exports in particular. Thereby, appropriate policies in improving competitiveness for the export industry, which is a matter of great concern to many researchers as well as managers and businesses, will be found. Moreover, as mentioned earlier, the theory of competitive competence has many disagreements with many different assessment tools. So, in this article, we evaluate the competitiveness of Vietnam's tuna export industry for frozen yellowfin tuna (code 030342) through 4 indicators including Revealed Comparative Advantage index (RCA), Market Share (MS), Trade Competitiveness index (TC) and selling price. From there, on the basis of comparison with other countries in the common fishing area in the East Sea, including China, Indonesia, Thailand and the Philippines, the position of Vietnam's yellowfin tuna export industry in the period from 2011 to 2020.

LITERATURE REVIEW OF STUDIES RELATED TO THE ASSESSMENT OF COMPETITIVENESS OF THE EXPORT INDUSTRY

Up to now, the competitiveness of any industry in general and the competitiveness of the export industry in particular have not been unified in terms of theory and assessment methods. If the theory of competition appeared from the middle of the seventeenth century (by the traditional theory of competition), then the theory of competitive competence and the systematic study of competitive competence started quite late (form 1980s until today).

According to Buckley, Pass and Prescott, up to 1988 there were still very few accepted definitions of competitive competence (Buckley, P. J., Pass, C. L., & Prescott, K., 1988). Similarly, M. Porter - a leading expert on competitive competence - also said that until 1990, competitive competence was still not fully understood and there was not a uniformly accepted definition (Porter, 1990). In 1996, Waheeduzzan et al. stated that "competitiveness is still one of the incompletely understood concepts" (Waheeduzzaman, A. N. M., & Ryans, J. K., 1996). Until 2004, Henricsson et al. argued that the concept of competitive competence was still controversial among policy makers, economists, journalists and academics (Henricsson, J. P. E., Ericsson, S., Flanagan, R., & Jewell, C. A., 2004). Considering the research on competitive competence, some studies such as (Thorne, F., Kelly, P. W., Maher, M. J., & Harte, L., 2002; Thorne, 2004; Flanagan, R., Lu, W., Shen, L., & Jewell, C., 2007), in which the authors have shown that, starting from the 1990s to now, the theory of competitive competence is being began to enter the "boom" period with a very large number of research works worldwide.

In general, the research on assessing competitiveness for the export industry of a country can be divided into two directions. The first direction is studies that use quantitative analytical tools. The beginning of this direction is the work of Liesner (1958). Based on the theory of comparative advantage of David Ricardo, the author gave an idea to evaluate the comparative advantage for a product of a country through the analysis of the export turnover of that product (Liesner, 1958). A country's major exports are often those in which that country has a comparative advantage. By 1965, Balassa continued to perfect this assessment by introducing the Revealed Comparative Advantage index (RCA) (Balassa, B., 1965). The RCA index shows the relative advantage or relative disadvantage of a certain product of a country by comparing this product's share in the country's total exports to its share in world's total exports. So far, this index is the most effective indicator to evaluate the competitiveness of the export industry, used by many researchers (Muhammad, N. M. N., & Yaacob, H. C. , 2008; Kuldilok, K. S., Dawson, P. J., & Lingard, J., 2013; Apridar, 2014; Kaimakoudi, E., Polymeros, K., & Batzios, C., 2014; Fahmi, A. S., Maksum, M., & Suwondo, E., 2015; Yusuf, M., Sya'di, Y. K., Pranata, B., & Yonata, D., 2021). More specifically, Xiao Han, Yali Wen, Shashi Kant use the MS market share index to assess competitive capabilities competition for China's furniture export industry (Han, X., Wen, Y., & Kant, S., 2009). This indicator was later also used by many other authors to assess competitive competence for the export industry (Kuldilok, K. S., Dawson, P. J., & Lingard, J., 2013; Hidayati, S., & Masyhuri, M., 2015). Besides the RCA, several other studies have argued that the size of production also has a significant effect on competitive advantage (Greenaway, D., & Milner, C., 1993). Because the commercial competitiveness of a product of a country is the difference between exports and imports, (Han, X., Wen, Y., & Kant, S., 2009) has proposed an additional index to measure the competitiveness of the export industry for a country, the trade competitiveness index (TC). In 2013, (Song, M., & Gazo, R. , 2013) also used this TC index to assess the competitiveness of the US furniture export industry. In addition, there are also many studies in which other quantitative indicators have been used to assess the competitiveness of a country's export industry such as the revealed symmetric comparative advantage index (RSCA) (Apridar, 2014; Hidayati, S., & Masyhuri, M., 2015); relative trade advantage index (RTA) (Galati, A., & Crescimanno, M., 2012); Export market share index (EMS) and import market share index (IMS) (Galati, A., & Crescimanno, M., 2012); Trade specialization ratio (TSR) (Hidayati, S., & Masyhuri, M., 2015).

The second direction of competitive assessment is to use qualitative analysis tools, the most popular tool is the diamond model introduced by M. Porter in 1990 in the work "The competitive advonioge of nations". (Porter, 1990). After that, many studies used Porter's model to analyze and evaluate competitive competence for the export industry (Muhammad, N. M. N., & Yaacob, H. C. , 2008; Yusuf, M., Sya'di, Y. K., Pranata, B., & Yonata, D., 2021; Al Mani, S., & Yudha, E. P., 2021). Also, in this direction, another very effective assessment tool is the global value chain model. This model is developed from the value chain model which was also proposed by Porter, M. E in 1985 (Porter, M. E., 1985). This global value chain model is used to determine whether the competitiveness of a product is generated from any activity in the production process. However, the limitation of this model is that the value of the product is limited by activities within a business. With the trend of trade and business liberalization, the value chain analysis approach is expanded at the industry, local and national scope. In addition to the activities that create value for the product itself, it is necessary to consider those activities that create value outside of the production process of that product, especially for export products. To meet this requirement, authors such as (Gereffi, G., & Korzeniewicz, M., 1994; Kaplinsky, 2000; Gereffi, G., Humphrey, J., & Sturgeon, T., 2005) are pioneers in applying this global product value chain analysis model. Since then, the global value chain model is quite commonly used to assess the competitiveness of the export industry for a country (Nguyen, K. A. T., & Jolly, C. M., 2018; Nariyono, B., Daryanto, A., Firdaus, M., & Djohar, S., 2017; Tanrattanaphong, B., Hu, B., & Gan, C., 2020; Sistani, M. A., Adeli, A., & Mira, S. A., 2021).

In summary, with the goal of assessing the competitiveness of a country's export industry, studies can approach using quantitative indicators, as well as using qualitative analysis tools. Among them, quantitative analysis is more commonly used by researchers.

METHODOLOGY AND RESEARCH DATA

Methodology
Within the scope of this study, the competitive competence of Vietnam's tuna export industry is assessed by the following criteria:

a. *The trade competitiveness index (TC)*
The TC index was proposed by Xiao Han et al. in 2009. This index, which is used to assess competitiveness for China's furniture export industry, is calculated by the formula:

$$TC_{ij} = \frac{X_{ij-}M_{ij}}{X_{ij+}M_{ij}} \qquad (1)$$

Where: TC_{ij} is the trade competitiveness index of the ith good of the jth country; X_{ij} is the export value of good i of country j; M_{ij} is the import value of good i of country j.

If TC > 0, the exporting country has a commercial competitive advantage. Conversely, if TC < 0, the exporting country has no commercial competitive advantage.

b. The Revealed Comparative Advantage index (RCA),
The RCA index is determined by a formula of the following form:

$$RCA = \frac{\frac{X_{ij}}{X_i}}{\frac{X_{wj}}{X_w}} \qquad (2)$$

Where: X_{ij} is the export value of product j of country i; X_i is the export value of country i; X_{wj} is the export value of product j of the world; X_w is the export value of the world.

The use of RCA indicators to assess the competitiveness of a country's export industry is illustrated in the following Table 1.

TABLE 1: Evaluation the competitiveness of the export industry through RCA index

ID	Groups	Degree of comparative advantage
1	$0 \leq RCA \leq 1$	There is no comparative advantage
2	$1 < RCA \leq 2$	There is a low comparative advantage
3	$2 < RCA \leq 4$	There is an average comparative advantage
4	$RCA > 4$	There is a high comparative advantage

Source: Hinloopen, 2001

c. Market Share (MS)
According to Xiao Han et al. (2009), the market share of exported products in the market is calculated by the formula:

$$MS_{ij} = \frac{X_{ij}}{X_{iw}}.100\% \qquad (3)$$

Where: MS_{ij} is the share of exports of product i of country j; X_{ij} is the export turnover of commodity i of country j; X_{iw} is the total export value of commodity i of the world.

d. Selling price
Usually, if the products are similar in nature, the lower selling price will be more competitive. For the tuna market, the product when caught is the same. However, there is a remarkable feature that the quality is easily degraded after extraction. Therefore, the same yellowfin tuna product is sold in the same market, but the price will vary greatly if the product quality is different. If the product is well preserved, it will be of high quality and then it will be sold at a higher price. Therefore, for this type of product, the high selling price indicates that the product is more competitive because of its higher quality.

Data
The data used in this study comes from the top 10 largest yellowfin tuna exporting countries in the world for 10 years between 2011 and 2020. These ten countries are China; Taipei, Chinese; Philippines; Korea; Spain; France; Indonesia; Papua New Guinea; Ship stores and bunkers and Micronesia, Federated States. The variables included in the data are: export turnover, import turnover, export volume and import volume of yellowfin tuna; total export turnover, total import turnover of all goods of Vietnam and other countries in the fishing area in the East Sea (including China, Indonesia, Thailand and the Philippines); export turnover of the whole world in the period from 2010 to 2020. Data is taken from World Bank and Thomson Reuters.

RESULTS
The recent situation of Vietnam's yellowfin tuna import and export
Currently, there are many types of tuna in the world, including: bluefin tuna, southern bluefin tuna, yellowfin tuna, bigeye tuna, albacore tuna, skipjack, and so on. They have different characteristics, economic value as well as processing methods. From these raw tuna, countries have classified them into 17 different types (processed or preserved). The tuna export market is one of the almost perfectly competitive markets with the participation of more than 180 countries and territories. However, the majority of exports are concentrated in a few countries such as Thailand, Ecuador, Spain, China, Netherlands, Philippines, Indonesia, Vietnam, Seychelles, Italy (Top 10 largest tuna exporting countries in the world). These countries account for about 80% of global tuna exports, of which Vietnam ranks 8th. Porter, M. E (1980) argues that competition is about gaining market share. Therefore, with a fiercely competitive market, a country with a large export turnover shows that the country has good competitiveness in the market. Particularly for yellowfin tuna (code 03042), this is also a popular export item in the world today, including Vietnam. In the last 10 years (from 2011 to 2020), the group of 10 largest exporting countries in the world in descending order is China; Taipei, Chinese; Philippines; Korea; Spain; France; Indonesia; Papua New Guinea; Ship stores and bunkers and Micronesia, Federated States. These countries accounted for nearly 70% of total frozen yellowfin tuna exports in the past 10 years.

FIGURE 1: Frozen yellowfin tuna export turnover of top 10 largest countries

Unit: Thousand US $
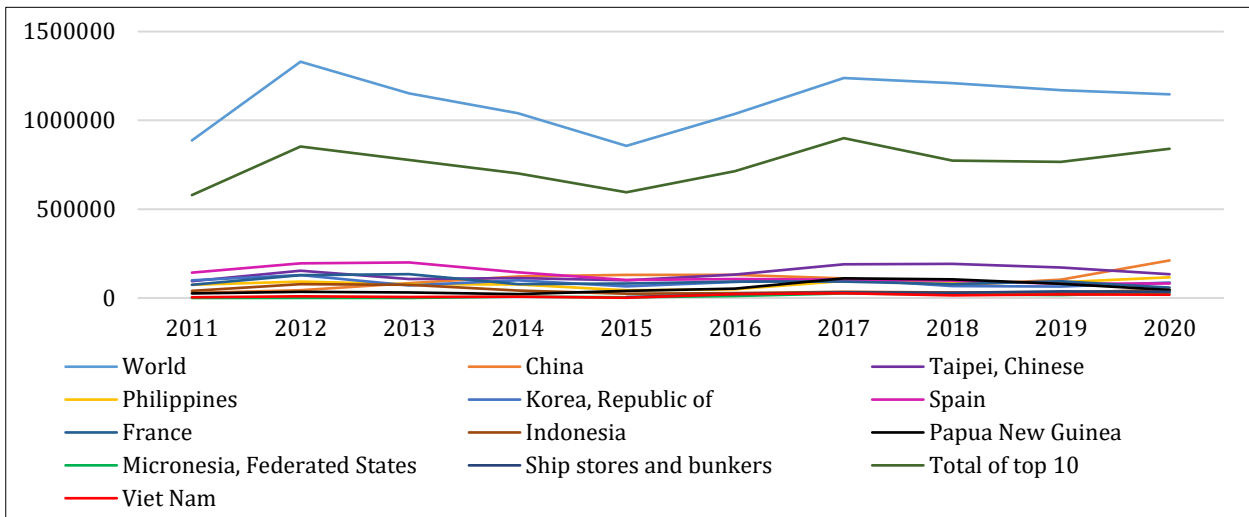
Source: ITC calculations based on UN COMTRADE and ITC statistics

Compared with countries in the fishing area in the East Sea, China is the country with the largest export turnover of yellowfin tuna and will increase much in 2020 due to a sharp increase in tuna imports from the EU27 and the UK for tuna. Meanwhile, due to the heavy negative impact of the Covid 19 pandemic, the scale of tuna exports from the Philippines has shrunk significantly. In 2020, the Philippines only exported to two countries, Spain and the United States, with an export volume of 151963 kilograms, equivalent to an export value of 329356 USD.

Compared to other countries in the region, Vietnam's yellowfin tuna export turnover is the lowest because the reserves of this type of tuna in the sea of Vietnam are quite limited. According to a report from the Hai Phong Seafood Research Institute in 2020, the reserves of yellowfin and bigeye tuna in Vietnam's sea range from 44853 to 52591 tons, with a fishing capacity of about 17,000 tons per year. However, Vietnam's tuna exports have increased significantly since 2015 due to efforts from fishermen, processing and exporting enterprises, especially the government's active support policies for stages such as fishing, processing as well as exporting tuna. Since 2014, the General Department of Fisheries of Vietnam has had many policies to create favorable conditions for fishermen and businesses to exploit and process tuna. Specifically, cooperation projects on tuna fishing with the Philippines and Japan were implemented in 2014 to absorb Japanese fishing and processing technology to improve product quality.

In addition, the World Wide Fund for Nature and the Directorate of Fisheries conducted a project to improve fisheries for tuna fishing in 3 provinces of Binh Dinh, Phu Yen and Khanh Hoa of Vietnam. Along with this project, the tuna fishing and processing industry in Vietnam has had many positive changes. That is the basis for Vietnamese tuna to be labeled with the eco-label, towards the requirements of sustainable development.

In 2014, the Vietnamese government issued Decree No. 67/2014/ND-CP on a number of fisheries development policies. Thereby, fishermen have more convenient in borrowing capital to build large-capacity ships as well as policies to support boats and fishermen when in trouble. Also, in 2014, Binh Dinh, the province with the largest tuna production in Vietnam, implemented the project "Organizing the exploitation, preservation, purchase and export of tuna in chains" which was approved by the Ministry of Agriculture and Rural Development. Binh Dinh province also supports fishermen with capital to purchase equipment for catching and preserving tuna according to modern Japanese methods. This project has helped fishers engaged in tuna fishing in Binh Dinh become proficient in applying science and technology to production. Thereby, the quality of fish preserved after catching was much better than before. As a result, tuna catches and export turnover have increased.

FIGURE 2: Frozen yellowfin tuna export turnover of countries

Unit: US $
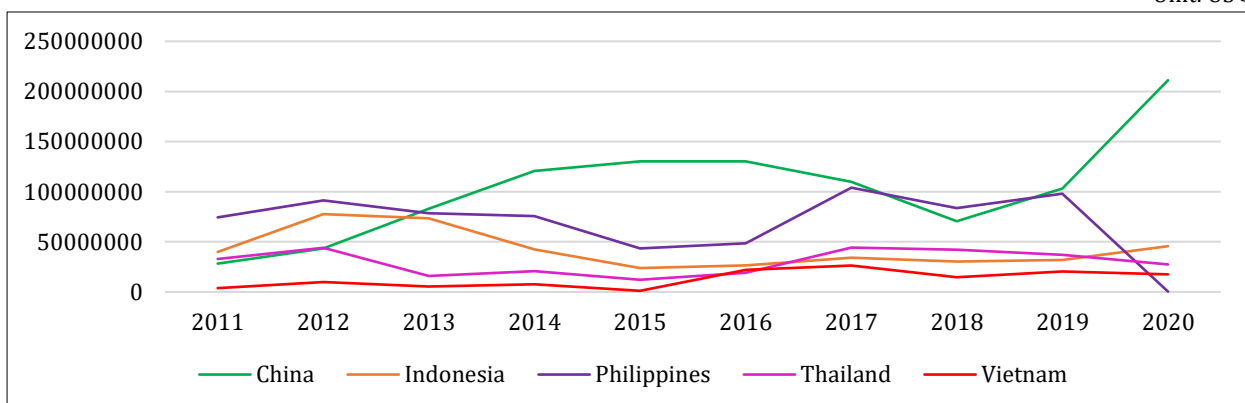
Source: ITC calculations based on UN COMTRADE and ITC statistics

Regarding Vietnam's export market, the statistics for yellowfin tuna in Table 2 show that, in the 5-year period from 2016 to 2020, Vietnam exported to about 17 countries, with a total export volume exported 40981 tons, with an export value of $83186764, of which mainly exported to Italy (accounting for nearly 80% of Vietnam's total export turnover).

Compared to other countries in the region, Vietnam is more limited in both market size and export value. Specifically, during this period, China exported to about 15 countries with a total volume of 180304 tons, export value reached $625188260 with the main export markets being Japan, Thailand, Korea, Spain and Vietnam. Following is Thailand with a total export volume of 74828 tons and export value reaching $170171254 to about 15 countries, of which the main export markets are Japan, Italy, Vietnam, USA. Next, Indonesia achieved a total export volume of 65879 tons and a corresponding export value of $168249484 to more than 20 countries, of which the main export markets are Thailand, USA, Vietnam, Philippines and Spain. And, Philippines has exported to nearly 20 countries, of which the main markets are Japan, USA, Spain, Vietnam, Italy, with a total export volume of 112380 tons and a total export value of $334003208.

TABLE 2: Export 'tunas of Vietnam by market

| Year	Market	Quantity (kilogram)	Trade Value (USD)
2016	Italy	10292123	19941468
	Israel	461698	894562
	China	214686	415965
	Philippines	212172	411094
	Thailand	28366	54961
	USA	18522	35888
	Netherlands	17850	34587
	Russian Federation	16164	31320
	France	15999	30999
	Singapore	15992	30986
	4 other	21962	42544
	Total	**11315534**	**21924374**
2017	Italy	9308577	19792744
	Spain	2066946	4394930
	Israel	433899	922597
	Portugal	291587	620000
	Other Asia, nes	118873	252759
	Philippines	69949	148732
	China, Hong Kong SAR	23679	50350
	USA	17618	37462
	Netherlands	17184	36540
	Germany	12319	26195
	7 other	30566	64981
	Total	**12391197**	**26347290**
2018	Italy	6126246	12533557
	Thailand	598285	1224019
	Other Asia, nes	115701	236711
	Philippines	97239	198939
	Czechia	53246	108936
	Spain	48170	98550
	Japan	30480	62359
	Portugal	30313	62016
	France	28849	59022
	Netherlands	17547	35899
	2 other	15998	32726
	Total	**7162074**	**14652734**
2019	Italy	8516562	17065096
	Thailand	534220	1070446
	Spain	340433	682146
	Rep. of Korea	330494	662230
	Other Asia, nes	136177	272866
	Philippines	135954	272420
	Portugal	52932	106064
	Australia	22148	44380
	India	18174	36416
	Egypt	12276	24600
	3 other	12831	25702
	Total	**10112201**	**20262366**
2020	Italy	5455917	10907972
	Philippines	1180613	2360390
	Thailand	624245	1248048
	Spain	600212	1200000
	Ecuador	440155	880000
	Other Asia, nes	346917	693589
	Canada	29280	58540
	Australia	26909	53800
	Russian Federation	16505	33000
	Netherlands	7108	14212
	1 other (Germany)	2775	5550
	Total	**8730642**	**17455104**

Source: ITC calculations based on UN COMTRADE and ITC statistics

In terms of imports, compared to other countries in the region, Vietnam's import level is quite high (second only to Thailand) and tends to increase rapidly over time (Figure 3). This is due to the low reserves of yellowfin tuna in Vietnam, so the catch is limited. Moreover, in recent years, the increase in mining scale has exhausted the resources. According to the Vietnamese fishermen, the amount of fish caught per boat is decreasing over time.

Besides, Vietnam is an oil-importing country. In recent times, when the price of oil has increased, the cost of fishing has increased. The increase in production costs has reduced the supply of locally caught tuna. To meet the demand for consumption and export processing, Vietnam is forced to increase tuna imports from other countries, mainly raw tuna for processing and re-export.

FIGURE 3: Frozen yellowfin tuna import turnover of countries

Unit: Thousand US $
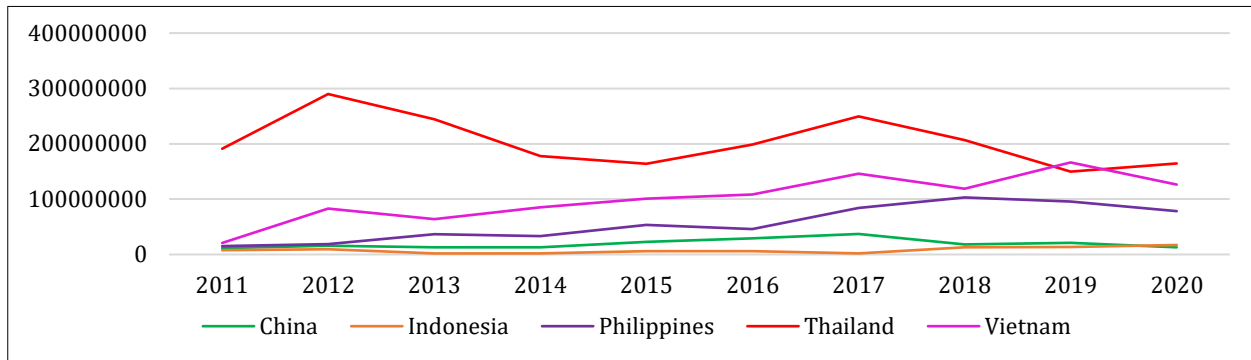
Source: ITC calculations based on UN COMTRADE and ITC statistics

In recent years, because of the lack of raw materials for export processing, Vietnam has imported raw materials from many countries, then processed them for domestic consumption and re-exported to a third country. Vietnam's import market for this product is quite large with about 20 countries, in which the main import markets are from Other Asia, nes; Korea, China and USA (Table 3). And as a consequence, imports are higher than exports.

Meanwhile, countries in the region such as China and Indonesia have much lower imports than exports due to the large scale of the domestic tuna fishing industry in these

countries (specifically, the total export value of China and Indonesia for the 10-year period from 2011 to 2020 were $1030986393 and $425438585, respectively, while the total import value was $194078510 and $79179747).

In the period 2011-2020, China is the world's largest exporter of yellowfin tuna, while Indonesia ranks 7th. Thus, compared to China and Indonesia, Vietnam's yellowfin tuna export industry is small in scale and more dependent on foreign markets. The problem of lack of raw materials for production forced Vietnam to import from abroad, and this partly reduced Vietnam's trade competitiveness.

TABLE 3: Import 'tuna of Vietnam by market

Year	Import Market	Quantity (kilogram)	Trade Value (USD)
2016	Other Asia, nes	18101720	40008060
	Korea	12357302	27311863
	China	5019382	11093737
	Kiribati	2509752	5547005
	USA	2382119	5264913
	Papua New Guinea	1893233	4184387
	Philippines	1597036	3529738
	Solomon Isds	1227674	2713382
	Areas, nes	958771	2119058
	Thailand	813876	1798813
	13 Other	2114177	4672724
	Total	**48975056**	**108243688**
2017	Other Asia, nes	18097008	47586077
	Korea	9957922	26184353
	China	5602496	14731764
	Papua New Guinea	2916506	7668953
	USA	2728770	7175301
	Solomon Isds	2644538	6953813
	Indonesia	2321444	6104237
	Marshall Isds	2242722	5897239
	Areas, nes	2195216	5772320
	Thailand	1984409	5218005
	10 Other	4865724	12794438
	Total	**55556769**	**146086507**
2018	Other Asia, nes	15333995	42124322
	Korea	7620691	20934951
	Indonesia	4724656	12979196
	USA	3604276	9901380
	China	3130165	8598939
	India	2612946	7178077
	Thailand	2006665	5512550
	France	929819	2554325
	Pakistan	678145	1862946
	New Zealand	675720	1856284
	9 Other	1958231	5379504
	Total	**43275318**	**118882483**

Year	Import Market	Quantity (kilogram)	Trade Value (USD)
2019	Other Asia, nes	20042235	51845230
	Korea	10636492	27514465
	USA	6746001	17450549
	Philippines	5000945	12936439
	India	4545454	11758175
	Thailand	4265450	11033861
	China	3250781	8409118
	Indonesia	2859077	7395858
	Ghana	1927781	4986782
	France	1501758	3884747
	11 Other	3513471	9088651
	Total	**64289456**	**166303885**
2020	Other Asia, nes	18990320	47954536
	Korea	8773101	22153920
	Philippines	6606385	16682507
	China	5587276	14109043
	Indonesia	3905242	9861556
	Thailand	1337484	3377427
	Ghana	1291479	3261256
	India	878816	2219194
	Sri Lanka	832353	2101865
	France	451440	1139982
	12 Other	1372285	3465313
	Total	**50026189**	**126326609**

Source: ITC calculations based on UN COMTRADE and ITC statistics

Evaluation of competitiveness of yellowfin tuna export industry
a. Trade competitiveness index (TC)

FIGURE 4: Trade competitiveness index (TC)
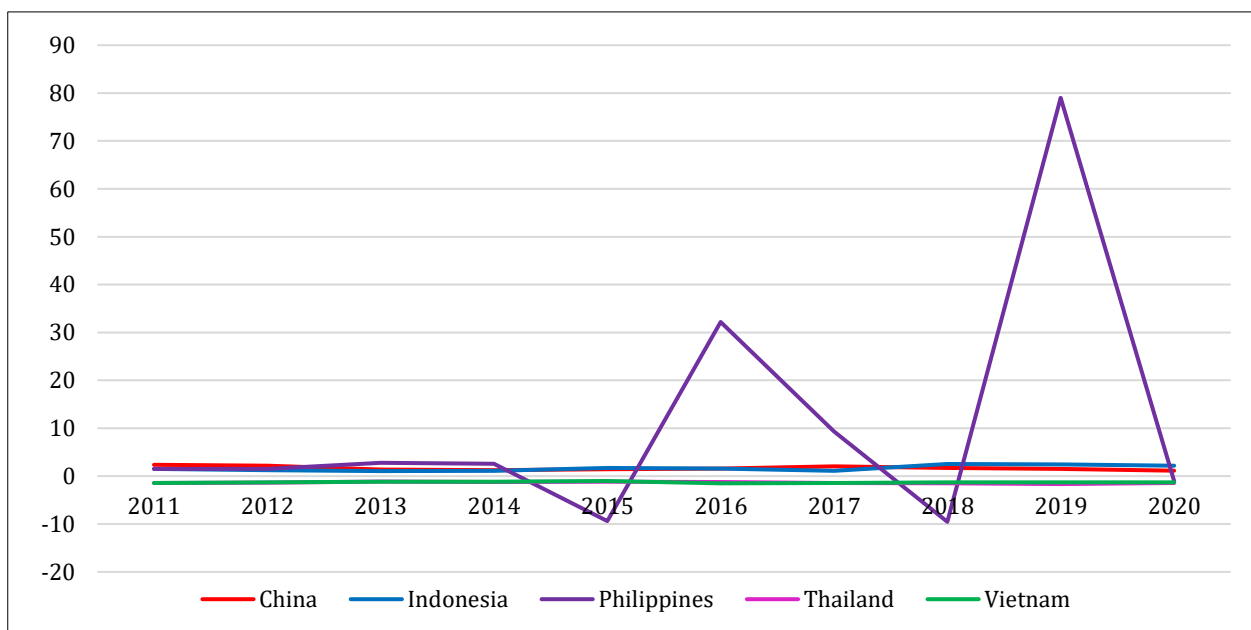
Source: Author's research results based on UN COMTRADE and ITC statistics

In general, among the 5 countries considered, the Philippines, China and Indonesia have a fairly highly competitive advantage in trade. This shows that the tuna export industry of these countries is less dependent on foreign markets, and therefore they have commercial advantages both at home and abroad. Meanwhile, Vietnam and Thailand do not have a competitive advantage in trade because they are heavily dependent on foreign import markets. And it is mainly dependent on importing raw tuna from abroad due to the lack of raw materials for domestic processing and export (Figure 4).

b. Revealed Comparative Advantage index (RCA)
From the export data of the countries, we calculate the revealed comparative advantage index (RCA) of the tuna exporting countries in the fishing area in the East Sea as shown in table 4. According to the evaluation criteria on competitive competence based on the RCA index of (Hinloopen, 2001), among these countries, the Philippines, Thailand and China have a high comparative advantage, while Vietnam and Indonesia have no comparative advantage.

TABLE 4: Revealed comparative advantage (RCA) of countries

Year	China	Indonesia	Philippines	Thailand	Vietnam
2011	18.256	0.162	211.339	34.273	0.014
2012	19.318	0.223	183.176	31.459	0.023
2013	47.590	0.268	207.418	15.217	0.015
2014	78.669	0.167	206.003	22.563	0.022
2015	103.885	0.115	133.935	15.321	0.003
2016	95.874	0.120	129.440	21.187	0.056
2017	72.831	0.135	230.844	46.536	0.056
2018	57.689	0.140	217.166	56.877	0.036
2019	85.425	0.164	265.896	55.519	0.047
2020	187.522	0.287	1.216	56.741	0.044

Source: Author's research results

c. Market share (MS)

In terms of market share, Vietnam has a much smaller market share than other countries in the region. Over the years, there are about 100 countries participating in exporting this item in the world. With the average market share of Vietnam in the period 2011-2020 is 1.158%, it shows that the export scale of Vietnam is quite small, while other countries in the region have a much larger export scale than Vietnam. Specifically, China accounted for an average of 9.316% of the market share, the Philippines accounted for 6.301% of the market share, Indonesia accounted for 3.844% of the market share, and Thailand accounted for 2,671% of the global yellowfin export market share (Table 5).

TABLE 5: Market share (MS) of countries

Unit: %

Year	China	Indonesia	Philippines	Thailand	Vietnam
2011	3.183	4.499	8.394	3.693	0.416
2012	3.274	5.836	6.869	3.309	0.743
2013	7.221	6.378	6.806	1.373	0.458
2014	11.602	4.072	7.254	1.990	0.721
2015	15.193	2.781	5.052	1.416	0.130
2016	12.571	2.556	4.686	1.860	2.115
2017	8.877	2.757	8.402	3.575	2.128
2018	5.838	2.509	6.903	3.478	1.212
2019	8.820	2.715	8.374	3.173	1.733
2020	18.419	3.971	0.029	2.396	1.522
Average	9.316	3.844	6.301	2.671	1.158

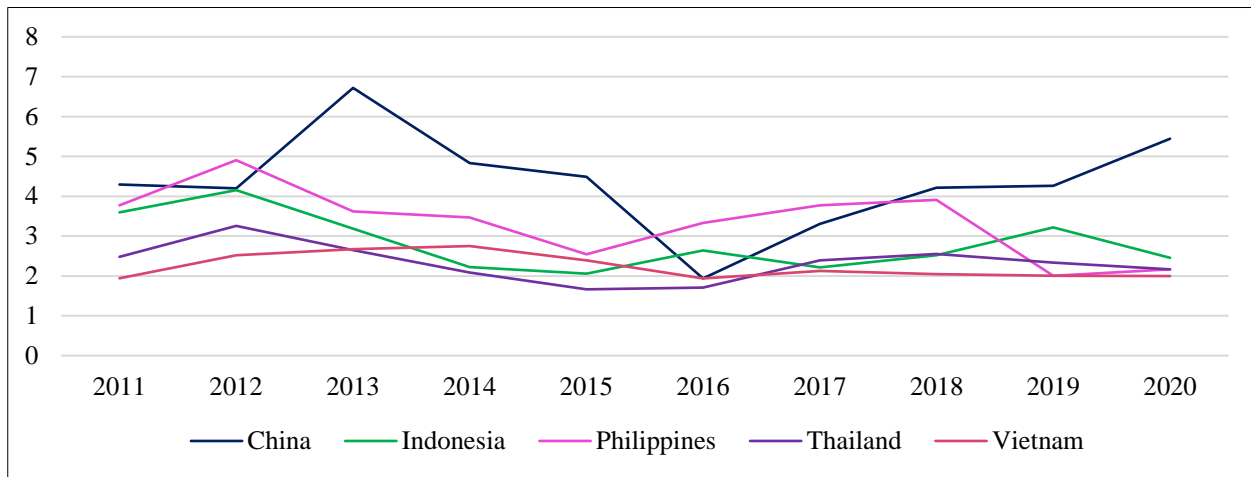*Source: Author's research results*

d. Price

Figure 5 shows that Vietnam has a relatively low selling price. Normally, if the same product has the same different conditions (product quality, packaging, etc.), the lower selling price increases the competitiveness of the product. However, for tuna products, the selling price depends greatly on the quality of the product. Vietnam is a country with a fairly developed tuna industry, but compared to countries such as Thailand, China, and the Philippines, it is still weaker in fishing techniques and technology as well as product processing and preservation technology. In addition, the infrastructure and logistics services to support the export industry are also lacking and weak.

According to reflections from tuna processing and exporting enterprises in Vietnam, the quality of Vietnam's tuna in recent years has declined due to the fact that most of the fishing is hand-fishing. Although hand fishing has certain advantages such as giving a much higher yield, shortening the voyage time, the cost of labor and fishing materials is lower than that of traditional longline fishing.

But the downside is the short soaking time, resulting in shock and destruction of the muscles after catching the fish. Furthermore, an increase in both productivity and the number of boats engaged in hand-fishing will lead to the risk of overfishing and depletion of fish stocks. Due to low quality plus post-harvest losses with outdated preservation technology, the selling price of Vietnamese products is low. Figure 5 also shows that the selling price of tuna in Vietnam has started to decline since 2015. Many fishing vessels are in a state of loss. This is the weakness that reduces the competitiveness of Vietnam's export tuna products. Meanwhile, some countries in the region such as Thailand and the Philippines are considered to have competitive prices and high product quality. In the case of Indonesia, market experts believe that price and quality are barriers that reduce the competitiveness of the country's tuna export industry. However, Indonesia's strength is that it has a large tuna reserve, and therefore the fishing scale is larger than that of Vietnam and some other countries.

FIGURE 5: Yellowfin tunas' price of countries

Source: Author's research results based on UN COMTRADE and ITC statistics

CONCLUSION

The results of the competitiveness assessment indexes of the export industry for Vietnam's yellowfin tuna showed that the RCA index < 1, TC index < 0, market share was low. This shows that Vietnam has no commercial competitive advantage and low competitiveness in the international market. The main cause of this problem is that, for yellowfin tuna, Vietnam is not rich in reserves, so catches are limited. In addition, Vietnam's fisheries are still backward in terms of means and techniques of fishing as well as technology for processing and preserving products. Besides, there are other limitations such as: low quality of labor, no synchronization in infrastructure, limited logistics services supporting fisheries, small production scale, etc. This problem makes product quality and production efficiency low. Because there is still a shortage of domestic raw materials for the export processing industry, Vietnam has to import a large amount of tuna for consumption and processing for re-export every year. And as a result, Vietnam's export industry is more dependent on foreign markets while Vietnam faces increasing competitive pressure from markets where the tuna fishery is advanced in both exploitation and preservation, such as China, Thailand, Philippines, etc. These problems have caused obstacles and reduced the competitiveness of Vietnam's tuna export industry in the international market.

In order to improve the competitiveness of export yellowfin tuna products, there should be changes in the stages of exploitation, processing and preservation to improve product quality in Vietnam. According to the opinions of businesses and experts in the Vietnamese tuna market, the quality of Vietnam's tuna can only be improved when the relationship between fishermen - businesses and the market is thoroughly implemented. These parties must have a close association to contribute to meeting the requirements of the market, specifically:

For the fishermen: it is necessary to learn and absorb advanced fishing techniques in order to improve their skills to access and operate modern equipment and new fishing techniques. Furthermore, they also need to comply with state and local fishing regulations.

On the side of ship owners: They need to be guided and absorbed in the process of preliminary processing and product preservation to improve product quality for stable output. They also need to comply with government and industry regulations on fishing, ensuring sustainable fishing.

On the part of the government and local management agencies: This is the most important agency that plays a decisive role in improving the competitiveness of the seafood export industry. To do this, the government and local management agencies need to develop stronger policies in the protection of fisheries resources to avoid overexploitation as well as illegal fishing (e.g. strengthening inspection and supervision of marine fishing activities, increasing fines for stricter enforcement of policies, etc.). Governments at all levels need to re-plan the fleet of fishing boats; disseminate fishing regulations to fishermen (first of all, ship owners), especially about illegal fishing. Currently, each fishing trip of tuna fishermen in Vietnam is about 20-30 days, while the technology of processing and preserving fish is still outdated (mainly preserved by crushed stone). Therefore, the quality of fish will be reduced when the ship arrives at the port. To solve this situation, it is necessary to have a fleet of service ships specializing in transporting fish to shore from fishing vessels. At the same time, it is necessary to have a price management policy to stabilize the market price. Besides, it is also necessary to strengthen international cooperation to acquire science and technology with countries where the fisheries economy develops such as China, Thailand, the Philippines; or, promote cooperation in fishing with Indonesia (where it is rich in yellowfin tuna resources) to increase the scale of caught fish production, etc. From there, the competitiveness of the export industry Vietnam's yellowfin tuna can be improved in the near future.

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