

Competitiveness of Indonesia's Fresh Lobster Market with China

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ABSTRACT

Fresh lobster is a strategic fishery commodity for economic development because it has a fairly high selling value. However, the volume and value of exports from year to year tend to decrease, which amounted to 69899.7 US\$ in 2013 decreased by 29425.6 US\$ in 2018. Most of the exports of fresh lobster to China, namely the average export value per year during 2012-2018 67% of all Indonesian fresh lobster exports. Based on this, this study aims to analyze: (1) the competitive position of Indonesian lobster, (2) the factors that influence the competitiveness of Indonesian fresh lobster in the international market. The competitive position of Indonesian fresh lobster was analyzed using the Export Product Dynamic (EPD) and Revealed Comparative Advantage (RCA) approaches, the factors that affect the competitiveness of the model used by VECM (Vector Error Correction Model). Based on the EPD and RCA analysis, it can be shown that Indonesian fresh lobster has a comparative advantage in the China market. The factors that affect the competitiveness of Indonesian fresh lobster in the short term are the export price of fresh lobster from competing countries (Australia) to China, the population of China. Meanwhile, in the long term, the factors that influence competitiveness are the export price of Indonesian fresh lobster to China and the population of China.

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I. INTRODUCTION

Crayfish or lobster, commonly known by another name, crayfish, is a genus of marine crustaceans that has high economic value. The export value of Indonesian crayfish fluctuates from year to year and tends to decline. (Ministry of Marine Affairs and Fisheries, 2014), In 2013 the export value of crayfish amounted to 69899.7 US\$ and decreased to 37972.8 US\$ in 2016 and fell again to 29425.6 US\$ in 2018. The decline in export value was caused by the decline in

global demand due to from slowing economic growth in several countries, the decline in the exchange rate and the existence of several new policies that have the potential to hamper exports in destination countries. This is also corroborated by data that juvenile lobster or Indonesian crayfish are exported to Vietnam each year in no small amount, namely 8 million fish/year so that the export value of Indonesian crayfish has fallen drastically due to the number of Indonesian crayfish which decreases. This decline is expected to be even greater due to the impact of lifting the export ban on

lobster seeds in the 2019-2024 period. The new regulation is feared to cause lobster cultivation to experience a decline in production which has an impact on decreasing export volume (Directorate General of Agro Industry, 2015).

Most of Indonesia's lobster exports are aimed at the Chinese market, which is indicated by the share of the highest export value, which is an average of 67% in the period 2012-2018. In addition to China, Indonesia's lobster exports are also aimed at Hong Kong at 18%, to Japan at 6%, to Singapore at 3%, and the rest is exported to other countries, such as Malaysia, Vietnam and Thailand.

Lobster exported to Indonesia can be divided into fresh lobster and frozen lobster. The export value of fresh lobster is greater than the export value of frozen lobster. In 2013, fresh lobster had the highest export value of US\$ 63655,458 thousand, while frozen lobster had the highest export value in 2012 reaching US\$ 13980,453 thousand. The volume of fresh lobster is greater than the export value of fresh lobster. Frozen lobster had the highest export volume of 1658 tons, while in 2013 the export volume of fresh lobster reached the highest of 4336 tons. Based on the description above, this research is more focused on the export of fresh lobster.

The competitiveness of fishery products, especially Indonesian fresh lobster, is still low compared to competing countries, even though it is included in the top 15 in the world, this is considered still lacking because Indonesia is expected to be able to produce more than that. According to Saptana (2012), there has been a decline in the competitiveness of Indonesian fishery exports, as can be seen from the RCA index which decreased from 5.4 in the 1990-1994 period to 3.9 in the 2000-2004 period. This makes Indonesia not

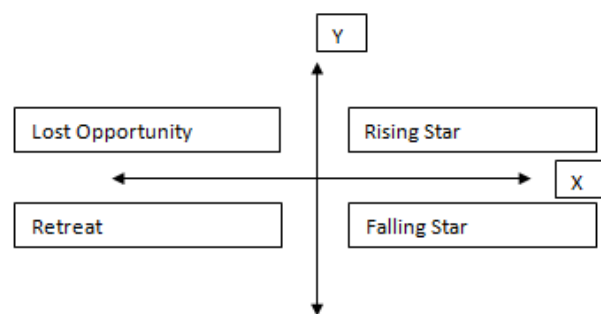
yet maximal in competing with lobster competitors in the world, so this research is important to analyze.

II. METHODS AND MATERIAL

Export Product Dynamic (EPD)

EPD is an indicator that can measure the market position of a country's products for certain market purposes. This measure has the ability to compare export performance among countries around the world. The advantages of using EPD include being able to provide a good overview of competitiveness and being able to compare export performance among countries around the world. An EPD matrix consists of market attractiveness and business strength information.

Market attractiveness is calculated based on the growth of demand for a product for a particular purpose, where business strength information is measured based on the growth of a country's market share in a particular market destination. The combination of market attractiveness and business strength results in the positional character of the product to be analyzed into four categories. In the EPD analysis there is a competitive position matrix as shown in Figure 1:



Source: Agri (2011)

Figure 1. Competitive Position Matrix

X Axis : Increasing market share of Indonesian lobster exports in China

$$X \text{ Axis} = \frac{\sum_{t=1}^T \left(\frac{X_i}{X_t} \right) \times 100\% - \left(\frac{X_i}{X_t} \right)_{t-1} \times 100\%}{T-1}$$

Y Axis : Increasing in market share of Indonesian product in China

$$\text{Sumbu Y} = \frac{\sum_{t=1}^T \left(\frac{W_i}{W_t} \right) \times 100\% - \left(\frac{W_i}{W_t} \right)_{t-1} \times 100\%}{T-1}$$

Wheres:

X_i : The value of Indonesia's fresh lobster exports to China (US\$)

X_t : The total value of Indonesia's exports to China (US\$)

W_i : The export value of world fresh lobster to China (US\$)

W_t : The total value of world exports to China (US\$)

t : year-t

T : number of years of analysis

Revealed Comparative Advantage (RCA)

RCA is one of the methods used to measure the competitiveness of a country. This method can determine the export performance of a country for a particular commodity, whether the commodity has a strong or weak comparative advantage. An RCA value greater than one ($RCA > 1$) indicates that the analyzed commodity has a comparative advantage above the (world) average or has strong competitiveness so that it can be maintained to continue exporting to export destination countries.

VECM Method

$$\Delta LNNXSI_t = \gamma_0 + \gamma_1 \Delta LNNXSI_{t-1} + \gamma_2 \Delta LNPLSA_t + \gamma_3 \Delta LNPLSI_t + \gamma_4 \Delta LNPOP_t + \varepsilon_t$$

Wheres $\gamma_1, \gamma_2, \gamma_3, \gamma_4 > 0$

$NXSI_{t-1}$ = The level of competitiveness of Indonesia's fresh lobster export value in the previous period

$NXPOP$ = Population of importing country in year t (people)

$PXLSA_t$ = Australian fresh lobster export price in period- t (Rp/kg)

POP = Population of the main importing country (people)

$PXLSI_t$ = Indonesian fresh lobster export price (Rp/kg)

III. RESULTS AND DISCUSSION

Analysis of the competitiveness of Indonesian fresh lobster with China used the RCA and EPD estimation methods to determine the competitive position. Based on the average RCA value of Indonesian fresh lobster to China's destination countries for the 2012-2016 period, the RCA index is greater than one, which means that Indonesian fresh lobster to China's destination country has strong competitiveness (See Table 1).

Table 1 Estimated results of RCA fresh lobster from Indonesia to China

Year	X_{ij}/X_t	W_{ij}/W_t	RCA
Jan-Des 2012	0.00057	0.0001	82.015
Jan-Des 2013	8.8187	0.0001	19.902
Jan-Des 2014	0.00012	0.0001	77.857
Jan-Des 2015	0.00013	0.0002	0.534
Jan-Des 2016	0.00034	0.0002	30.895
Avarage			42.241

In addition to using Revealed Symmetric Comparative Advantage (RCA). Another method used to determine the superiority of a commodity is to use the Export Product Dynamic (EPD) method. In this method, the market position of a commodity under study can be determined. The rising star market position is an ideal market position so that in that position, countries that have the potential to be used as export destinations for

lobster commodities can be obtained. The lost opportunity market position can also be used as an export destination for lobster commodities, only in this position there is an increase in export demand but Indonesia is not able to meet the number of exports according to the increase in demand. Meanwhile, the falling star and retreat positions indicate that the country has no potential as an export destination because the value of export demand is decreasing. Based on the results of the EPD calculations and estimates in the following table, the Indonesian lobster market in 2012-2016 is in a rising star position for the main export destination to China, so that marketing can be maintained. The results of the EPD test can be seen in Table 2.

Table 2 EPD estimation results for Indonesian fresh lobster to China

Year	Axis-X	Axis - Y	Growth X	GrowthY
Jan-Des 2012	0.002	0.0001	9314	1.3925
Jan-Des 2013	8.146	0.0001	0.270	17603
Jan-Des 2014	0.0001	0.0001	28.7	7423
Jan-Des 2015	0.0001	0.0002	33.7	5.297
Jan-Des 2016	9.73	0.0002	517.5	14196
Avarage			1978.9	7845.4

Factors Affecting the Competitiveness of Indonesian Fresh Lobster to China

The factors that affect the competitiveness of Indonesia's fresh lobster exports to China in the short term are the variable price of fresh lobster exports from competing countries from Australia to China (PXLSA)

and the population of the importing country of China (POP) which shows a significant level of significance at 5 percent with the t table value is 2.00. This happens because a variable takes a lag time to respond to other variables and generally the response of a variable to other variables occurs in a long-term relationship. The results of short-term and long-term estimates of the factors that affect the competitiveness of Indonesia's fresh lobster exports to China will be explained in Table 3.

Variabel	Koefisien	t-statistik
CointEq1	-0.20115	-3.16522
D(NXLSI(-1))	-0.182183	-1.46785
D(PXLSI(-1))	-0.429342	-1.47481
D(PXLSA(-1))	-1.460632**	-2.04160
D(POP(-1))	3168.303**	4.45641

Description: Sign (**) Significant at the 5 percent level of significance

Table 3 shows that the export price of fresh lobster from Australian competitor countries to China has a significant effect on the 5 percent level of significance with a coefficient value of 1.460632 and a negative sign. This means that a 1 percent increase in the export price of fresh lobster from Australia's competitor country to China will cause a decrease in the value of Indonesia's fresh lobster exports to China itself by 1.460632 percent in the short term. The results of this study are not in line with the existing theory.

Based on the theory, if the price in a competing country increases, in this case Australia increases, the price of Indonesian lobster will relatively fall and cause an increase in the number of requests and the value of Indonesia's exports. Australia is relatively better than Indonesia. Australia's fresh lobster cultivation technology is more adequate than Indonesia, where Australia has the IMAS (Institute for Marine and

Antarctica Studies) lobster cultivation technology development. Australian lobster cultivation is relatively better and affects the quality of lobster so that Australian lobster products are fresher than Indonesia. According to research by TJ Hoban (1998) people will tend to buy at high prices and fresh commodities to get a more delicious taste of food. Chinese people prefer lobster from Australia which has a higher quality standard than Indonesia.

On the other hand, the population of the importing country of China has a significant effect on the 5 percent level of significance with a coefficient value of 3168,303 and is positive. This means that an increase in the population of the importing country of China will cause an increase in the value of Indonesia's fresh lobster exports to China by 3168,303 percent in the short term. This is in accordance with research conducted by (Samsul, 2019) which states that population has a positive effect on increasing Indonesian shrimp exports. The results of this study are in accordance with the previous hypothesis, research that shows the population of the destination country has a positive relationship to export demand, namely Yuniarti (2007). The increasing population causes the amount of consumption to increase so that the export value of Indonesian fresh lobster to China will increase.

Meanwhile, in the long-term relationship, the factors that affect the competitiveness of Indonesian fresh lobster exports to China are the export price of Indonesian fresh lobster to China (PXLSI) and the population of the importing country (POP) which has a significant influence at a significant level of 5 percent.

Variabel	Koefisien	t-statistik
NXLSI(-1)	1	0
PXLSI(-1)	1.752844**	2.06893
PXLSA(-1)	-1.889903	-1.37151
POP(-1)	-151.0011**	2.86506

Description: Sign (**) Significant at the 5 percent level of significance

Based on Table 4, it is explained that in the long-term relationship the factors that affect the competitiveness of Indonesian fresh lobster exports to China, namely the export price of Indonesian fresh lobster to China, have a significant relationship to the value of Indonesian fresh lobster exports to China with a coefficient of 1.752844 and a positive sign. If there is a 1 percent increase in the price of Indonesia's fresh exports to China, it will cause an increase in the value of Indonesia's fresh exports to China by 1.752844 percent in the long term. This is in accordance with research conducted by Setiawan (2016) which states that the export price of Indonesian tuna has a significant positive effect on the formation of Indonesian tuna export prices.

Furthermore, the population of the importing country of China has a significant relationship to the value of Indonesia's fresh lobster exports to China with a coefficient of 151.0011 and a negative sign. That is, if there is an increase of 1 percent in the population of the importing country of China, it will cause a decrease in the value of Indonesia's fresh lobster exports to China by 151.0011 percent in the long term. This is in accordance with research conducted by Rizkillah (2021) which states that population has a negative effect on This is because lobster has permanent consumers and is a luxury commodity in China, so the population has a negative effect on increasing Indonesian lobster in China.

IV. CONCLUSION

The average RCA value of Indonesian fresh lobster to China's destination countries for the 2012-2016 period is greater than one, which means that Indonesian fresh lobster to China's destination has strong competitiveness and is in a rising star position for the main export destination to China, so that marketing can be maintained.

The factors that affect the competitiveness of Indonesian fresh lobster in the short term are the export price of fresh lobster from Australia's competitor to China, the population of China, while in the long term are the export price of Indonesian fresh lobster to China and the population of China.

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