Original Research Article

ANALYSIS OF COMPETITIVENESS FISHERIES PROCESSING INDUSTRY IN INDONESIA

ABSTRACT

The fisheries sector is an important sector for the people of Indonesia and can be used as a prime mover for the national economy. Indonesia is a country that has a relatively high level of fish production every year, that Indonesia provides an ample supply of fish for foreign countries. This study aims to analyze the competitiveness of the provincial fisheries processing industry in Indonesia. The study was conducted from February – June 2021. The method used was a literature survey to determine the competitiveness of the fisheries processing industry in 34 provinces in Indonesia. After all the data is processed, the data will be analyzed descriptively. Primary data are expert judgments of 11 people regarding the proportion of competitiveness of the fishery processing industry. Secondary data in statistical data on the Indonesian Fisheries Processing Industry in 2010-2017 Ministry of Maritime Affairs and Fisheries. The results showed that the competitiveness profile of the fishery processing industry in 2017 in Indonesia with the first rank of very high competitiveness was occupied by the Province of East Java. Because it excels in production, infrastructure, and Science and Technology (IPTEK), the second rank is highly competitive. Occupied by DKI Jakarta Province because it excels in production and science, and technology, the third rank of very high competitiveness is occupied by Central Java Province because it excels in production and infrastructure.

Keywords: Competitiveness, Fishery Processing Industry, Indonesia, Profile.

1. INTRODUCTION

The fisheries sector is an important sector for the people of Indonesia and can be used as a prime mover for the national economy. This is based on the fact that the fishery sector has enormous potential, as seen from Indonesian waters, which have an area of 5.8 million km2. In addition, Indonesia has a coastline of 95,181 km, most of which is the basis of fishery economic activities [1].

According to Porter (1990) [2], competitiveness is related to productivity where the level of output produced for each unit of input is used. Increased productivity, includes increasing the number of physical inputs (capital and labor), improving the quality of the inputs used and improving technology (total factor productivity).

The fishery sector in the processing industry is very diverse, each having its own advantages from each region in Indonesia. The diversity of commodities and their advantages encourage competitiveness in the fisheries processing industry in Indonesia.

The fishery processing industry sector is very diverse, each has its own advantages from each region in Indonesia. The various types of processing activities and their advantages encourage competitiveness in the fisheries processing industry in Indonesia. The competitiveness of the fishery processing industry can be used as a benchmark for development in creating economic productivity, job creation and regional income. In addition, there are still not many studies conducted to determine the competitiveness of the fisheries processing industry in Indonesia. Therefore, the author wants to identify and analyze the competitiveness of Indonesia's of the fisheries processing industry sector.

2. METHODOLOGY

The research was carried out using secondary data from the Ministry of Maritime Affairs and Fisheries for six months, namely January - June 2021. The first stage carried out at the start of the research was collecting secondary data from the Indonesian Ministry of Maritime Affairs and Fisheries. The second stage is to analyze primary data in the form of expert judgments or competent people in their fields (expert judgment). The third stage is to analyze the data that has been obtained during the research.

2.1 RESEARCH LOCATION

This research was conducted at the Ministry of Maritime Affairs and Fisheries, Jalan Medan Merdeka Timur No. 16, Jakarta, Indonesia.

2.2 DATA TYPES AND SOURCES

The data used in this research consists of secondary and primary. Primary data is expert judgment questionnaires and secondary data consists of five types of data sourced from the Ministry of Maritime Affairs and Fisheries (Table 1).

Table 1. Types of Data and Research Data Sources

No.	Ttpes of Data	Sources
1.	Total production of processed fishery	Ministry of Maritime Affairs and Fisheries
2.	Total of Fish Processing Units	Ministry of Maritime Affairs and Fisheries
3.	Total of Fish Processing Units (UPI) certified processing feasibility (SKP)	Ministry of Maritime Affairs and Fisheries
4.	Total export volume	Ministry of Maritime Affairs and Fisheries
5.	Total export value	Ministry of Maritime Affairs and Fisheries

2.3 METHOD OF COLLECTING DATA

The method used in the research is a literature survey. The data obtained will be used in the form of secondary data, which is realized in numbers and analyzed using descriptive statistical methods. This research uses time-series data from 2010 to 2017. The following types of data are used:

a. Secondary data in the form of data on the leading indicators of the competitiveness of the fisheries processing industry in Indonesia in 2010 – 2017.
b. Primary data in the form of expert judgment (expert judgment) as many as 11 respondents give weight to these variables' indicators and comparisons.

2.4 DATA ANALYSIS METHOD

Data analysis was carried out by using qualitative descriptive analysis. According to Sugiyono (2012) [3], descriptive research is research conducted to determine the value of independent variables, either one or more variables (independent), without making comparisons or connecting with other variables. Qualitative descriptive analysis in this study was used to obtain an overview (profile) of the competitiveness of the fisheries processing industry in Indonesia.

2.5 COMPETITIVENESS PROFILE ANALYSIS

Analysis of the competitiveness profile of the fisheries processing industry in Indonesia goes through several stages as follows:

1. Determine the main indicators and variables covering production, facilities and infrastructure, and the application of science and technology for the results of the fishery processing industry.
2. The implementation stage was to collect data on the fishery processing industry in Indonesia in 2010-2017.
3. Identify priority weights or relative importance between indicators, variables and sub-variables.
4. Collected primary data in expert judgment, which gives weight to the leading indicators and variables.
5. Calculate the weight of the expert judgment questionnaire results for each indicator, variable, and sub-variable.
6. Processing the data that has been obtained during the research, using secondary data, namely statistical data on the fisheries processing industry in Indonesia in 2013 and 2017, to determine the competitiveness profile of each province.
7. Calculate the score and value of the leading indicators, variables and sub-variables from secondary data and calculate the value based on the weights and scores obtained.
   Score = Data per Province/(Total Data in Indonesia) x 100
   Score = Weight x score
8. To rank the competitiveness of the fishery processing industry among all provinces in Indonesia based on the weighted value.
9. Determine the criteria for the competitiveness of the fisheries processing industry in all provinces in Indonesia using quartiles. The competitiveness profile is divided into four categories of competitiveness based on quartiles. Q1 means it has very high competitiveness, Q2 means it has high competitiveness, Q3 means it has sufficient competitiveness, and Q4 means it has low competitiveness.

3. RESULTS AND DISCUSSION

3.1 Geographical Condition of Research Location

Geographically, Indonesia is located at a position of 6^0 LU–11^0 LS and 95^0 BT–141^0 BT. Indonesia is a country in Southeast Asia which is traversed by latitude 00 or the equator. The equator is an imaginary line on a map or globe that divides the earth into two equal parts north and south. Several cities in Indonesia are traversed by the equator, Pontianak (West Kalimantan). In Pontianak, one can find the equator monument that characterises Pontianak City's passage by the equator. The northernmost border of Indonesia is right past Weh Island in the Province of Nanggroe Aceh Darussalam.

Indonesia consists of large and small islands which, are approximately 17,504 islands. Three-quarters of its territory is the sea (5.9 million km2), with a coastline of 95,161 km, the second-longest after Canada. Through the Djuanda Declaration, December 13, 1957, Indonesia declared that the Indonesian seas (the seas around, between, and within the Indonesian archipelago) became one unitary territory of the Republic of Indonesia. Furthermore, as an archipelagic country, Indonesia has been recognized internationally through the third UN convention on the law of the sea, the United Nations Convention on the Law of the Sea 1982 (UNCLOS 1982), then ratified by Indonesia with Law No. 17 of 1985. Based on UNCLOS 1982, a total of Indonesia's sea area is 5.9 million km2, consisting of 3.2 million km2 of territorial waters and 2.7 km2 of Exclusive Economic Zone waters, this water area does not include the continental shelf. This makes Indonesia the largest archipelagic country globally (the biggest Archipelago in the World) [4].

3.2 Profile of the Fishery Processing Industry in Indonesia

The manufacturing sector's role as the main driver for the Indonesian economy can be seen from its contribution to the economy. In general, the contribution of the manufacturing industry to the Indonesian economy in 2018 was 19.86 percent. This contribution was higher than the agricultural and trade sectors, which contributed 12.81 percent and 13.02 percent, respectively. In addition to contributing through value-added products, the processing industry is also able to provide jobs. In 2018, the processing industry was able to employ 14.72 percent of the total workforce in Indonesia.

In 2017, processing production in Indonesia reached 6, 181,997 tons. East Java province contributed the most significant production, which amounted to 1,216,999 tons. Then followed by Central Java and West Java which, contributed 1,017,345 tons and 513,389 tons, respectively [5].

3.3 Analysis of Trends in Competitiveness of the Fisheries Processing Industry in Indonesia as a whole

Based on the research, the final value of the leading indicators from each province shows the province's ranking and obtained category of competitiveness. The rankings of the provinces in Indonesia in fishery processing activities can be seen in Table 2.

Table 2. Ranking of Provincial Competitiveness in Indonesia

PROVINCE	X1	X2	X3	FINAL SCORE	Rank	Competitiveness Category
Jawa Timur	3,937235816	2,869374172	17,83595	24,64256	1	
DKI Jakarta	0,878182244	0,35733902	16,47044	17,70596	2	
Jawa Tengah	3,291315088	2,787632064	2,281555	8,360503	3	
Sulawesi Selatan	0,697878048	0,649090498	5,113589	6,460558	4	
Sumatera Utara	1,259279162	0,757972279	4,383696	6,400947	5	**VERY HIGH**
Jawa Barat	1,660916367	2,093954961	1,695516	5,450387	6	
Banten	0,402449241	0,41064909	2,132353	2,945451	7	
Lampung	0,631494968	0,598365158	1,393573	2,623433	8	
Kalimantan Selatan	0,662316724	1,187683758	0,220661	2,070661	9	
Nusa Tenggara Barat	0,171494745	1,248101838	0,589021	2,008617	10	
Kepulauan Riau	0,251138912	0,233271946	1,498323	1,982734	11	
Bali	0,44929818	0,28981293	1,128724	1,867836	12	
Sulawesi Utara	0,428618778	0,102419954	1,021501	1,55254	13	
Sumatera Selatan	0,360336636	0,555070919	0,500715	1,416123	14	**HIGH**
Kepulauan Bangka Belitung	0,319165474	0,546993635	0,326544	1,192703	15	
Sumatera Barat	0,341756879	0,599657523	0,15025	1,091664	16	
Kalimantan Timur	0,250394816	0,663306517	0,166213	1,079915	17	
Aceh	0,403015401	0,517915415	0,080223	1,001154	18	
Kalimantan Barat	0,379463141	0,392232884	0,191934	0,96363	19	
Kalimantan Tengah	0,291197165	0,625827922	0,00014	0,917165	20	
Maluku	0,329660464	0,212917192	0,373408	0,915986	21	
Riau	0,343209484	0,372847404	0,192758	0,908815	22	**ENOUGH**
Sulawesi Tenggara	0,357204961	0,36218539	0,152123	0,871513	23	
Nusa Tenggara Timur	0,327259945	0,15217602	0,374318	0,853754	24	

Sulawesi Tengah	0,308282259	0,305321314	0,222285	0,835888	25	
Kalimantan Utara	0,232500922	0	0,60126	0,833761	26	
Papua Barat	0,223319423	0,047817518	0,370371	0,641508	27	
Jambi	0,172627065	0,231010307	0,220588	0,624226	28	
Maluku Utara	0,101937934	0,216148105	0,073529	0,391615	29	
Gorontalo	0,092180569	0,136021453	0,147059	0,375261	30	**LOW**
Papua	0,205668168	0,094019579	0,000436	0,300124	31	
DI Yogyakarta	0,051805266	0,152822203	0,090938	0,295565	32	
Bengkulu	0,084632846	0,125359439	0	0,209992	33	
Sulawesi Barat	0,10276291	0,104681593	0	0,207445	34	

(Source: Data Processing Results)
Information :
X1 = Production
X2 = Facilities and Infrastructure
X3 = Science and Technology

Table 2 above shows that East Java Province is ranked 1st in Indonesia's competitiveness with a final score of 24,64. East Java Province is in the first quartile which, means it has a very high level of competitiveness. The thing that pushed East Java Province to rank first and quartile one because it has excellent leading indicators with higher scores than other provinces. DKI Jakarta Province is ranked 2nd in Indonesia's competitiveness with a final score of 17,70. DKI Jakarta Province is in the first quartile which, means it has very high competitiveness. The thing that pushed DKI Jakarta Province to rank second and quartile one is because it has a reasonably superior indicator value, namely Production and Science and Technology, which are in the second position. Central Java Province is ranked 3rd in Indonesia's competitiveness with a final score of 8,36. Central Java province is in the first quartile which means it has very high competitiveness. The thing that pushed Central Java Province to rank third and quartile one was because it had a relatively high principle indicator value, namely the production indicator with a value of 2,84 and the infrastructure and facilities indicator with a value of 2,78.

Provinces that occupy the two lowest ranks are Bengkulu and West Sulawesi. The province is in the fourth quartile because it is not superior and has potential from all the main indicators. The amount of production, facilities and infrastructure and science and technology are tiny, so that they do not support the sustainability of fishery processing activities.

The competitiveness of the fishery processing industry in Indonesia is highly volatile, as shown in the following graph (Figure 1).

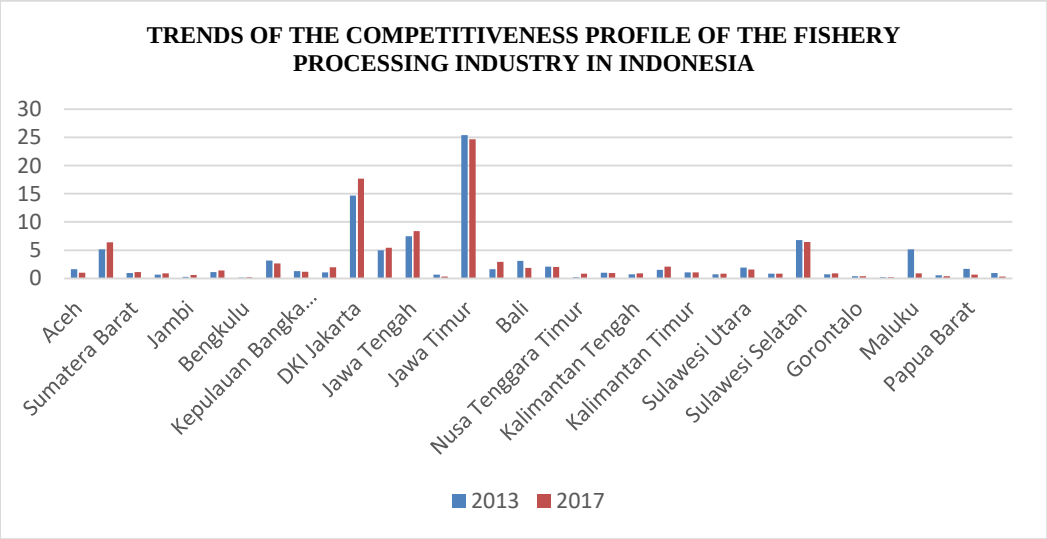

Figure 1. Trends in the Overall Competitiveness of the Fisheries Processing Industry in Indonesia.

The graph above shows that DKI Jakarta Province experienced a significant increase in the final score in 2013, which was 14.7 and became 17.7 in 2017. Another province that experienced an increase in the final score was Central Java Province; in 2013,the final score was amounted to 7.4 and increased to 8.3 in 2017.

The province that experienced a significant decrease in the final score was Maluku Province; in 2013, it had a final score of 5.13 and decreased to 0.91 in 2017. Another province that experienced a decline in the final score was West Papua Province, in 2013 had a the end of 1.68 and decreased to 0.64 in 2017.

3.4 Trend Analysis of Fisheries Processing Industry Competitiveness in Indonesia per Indicator

Primary and secondary data are calculated on 34 provinces in Indonesia, then the final value per the main indicator is obtained, namely production, facilities and infrastructure, and science and technology. The value obtained from each province describes the level of competitiveness and ranking of the fisheries processing industry in Indonesia.

3.4.1 Competitiveness Based on Production Indicators

Competitiveness data that has been calculated, the final value of the main production indicators shows the ranking and category of competitiveness of the province. The rankings of the provinces in Indonesia in the production of the fishery processing industry in Indonesia can be seen in Table 3.

Table 3. Competitiveness Ranking of Provinces in Indonesia Based on Production Indicators

PROVINCE	PRODUCTION VALUE	RANK	COMPETITIVENESS CATEGORY
Jawa Timur	19,68617908	1	
Jawa Tengah	16,45657544	2	
Jawa Barat	8,304581837	3	
Sumatera Utara	6,296395809	4	**VERY HIGH**
DKI Jakarta	4,390911222	5	
Sulawesi Selatan	3,489390241	6	
Kalimantan Selatan	3,311583619	7	
Lampung	3,157474842	8	
Bali	2,246490899	9	
Sulawesi Utara	2,14309389	10	
Aceh	2,015077005	11	
Banten	2,012246205	12	
Kalimantan Barat	1,897315706	13	**HIGH**
Sumatera Selatan	1,801683178	14	
Sulawesi Tenggara	1,786024807	15	
Riau	1,71604742	16	
Sumatera Barat	1,708784394	17	
Maluku	1,64830232	18	
Nusa Tenggara Timur	1,636299726	19	
Kepulauan Bangka Belitung	1,595827368	20	
Sulawesi Tengah	1,541411295	21	**ENOUGH**

Kalimantan Tengah	1,455985825	22	
Kepulauan Riau	1,25569456	23	
Kalimantan Timur	1,251974079	24	
Kalimantan Utara	1,162504608	25	
Papua Barat	1,116597113	26	
Papua	1,028340842	27	
Jambi	0,863135327	28	
Nusa Tenggara Barat	0,857473726	29	
Sulawesi Barat	0,513814549	30	**LOW**
Maluku Utara	0,509689668	31	
Gorontalo	0,460902844	32	
Bengkulu	0,42316423	33	
DI Yogyakarta	0,259026331	34	

(Source: Data Processing Results)

Table 3 above shows that East Java Province is ranked 1st in production competitiveness with a final score of 19,68. East Java Province is in the first quartile, which means it has a very high level of competitiveness. Fishery processing production in East Java Province reached 1.216.999 tons or 19,69% of the total production of 34 provinces in Indonesia. East Java Province is a province that has a sea area almost four times its land area with a coastline of approximately 2.916 km. Abundant fish resources in the sea and fish farming on land are proven to be able to support community food security. No wonder East Java is the province with the most significant fisheries GDP value [6]. Central Java Province is ranked 2nd in production competitiveness with a final score of 16,45. Central Java province is in the first quartile, which means it has very high competitiveness. Based on the Ministry of Maritime Affairs and Fisheries (2018), fishery processing production in Central Java Province reached 1.017.345 tons or 16,46% of the total production of 34 provinces in Indonesia. This shows that Central Java Province has a high level of production. West Java Province is in the 3rd rank of production competitiveness with a final score of 8,30. West Java Province is in the first quartile, which means it has very high competitiveness.

Provinces that occupy the two lowest ranks are Bengkulu Province and DI Yogyakarta. The province is in the fourth quartile, which means it has a low level of production competitiveness.

The competitiveness of production indicators is highly volatile, as shown in the following graph (Figure 2).

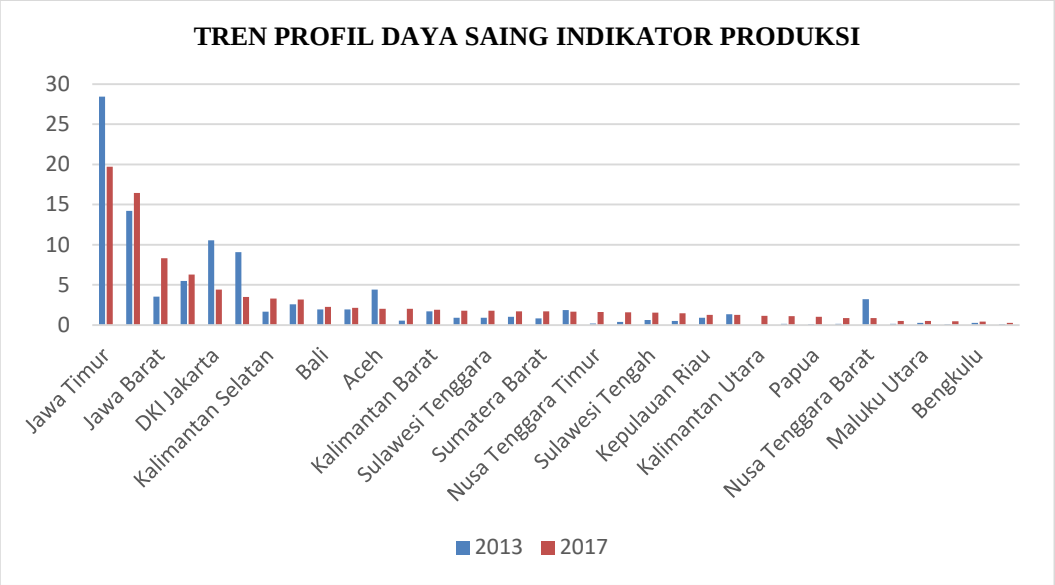

Figure 2. Trends in the Competitiveness Profile of Production Indicators

The graph above shows that Central Java Province experienced a significant increase in the final value of production indicators in 2013, which was 14.20, and became 16.45 in 2017. Another province that experienced an increase in the final value of production indicators was West Java Province in 2017. 2013 had a final score of 3.51 and increased to 8.30 in 2017.

Provinces that experienced a significant decrease in the final value of production indicators were East Java Province, which in 2013 had a final value of 28.41 and decreased to 19.68 in 2017. Other provinces that experienced a decrease in the final value of production indicators were DKI Jakarta Province; in 2013, it had a final value of 10.56 and decreased to 4.39 in 2017, and South Sulawesi Province experienced a decrease in the final value in 2013 of 9.05 to 3.48 in 2017.

3.4.2 Competitiveness Based on Facilities and Infrastructure Indicators

Competitiveness data that has been calculated, then obtained the final value of the main indicators of facilities and infrastructure showing the ranking and category of competitiveness of the province. The rankings of the provinces in Indonesia in the facilities and infrastructure of the fishery processing industry in Indonesia can be seen in Table 4.

Table 4. Ranking of Provincial Competitiveness in Indonesia Based on Facilities and Infrastructure Indicators

PROVINCE	FACILITIES AND INFRASTRUCTURE VALUE	RANK	COMPETITIVENESS CATEGORY
Jawa Timur	14,34687086	1	
Jawa Tengah	13,93816032	2	
Jawa Barat	10,46977481	3	
Nusa Tenggara Barat	6,240509192	4	**VERY HIGH**
Kalimantan Selatan	5,938418791	5	
Sumatera Utara	3,789861394	6	
Kalimantan Timur	3,316532584	7	
Sulawesi Selatan	3,245452489	8	

Kalimantan Tengah	3,129139608	9	
Sumatera Barat	2,998287616	10	
Lampung	2,991825789	11	
Sumatera Selatan	2,775354593	12	
Kepulauan Bangka Belitung	2,734968176	13	**HIGH**
Aceh	2,589577073	14	
Banten	2,053245452	15	
Kalimantan Barat	1,961164421	16	
Riau	1,86423702	17	
Sulawesi Tenggara	1,810926949	18	
DKI Jakarta	1,786695099	19	
Sulawesi Tengah	1,526606572	20	
Bali	1,449064651	21	
Kepulauan Riau	1,16635973	22	**ENOUGH**
Jambi	1,155051533	23	
Maluku Utara	1,080740525	24	
Maluku	1,064585958	25	
DI Yogyakarta	0,764111014	26	
Nusa Tenggara Timur	0,760880101	27	
Gorontalo	0,680107266	28	
Bengkulu	0,626797196	29	
Sulawesi Barat	0,523407967	30	**LOW**
Sulawesi Utara	0,512099771	31	
Papua	0,470097897	32	
Papua Barat	0,23908759	33	
Kalimantan Utara	0	34	

(Source: Data Processing Results)

Table 4 above shows that East Java Province is ranked 1st for the competitiveness of facilities and infrastructure with a final score of 14.34. East Java Province is in the first quartile which means it has a very high level of competitiveness. Based on the Ministry of Maritime Affairs and Fisheries (2018), East Java Province has facilities and infrastructure including 8,881 Fish Processing Units (UPI) and production in 2017 in East Java Province was 1,216,999 tons. This shows that East Java Province is a superior and potential province in fishery processing industry activities supported by high enough facilities and infrastructure so that it can optimize the use of existing facilities and infrastructure. Central Java Province was ranked 2nd in the competitiveness of facilities and infrastructure indicators with a final score of 13.93. Based on the Ministry of Maritime Affairs and Fisheries (2018), Central Java Province has facilities and infrastructure including 8,628 Fish Processing Units (UPI) and production in 2017 in Central Java Province was 1,017,345 tons. West Java Province is ranked 3rd in Indonesia's competitiveness with a final score of 10.46. Based on the Ministry of Maritime Affairs and Fisheries (2018), West Java Province has facilities and infrastructure including 6,481 Fish Processing Units (UPI).

The provinces that occupy the two lowest ranks are West Papua and North Kalimantan. The province is in the fourth quartile, which means it has a low level of production

competitiveness, and North Kalimantan Province is a province that was only established in 2013.

The competitiveness of facilities and infrastructure indicators is highly volatile as shown in the following graph (Figure 3).

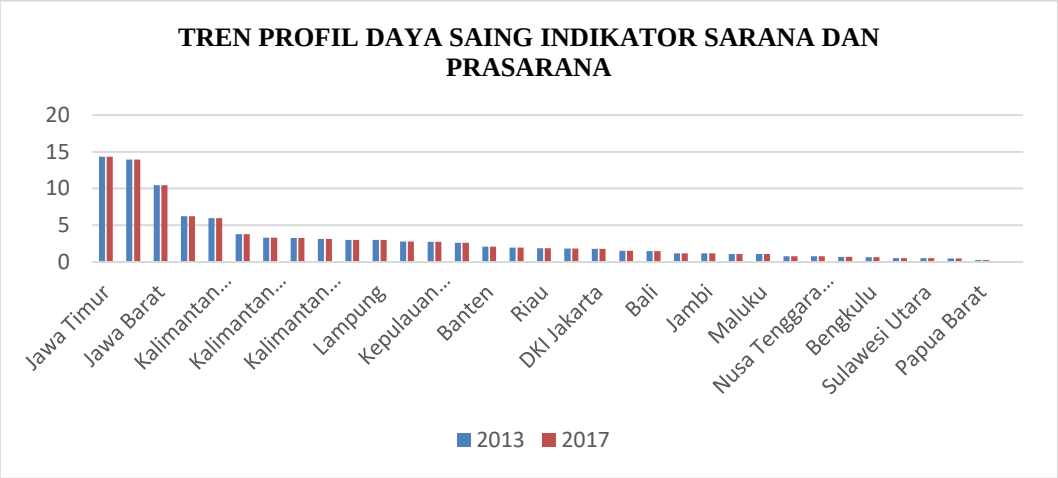

Figure 3. Trends in the Competitiveness Profile of Facilities and Infrastructure Indicators

The graph above shows that all provinces in Indonesia did not experience an increase in the final score because the availability of data showed no improvement in the indicators of facilities and infrastructure in each province in Indonesia.

3.4.3 Competitiveness Based on Science and Technology Indicators

Competitiveness data that has been calculated, the final value of the main indicators from science and technology shows the province's ranking and category of competitiveness. The ranking of the provinces in Indonesia in the science and technology of the fisheries processing industry in Indonesia can be seen in Table 5.

Table 5. Competitiveness Ranking of Provinces in Indonesia Based on Science and Technology Indicators

PROVINCE	SCIENCE AND TECHNOLOGY VALUE	RANK	COMPETITIVENESS CATEGORY
Jawa Timur	29,72658484	1	
DKI Jakarta	27,45073899	2	
Sulawesi Selatan	8,522648358	3	
Sumatera Utara	7,306159984	4	**VERY HIGH**
Jawa Tengah	3,802592331	5	
Banten	3,553921569	6	
Jawa Barat	2,825859544	7	
Kepulauan Riau	2,497205279	8	
Lampung	2,322621775	9	
Bali	1,881207464	10	
Sulawesi Utara	1,702502045	11	
Kalimantan Utara	1,002099915	12	
Nusa Tenggara Barat	0,981700942	13	**HIGH**
Sumatera Selatan	0,834525226	14	

Nusa Tenggara Timur	0,623863758	15	
Maluku	0,622346486	16	
Papua Barat	0,617285097	17	
Kepulauan Bangka Belitung	0,54424065	18	
Sulawesi Tengah	0,370474768	19	
Kalimantan Selatan	0,367767994	20	
Jambi	0,367647059	21	**ENOUGH**
Riau	0,321263735	22	
Kalimantan Barat	0,319890298	23	
Kalimantan Timur	0,277022043	24	
Sulawesi Tenggara	0,253537864	25	
Sumatera Barat	0,250416429	26	
Gorontalo	0,245098039	27	
DI Yogyakarta	0,15156337	28	
Aceh	0,13370453	29	
Maluku Utara	0,12254902	30	**LOW**
Papua	0,000727494	31	
Kalimantan Tengah	0,000233108	32	
Bengkulu	0	33	
Sulawesi Barat	0	34	

(Source: Data Processing Results)

Table 5 above shows that East Java Province is ranked 1st in science and technology competitiveness with a final score of 29.72. East Java Province is in the first quartile, which means it has a very high level of competitiveness. East Java Province has science and technology, including Fish Processing Units (UPI) with processing feasibility certificates (SKP) as many as 40, export volumes of 381,046 tons, and export value of 1,765,668 US$. This shows that East Java Province is a province that has superior and potential in fishery processing industry activities supported by relatively high science and technology. DKI Jakarta Province is ranked 2nd in the competitiveness of science and technology indicators with a final score of 27.45. DKI Jakarta Province has science and technology including, Fish Processing Units (UPI) with processing feasibility certificates (SKP) as many as 26, export volumes of 401,877 tons, and export value of 1,608,629 US$. South Sulawesi Province is ranked 3rd in Indonesia's competitiveness with a final score of 8.52. South Sulawesi Province has science and technology including Fish Processing Units (UPI) with processing feasibility certificates (SKP) as many as 29, export volumes of 114,088 tons, and export value of US$ 195,079.

Provinces that occupy the two lowest ranks are Bengkulu and West Sulawesi. The province is in the fourth quartile, which means it has a low level of production competitiveness.

The competitiveness of science and technology indicators is highly volatile as shown in the following graph (Figure 4).

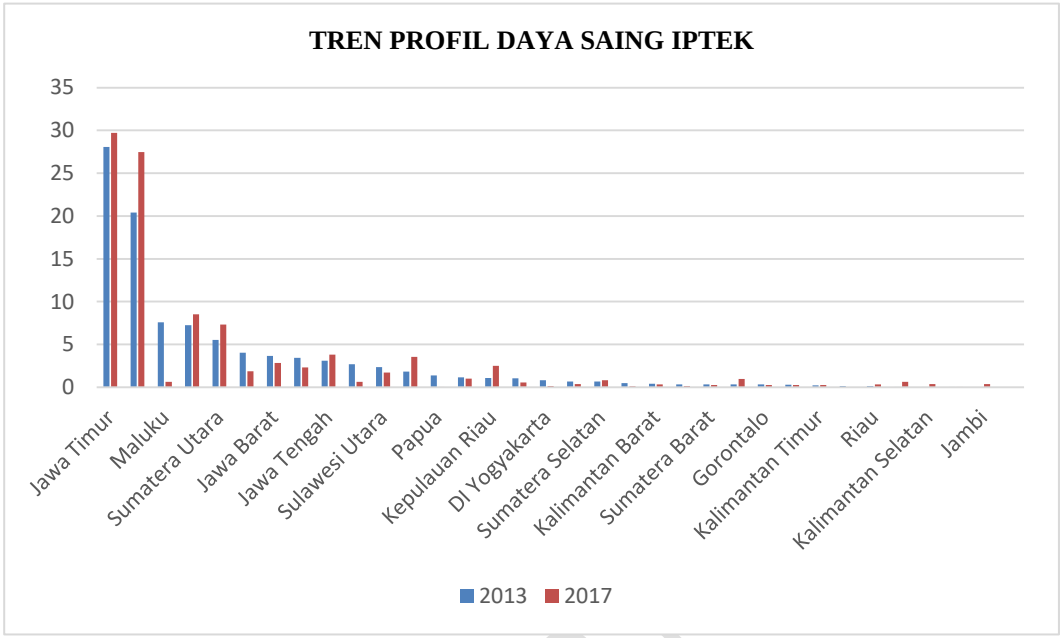

Figure 4. Trends in the Competitiveness Profile of Science and Technology Indicators

The graph above shows that DKI Jakarta Province experienced a significant increase in the final score in 2013 from 20.38 to 27.45 in 2017. Another province that experienced an increase in the final score, namely East Java Province, in 2013 had a final score of 28. .08 and increased to 29.72 in 2017.

The province that experienced a significant decrease in the final score was the Province of Java and Maluku; in 2013, it had a final value of 7.58 and decreased to 0.62 in 2017. Another province that experienced a decline in the final score was the Province of Bali, in 2013 it had a value of final value of 4.02 and decreased to 1.88 in 2017, and West Papua Province experienced a decrease in final value in 2013 of 2.68 to 0.61 in 2017.

4. CONCLUSION

Based on the results of research that has been carried out, the following conclusions are obtained:

The very high competitiveness of the fisheries processing industry in Indonesia is obtained by the Province of East Java, DKI Jakarta Province, Central Java Province, South Sulawesi Province, North Sumatra Province, West Java Province, Banten Province, Lampung Province, and South Kalimantan Province. East Java Province was ranked first with a final score of 24.64, excelling in all major indicators. DKI Jakarta Province is in second place with a final score of 17.7, which is superior in the main indicators of science and technology. Central Java Province is in third place with a final score of 8.36 superior in Production and Facilities and Infrastructure indicators.

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