

Value-Added Business Based On Small Scale Of Fisheries: A Case Study On Northern And Southern Coasts Of Java (Lamongan And Pelabuhanratu Regency), Indonesia

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Abstract: The development of fisheries sector is intended to improve the role of creating a strong linkage with other sectors by increasing the value added, absorbing labor forces and increasing people's income so that this can make the economy grow well. The value added is a value that increases due to a commodity that has been processed, transported or stored in a production. Lamongan and Pelabuhanratu regencies are one of fisheries centers on the north and the south coast of Java Island. The aim of this research was to know the value added and the business margin of fisheries from the processing and marketing aspects. The research was carried out in two locations; Northern coast (Lamongan regencies) and Southern coasts (Pelabuhanratu regencies), Indonesia. The data used were primary data; the people involved in the business including fishing, marketing and processing product. The results showed that the process of fisheries product yielded the value added and margin that were created from the incorporation of business benefit, added input contribution/ other input and direct reward for the labor forces. The value added and the business margin of product processing can reach 2 to 3 fold from the main input value. The value added and the business margin of fisheries product processing were very big. This was the source of economy growth there. The effort to develop the business of fisheries product processing in the small scale need to be supported with various programs especially in the market access and funding.

Keywords: main input, business margin, strong linkages, income, value added, small scale fisheries, economy growth.

1 INTRODUCTION

The development of fisheries sector is intended to improve the role of creating a strong linkage with other sectors either forward or backward linkage through increasing the value added, absorbing the labor forces and increasing the income; therefore, this can increase the economy growth through multiplier effects with direct, indirect or induced impact. Not only does the importance of small scale fishing to the local and national economy involve the labor forces created in its sector [1], but it also includes the creation within the other related sectors. This is due to the concept of downstream and upstream linkages. The upstream activity is an activity of giving suggestions or input to fishing sector. There are a lot of inputs that are usually provided by small scale individual or micro business located near the countryside there. Although there are some fishing tools and fuel (produced by a far more professional party either national or international) [2], they are provided locally through local businessmen/ seller. The relationship of forward linkage also happens in the small scale fisheries. The small scale businessmen or companies usually give a lot of inputs to the downstream activity within the local village area. This downstream linkage can drive the local economy. Raw fish material will create selling, income and work locally, and this will keep running and produce multiplier effects during money rotation around the location. The concept of value added and the business margin is considered important especially to know the role of fisheries to increase the local economy through the rotation of value added formed and labor forces as well.

The purpose of this research was to know the business margin and the value added of the fisheries business in Lamongan and Pelabuhanratu locations.

2 RESEARCH METHODE

2.1 Location and Research Time

The research was carried out in northern coast: Complex Weru Village (consisted of four villages; Weru, Waru Lor, Paloh and Sidokumpul), Paciran District, Lamongan Regency and southern coast: the area of archipelago fishing port, Pelabuhanratu. The four villages had fish auction in Weru village. Pelabuhanratu fish auction is the center fish auction in Pelabuhanratu. The research was done from January to April 2014.

2.2. Data and Data Source

The data used were primary and secondary data. The primary data were obtained from the businessmen; fishermen, sellers, processors and fisheries industries especially small scale industries. The secondary data were obtained from PBS, PPN institutions and other sources.

2.3. Data Analysis

One of the concepts that is often used to discuss the processing of fisheries product is value added. This is the value that is added through processing the commodity, transporting or storing in one production. According to [3], there are two ways to count the value added to process and the value added to market. In the process of value added processing, this can be defined as the difference among other products with the cost value of raw material and other inputs in which labor forces were excluded. While the margin is the difference between product and price of raw material. This margin includes production factor components used, i.e. labor forces, other inputs and remuneration of processing businessmen [3]. Factors affecting the value added of

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processing can be categorized into two factors, that is, technical and market factors. Technical factors influencing are production capacity, the number of raw materials used and labor forces. Market factors influencing are output price, labor force wage, the prices of raw materials and other input values except raw materials and labor forces. The information or output obtained from the analysis result of the value added was the number of value added, ratio of value added, margin and remuneration obtained by the owner of production factor [3]. The analysis of value added according to [3] is like the sceme in Figure 1. Figure 1 describes how the form of value added and the margin in fishing business runs. The value added consists of the main raw material value that is added by supporting raw material value and business benefit. While the margin was a value added plus direct labor force. The two concepts depict how huge the number of each component is within the formation of the value added and the business margin.

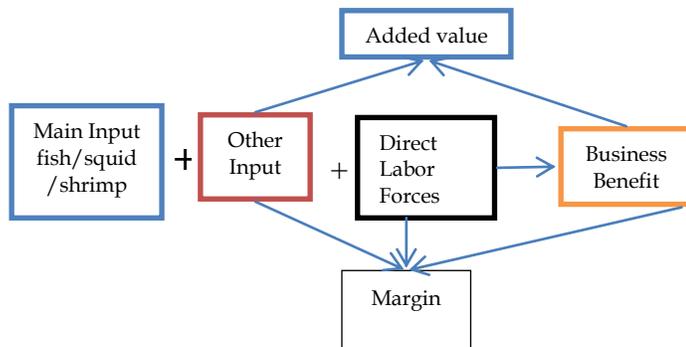


Figure 1. The Concept of Value Added and The Activity Margin of Fisheries Product Processing Business Source: [3]

The number of value added and the margin is determined by other number of added material/ input, direct labor forces and business benefit. If seen from the margin and value added, types of fisheries products show the margin value and different value added. The analysis result of margin value can be found out that there is a remuneration toward the owner of production factors. This showed that to produce value added on fisheries product, every owner of production factor has to give a contribution to create the value added and the remuneration as well. Based on that, the change of raw material value that has been processed can determine the value. Thus, based on the value added that was obtained, margin can be counted and the rewards for production factor can be achieved. The bigger value added on fisheries products can certainly play the role to increase the economy growth. This big economy growth has affected the increase of business field and society income that eventually ends in the society welfare improvement. The number of value added due to the processing itself can be obtained from the raw material cost and other inputs towards the product value yielded except labor forces. In other words, the value added describes the rewards to the labor forces, modal and management. The distribution of value added is associated with technology applied in the processing itself, labor forces quality, such as expertise and skill as well as raw material quality. The application of technology that tends to be labor intensive will give proportion towards the labor forces that are bigger than

the benefit proportion for the company while if the technology of work capital is applied, then the proportion part for the businessman is bigger than that for labor forces. The proportion part must be related to the reward given to the labor forces (in rupiah). The reward given for the labor forces depends on the labor force quality itself, such as expertise and skill. The quality of raw material also influences the distribution of value added if seen from the final products. Were the conversion factor of raw material towards the final product getting smaller, this meant that the raw material quality got bigger. The processing itself can increase the function of commodity form. Consumers who are willing to pay the result output of products with a relatively high price are incentive for processing company.

3 RESULT AND DISCUSSION

The development of fisheries sector was expected to keep the economy growth stable, to absorb more labor forces, to produce high foreign exchange, and the most important thing is to increase the income per capita as well as to give a multiplier effects to the society. The effect of economy from an economy activity is usually performed with input-output analysis approach (I-O) and Computable General Equilibrium (CGE) to know the direct, indirect and induced impacts [4]. The impact of economy in a productive activity, for example fisheries can be grouped into three categories, i.e. direct advantage, indirect advantage, and induced advantage [4]. Direct advantage is triggered from the fishing activity that needs input like labor force/ ship's crew, fuel, ice, clean water, supplies/ ration etc. That input can be obtained from other sector. This can cause indirect advantage. If ship's crew is from local area, the expense of the crew can create induced benefit in that area. Not all the benefits or the impact can be felt by local society. Does the input come from the other area or imported one, the rotation of money can cause indirect benefit then. This is a leakage of benefit. The flow of the money from the fisheries activity to the local society at last creates the impact of economy and economy leakage. Even though it is a little, the empirical studies that try to count the downstream and upstream linkage in small scale fishing in a developing country tend to show that the number of added work is created through the downstream and upstream linkage that is significant enough [5]. Downstream and upstream linkage is stated in Table 1. Generally, the international value chain for economic commodities is important for sellers, such as, tuna, salmon, **skipjack tuna**, shrimp and tilapia, which consist of some nodal with a product that passes over longer to achieve consumers. Whereas some species that is not economically important is important to the sustainability for local food which is part of the shorter value chain [5]. Small scale fishing is very important as a source of livelihood, earning, production and world fish supply. Besides that, small scale fishing provides fish that directly gives contribution to increase the food and nutrition sustainability [6].

TABLE 1.
UPSTREAM AND DOWNSTREAM ACTIVITY ON SMALL SCALE FISHING

No	Upstream Activity: Input	No	Downstream Activity : Processing /Storing; Marketing
1	Investment cost of armada ; design cost and wood construction, fibreglass, steel, machine and other equipment	1.	Investment cost to build the processing and tool facilities (rent land, building etc)
2	Investment cost on fishing tool ; net, life vest, hook, fishing equipment etc.	2.	Variable cost for cutting tool/ knives/cutting board for smoking, ice for fish preservation, box to package and salt to dry
3	Fuel and oil	3.	Transportation cost: from location to the seller, market, retailer, purchasing cost of transportation modal or renting vehicle
4	Ice and fish box	4.	Banking service to the initial modal and operational cost.
5	Food for ship's crew	5.	Labor force to handle to fishing, cutting, cleaning, smoking, drying packaging, product unloading and loading.
6	Bait	6.	Cost of building and tool maintenance, transportation facility.
7	Ship's crew		
8	Banking service (bank interest)		
9	Maintenance Cost (ship, machine, fishing tool)		

Source: [1]

Even though the finding about how the international fish trading influenced the food sustainability in developing countries, there are some concrete evidences that trading can give benefit thoroughly in developing countries. Moreover, with global value chain, this becomes the global economy dominant future at the moment either in developed countries or developing countries. There is a need to complete conventional trade statistic by measuring the value added in each chain of economy value [5]. Some economy experts saw the community poverty in the coastal area especially the fishermen. This was due to economy social factors which related to the characteristics of resource and technology used as well. The factors referred still make the fishermen live in their poverty Subade dan Abdullah (1993) like what [7] referred, he argued that fishermen still live in fisheries industry because of the low opportunity cost. If the opportunity cost is low, fishermen keep doing his job even though it is not beneficial and efficient.

3.1. The Value Added of Small Scale Fishing

Fishery is one of the resources of local economy growth and livelihood of the society that can be felt not only by fishermen but also other parties related to fisheries. Other parties that are in the business chain of fishing like fishermen, seller, processing industry and distribution get the benefit/ share/ margin from it. One of the fishery chains that gets the benefit of it is processing industry in which there is a value added and business margin. The benefit obtained is direct labor forces involved in the fisheries business, the use of additional raw material to the process of processing and the benefit of

business obtained by businessmen. Some products yielded give salary to the labor forces, benefit for the businessmen and added value of raw material usage. The concept of this value added and margin gives the description how the business of fishing can improve the economy growth there. The value added obtained in the product of processing business relates to the technical and economic factors. Technically, the number of books and labor forces used will affect the number of value added. The element of economy affecting the value added is cost/ input price and output price – the price of processed fisheries products. To count the number of value added value can be indirectly done by counting the margin within the activity of processing business of fisheries product. The total margin value is the combination of values in business benefit, added input support/ other input and rewards that go to the direct labor forces. The basic of measurement used in this research is Rp./kg of raw material, in accordance with the method of value added measurement by [3]. Based on the data analysis and value added measurement using Hayami method (1987), traditionally processed fisheries product in the location of research, Lamongan and Pelabuhanratu, is presented in Table 2. There are some interesting things that can be seen from the value obtained in Table 1. The value added and the business benefit in rupiah currency per kg of main raw material are really equal to the benefit obtained. The higher the benefit, the higher the value added is. Margin showed the amount of value added and the wage paid to the labor forces working in every type of processed fisheries products.

Table 2.

Value Added and margin from the processed fisheries products (Rp./kg) of main raw material

No	Regency	Processed products	Base Price of Main Input	Direct labor force	Other Input	Business Benefit	Value Added	Margin
I	Lamongan	Krupuk Cumi	23.000	9.000	50.102	5.347	55.449	64.449
		Krupuk Ikan	4.000	3.750	23.051	8.173	31.224	34.974
		Abon	14.000	3.450	8.322	15.543	23.845	27.864
		Pindang	14.000	2.250	6.034	5.056	11.091	13.341
II	Pelabuhanratu	Pindang	14.000	2.850	7.284	2.606	9.891	12.741
		Abon	12.500	3.300	6.322	19.343	25.644	28.964
		Baso/Nugget dll	15.000	3.750	28.426	18.798	47.224	50.974
		Ikan bakar	30.000	5.000	7.909	26.681	34.591	39.591

Source. Primary data analysis

The amount of value added and margin is determined by the technology and additional input value. The more modern industry has the component of added value in higher direct labor force. Meanwhile the scale industry of household with technology whose added value is relative small absorbs more labor forces. The benefit of business is also determined by the level of technology used. The higher the technology used, the higher the benefit of raw material business will be.

3.2. The system of loading chain and value chain

Lamongan regency is one of the biggest fisheries product manufacturers in East Java. Its share reaches almost 17% from the total production in East Java. The main fishing outcome is small pelagic and demersal fish (**sulphur goat fish (kuniran), red belly yellow fusillier (ekor kuning), deep body sardinella (tembang) and indian scard (layang)**). Mostly, the fish caught by fishermen is processed by some industries in Lamongan regency either big or small scale,

middle or big scale. To describe how the business of processed fisheries products can be seen from the supply and value system. The chain system of fisheries commodity in Lamongan describes how the fisheries products are distributed until the last consumers. The fish has the supply chain path that is different. The supply chain system from the fisheries commodity in Lamongan can be described as seen in figure 2. Supply chain like figure 2 is the general condition of fish commodity supply chain in Lamongan. In detail, every fish has a variation of supply and value chain. The fish caught is mostly sold to the traders, and then the traders sell to the company, manufacturer or retailer.

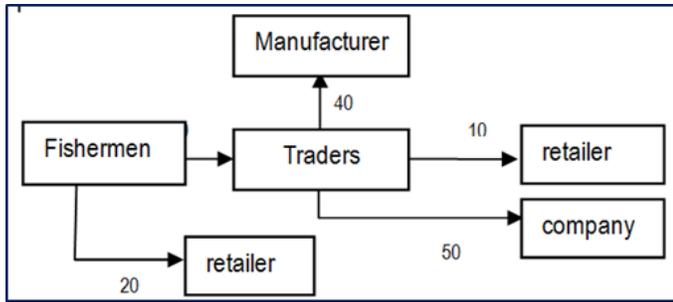


Fig 2 Fish commodity supply chain in Lamongan

Generally, there are four fish supply chain channel in Lamongan. Some channels from the fishermen can either direct or indirect selling to retailers and traders before they sell to the industry businessmen or retailer traders. The system of fish marketing supply chain in Lamongan is as follows:

- Channel 1: fishermen – retailers
- Channel 2: fishermen – traders – retailers
- Channel 3: fishermen – traders – company
- Channel 4: fishermen – traders – manufacturer

In this marketing supply chain system, fishermen sell their caught fish mostly to the traders and the rest is sold to the retailers. 80% of the fish is sold to the traders, and 20% of fish – the rest, is sold to the retailers. In channel 1, the retailers sell their fish around the port near the fish auction. The retailers sell their fish in a small quantity around the fish auction because the fish will be bought by other retailers in the nearby markets. In channel 2, 80% of the caught fish is sold to the traders. The traders are fish traders buying fish in a big quantity and they will supply the fish to some places. In this channel 2, the 10 of fish is sold to the retailers by the traders. This number is considered small because the traders tend to sell their fish to the companies or manufacturers. This is due to the price of the fish is higher; furthermore, they have a strong buying power. In other words, the traders sell their fish to the retailers if the market price offered by the retailers is higher than that offered by the companies inspite of the small capacity. In contrast, in channel 3, the fishermen sell their caught fish to the traders and companies. 50% of the fish is sold to the companies by the traders. This is because the companies are able to buy the raw material from the traders in a big capacity and high price. The price of **indian scard (layang)** fish determined by the companies is usually fixed price. This is different from the price offered by the retailer in the local markets, not fixed price; therefore, the traders tend to send their fish to the companies. The price of fish in the market depends on the fish fishermen get. If they can get an abundant fish, the price will be low. On

the contrary, if the fish caught is abundant, the price of fish is low, and vice versa. On channel 4, the fish supply chain comes from the fisherman to the traders and fish manufacturer. The percentage of **indian scard (layang)** fish is from the traders to the fish manufacturers of 35%. Indian scard (layang) fish sent to the manufacturers is in a big quantity that is not accepted by a company so that they are sent to the manufacturers. Fish that are not accepted by a company can be caused by some factors, i.e. the company has already had a lot of raw material or the fish are not categorized into the standar of the company. If the price given to the manufacturers is higher, the traders will send the fish to the manufacturers. They usually make a big quantity of production everyday in Lamongan area. The processed fish will be sold to some towns, like Surabaya, Sidorajo, Tuban, and Madiun. The first marketing chain of fish commodity caught by the fishermen is fishermen to the retailer, the second chain is fishermen to the traders and then the retailer, the third chain is fishermen to the traders and then to the manufacturers and the fourth is fishermen to the traders and then to the local company (Table 3). Table 3 describes the first chain on the fish commodity, that is, the fish caught are directly sold to the retailers. The figure can be seen the value added (facVA) on each doer. The number of VA obtained from the fishermen is Rp. 5.853 per Kg. Whereas, the value of VA obtained from the retailers is Rp. 1.261 per Kg. From the chain, it can be seen that fishermen have VA that is bigger compared to the retailers. The difference can be seen from the number of fish caught and sold by the fishermen. Therefore, the expense cost on the chain also influences the value of VA obtained from each supply. The cost ejected by each doer is Rp. 1.088 (retailers), while the fishermen is Rp. 5.448 per kg.

TABLE 3. VALUE ADDED ANALYSIS OF FISH COMMODITY FROM FISHERMEN TO RETAILERS IN LAMONGAN

Explanation	Businessmen			Total
	Fishermen	Traders	Retailers	
Expenses	4.448	-	1.082	-
- Operational				
- Ration				
- Labor				
- Others				
Selling price	10.300	-	12.500	
VA	5.853	-	1.261	7.114

Source: Primary data analysis

The most expense ejected by the fishermen is for operational expense in the sea, like fuel expense (gasoline, kerosene and etc.). Meanwhile the other expense ejected is for the ration and operational cost on land. The cost ejected to the retailers is operational cost, other cost like market and ice retribution. Furthermore, the retailers also spent expense for labor forces, like those who helped carry some good. Table 4 describes the market chain in Lamongan, in which fish are from the fishermen that are taken to the traders and then they are sold to raitalers. In this chain, the value of VA is Rp. 8.710 per Kg. The detail value of fishermen VA is Rp. 4.680 per Kg, the value of VA of traders is Rp. 1.850, and the VA of the retailers is Rp. 2.175 per Kg. The number of expense ejected by the fishermen is Rp. 5.315 per Kg. For fish caught with the biggest expense ejected, it is for operational in the sea and ration expense. After that, the fish are sold to the traders. The expense ejected by the traders is about Rp. 650 per Kg. This expense is then used for operational cost (transportation) and

other expenses. The traders buy the fish directly from the fishermen, so that the most expense spent by the traders is for operational boat cost.

TABLE 4.

VALUE ADDED ANALYSIS COMMODITY OF FISH FROM THE FISHERMEN TO THE TRADERS AND RETAILERS IN LAMONGAN

Explanation	Businessmen			
	Fishermen	Traders	Retailers	
Expenses	5.815	650	325	-
- Operational				
- Ration				
- Labor				
- Others				
Selling price	10.000	12.500	15.000	
VA	4.685	1.850	2.175	8.710

Source: Primary data analysis

Table 4 describes the chain of fish commodity marketing in Lamongan. Fishermen usually sell their fish to the traders and then they sell to a company. In this chain, the traders usually has incorporated with a company, in which all the **indian scard (layang)** fish commodity is given entirely to a company. The Value added of fish commodity is from the fishermen to the company (Table 4). The total value added in this chain is Rp. 16.395 per Kg. The value of VA obtained by the fishermen is Rp. 6.515 per Kg or 39,74% and the VA obtained by the traders is Rp. 1.715 per Kg or 10,46%. While the value of VA obtained by the company is Rp. 8.165 per Kg or 49,80% from the total value of VA in this chain. Table 5 illustrates the value of VA obtained by a company that is bigger than that obtained by the chain of fishermen and traders.

TABLE 5

VALUE ADDED ANALYSIS COMMODITY OF FISH FROM THE FISHERMEN TO THE TRADERS AND RETAILERS IN LAMONGAN

Explanation	Businessmen			
	Fishermen	Traders	Retailers	Companies
Expenses	2.485	285	-	835
- Operational				
- Ration				
- Labor				
- Others				
Selling price	9.000	11.000	-	20.000
VA	6.515	1.715	-	8.165

Sources: Primary data analysis

The difference is due to some factors, i.e. the difference of selling-buying price in the markets of each chain and the number of production yielded by the company that is bigger than that in other chains. This can be seen from the selling price of every commodity chain, the selling price from the fishermen to the traders, that is Rp. 9.000 per Kg, the traders to the company, that is Rp. 11.000 per Kg, and the selling price offered to consumers by a company is like the poultry company and feed company with the price of Rp. 20.000 per Kg. Moreover, the expense of each chain also affects the value of VA obtained in each supply. The production of fish caught in Pelabuhanratu was dominated by **Tuna Long tail tuna (tongkol)** and **Skipjack tuna (TTC)** commodity, and some is small **pelagis** commodity. The system of supply chain illustrates the flow of commodity from the fish that landed until

they arrive to the consumers. The system of supply chain of tuna fishermen can be studied from figure 3.

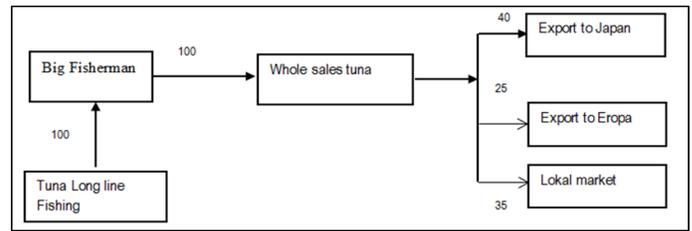


Figure 3 Supply chain of Tuna Commodity (%) in Pelabuhanratu

The system of supply chain of tuna commodity can be said that it is very short. This relates to the high price of fresh tuna and the requirements of fresh fish quality determined by buyers in export market. The figure 3 shows that the whole tuna fish from the fishermen that belongs to grade A (according to the PPN fishermen in Pelabuhan Ratu) are sold to the big fishermen. Big fishermen are fishery companies that have big armada for tuna fishing and logistic armada to supply the need of the tuna armada and tuna traders. The big fishermen have double functions – selling the fish caught alone and storing the tuna to other fishermen and supplying the need of tuna armada. Fish with grades A, B+, B- and C exported to America, Amsterdam, Spanyol and Asean continent must be processed first into **loin, saku saku, steak and fillet**. Other remaining fish are called **tetelan** fish from the remaining fish with CO gas and fish reject. This type of Tuna fish is sold with various prices. The market chain of this market fish in Pelabuhanratu is relatively short, the role of industry is very strong in which big companies invest their modal and manage the system from downstream to upstream. The big companies have big armada by themselves. The benefit of the business is mostly enjoyed by the big industries, and local businessmen only enjoy small part of the benefit. Fish from fishermen in Pelabuhanratu are brought to the fish auction to sell. Fish from outside the area are like **long tail tuna (tongkol), skipjack tuna** and others. Usually the fish are directly sold to the big traders in Pelabuhan Ratu. Fish accepted by the big traders are then bought by the retailers and processors as well. The fish are then sliced into **pindang** and bought by the fish manufacturers/ **pemindang** (Figure 4). The analysis of VA of long tail tuna (tongkol) and skipjack tuna commodity consists of two chains, i.e. VCA of long tail tuna (tongkol) from the retailers and manufacturers. The explanation below will discuss the retailers and manufacturers. The development of **skipjack tuna** and **long tail tuna (tongkol)** as industrial products in Pelabuhan Ratu depends on the supply outside Pelabuhan Ratu, especially from Muara Baru.

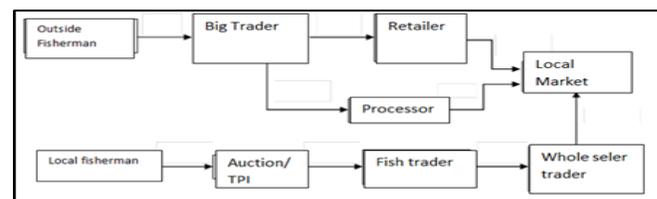


Fig 4 Supply chain Commodity long tail tuna (tongkol), Skipjack tuna (Cakalang) and other in Pelabuhan Ratu

The expensive price of **long tail tuna (tongkol)** will threaten the **pindang** industry in Pelabuhan Ratu; moreover, at this moment, the central production of **pindang** is mushrooming in Bogor. The total Value added obtained from the market chain in Pelabuhanratu can be seen in Table 6.

TABLE 6
VALUE ADDED ANALYSIS OF COMMODITY FROM FISHERMEN TO THE TRADERS AND EXPORTED TO PELABUHANRATU

Explanation	Businessmen			
	Fishermen	Traders	Retailers	Companies
Expenses	4.500	500	250	1.200
- Operational				
- Ration				
- Labor				
- Others				
Selling price	10.500	13.000	14.500-	16.000
VA	6.000	1.500	1.250	1.800

Source : Primary data analysis

4. CONCLUSION

The value added and the margin of a business are very important in fisheriers industry. The value added and the business margin of processing can reach 2-3 times of the main input value. The value added and the business margin in Lamongan are mostly enjoyed by local businessmen. While in Pelabuhan ratu the value added and the business margin are a lot enjoyed by financier from other areas. The effort to improve the value added and the business margin can be done by improving the processing business capacity, the product diversification, the market creation in Indonesian and the chance for exporting as well.

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