

SUPPLY CHAIN ANALYSIS OF BEEF IN KUPANG CITY

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ABSTRACT

The agricultural sector is one sector that plays a role in economic development in Indonesia. One of the sub-sectors in agriculture is the livestock sub-sector where the activities are in the form of livestock commodity management. In fulfilling consumer demand, the form of regulation in the meat supply chain also aims to benefit the links involved. Therefore, there is a need for approach to the supply chain system in the form of an approach to find out the product flow, financial flow, information flow, because this will affect the decision making of the existing chain. The snowball sampling technique was used for sampling the links involved in the beef supply chain in Kupang City. The method used in this research is to use the survey method. The survey phase was carried out to collect primary and secondary data. Primary data was obtained through interviews and filling out questionnaires by respondents. Secondary data was obtained from the relevant agencies in this study, namely the Kupang City RPH and other related sources. There are 3 results in this study, including 1) Product Flow Based.2) Financial Flow based on 3) Information Flow

KEYWORDS



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INTRODUCTION

The agricultural sector is one of the sector that plays a role in economic development in Indonesia. The importance of agriculture in the national economy level is not only measured by its contribution to GDP growth (national income), employment opportunities, sources of foreign exchange, but its potential is also seen as a driving force for output growth and production diversification in other economic sectors. Therefore, the agricultural sector is used as the leading sector for other sectors (Tambunan, 2003). One of the sub-sectors in agriculture is the livestock sub-sector where the activities are in the form of livestock commodity management. The results of livestock business can be in the form of milk, meat and

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eggs. Cattle is one of the commodities in the livestock sub-sector. Cattle have two types, namely beef cattle which produce meat and dairy cattle which produce milk. Beef cattle are livestock that can support the need for meat consumption, because cattle can be raised simply, easily, are liked by many people and their bodies are quite large when compared to other livestock. Beef has an advantage as a product, namely as a provider of good nutrition (Yulianto & Saparinto, 2010).

The need for beef in Indonesia is currently increasing. In 2022 it is estimated that the demand for beef in Indonesia will increase to almost 706,388 tons or the equivalent of 3.6 million cows. However, domestic beef production is only 415,930 tonnes of beef per year. The high demand for meat needs has made Indonesia dependent on beef imports for almost 50% of demand. Based on the monitoring of the Ministry of Trade (Kemendag) through the Provincial Office which is in charge of trade throughout Indonesia, in 2021 the average national beef price is recorded at IDR 125,600 per kg. Beef cattle breeders say that beef production in the country is not enough to meet the national demand for meat. Although currently the cattle population in Indonesia is showing an increase. The increase in population is not too significant to reduce the shortage of the total national supply of cattle in Indonesia in 2021 of 18.05 million cows. This figure increased from the previous year of 17.44 million cows.

Table. 1
Beef Production in Indonesia

Province	Beef Production by Province (Tons)		
	2019	2020	2021
ACEH	10416.20	12927.76	12943.98
NORTH SUMATRA	14153.16	12986.16	13286.02
WEST SUMATRA	21589.63	20980.53	21431.69
RIAU	8379.10	8737.30	8912.05
JAMBI	5026.46	5543.42	5570.94
SOUTH SUMATRA	11455.31	14358.28	12974.83
BENGKULU	2587.44	3075.23	2752.62
LAMPUNG	14326.19	14930.42	14328.27
KEP. BANGKA BELITUNG	3212.58	2986.10	2994.98
KEP. RIAU	1384.08	2263.10	2321.91
DKI JAKARTA	19194.53	7240.68	7602.69
WEST JAVA	79481.14	80995.58	64425.18
CENTRAL JAVA	66681.14	59952.11	55835.19
IN YOGYAKARTA	7835.21	7355.14	7645.34
EAST JAVA	103291.79	91027.74	93303.43
BANTEN	37328.57	20362.89	20562.15
BALI	8255.84	5068.45	5999.50
WEST NUSA TENGGARA	10202.83	11310.36	13489.27
EAST NUSA TENGGARA	10851.00	7350.55	7365.56
WEST KALIMANTAN	5350.23	4817.31	4837.49

CENTRAL KALIMANTAN	3786.73	3998.77	3800.34
SOUTH KALIMANTAN	6219.69	6687.13	6767.29
EAST KALIMANTAN	7653.63	8350.17	7529.80
NORTH KALIMANTAN	583.07	684.88	707.48
NORTH SULAWESI	3693.68	3491.56	3702.21
CENTRAL SULAWESI	4790.41	4255.53	4315.16
SOUTH SULAWESI	17926.13	15596.78	15994.36
SOUTHEAST SULAWESI	4437.75	3720.99	3787.50
GORONTALO	3830.06	2487.34	2672.97
WEST SULAWESI	2115.86	1740.88	1748.11
MALUKU	2201.00	2308.40	2086.00
NORTH MALUKU	959.56	701.12	626.54
WEST PAPUA	1941.93	1650.59	1762.86
PAPUA	3660.38	3475.20	3699.50
INDONESIA	504802.29	453418.44	437783.23

Source: Central Bureau of Statistics (2022)

East Nusa Tenggara as one of the livestock storage areas, makes it always flooded with demand for beef, both fresh and processed from outside the region. The trend of beef consumption is increasing along with public awareness about nutritious food patterns, especially in the midst of a pandemic. During his working visit to the City of Kupang, the Minister of Trade gave special appreciation to the development of stable beef prices, because the price is far below the average price on the island of Java, which is currently in the range of IDR 110,000-IDR 120,000,

Commodity retail prices are highly dependent on the efficiency of distribution activities. The efficiency of commodity distribution activities is strongly influenced by the length of the distribution chain and the size of the profit margin set by each distribution chain. The shorter the distribution chain and the smaller the profit margin, the more efficient the distribution activities are. The price of meat at the retailer or consumer level is largely determined by the cost price (at the producer level), value added costs, transaction costs, profits of the institutions involved and the balance of supply and demand. Distribution of beef that occurs in various slaughterhouses encourages distribution actors such as wholesalers and retailers as intermediaries who deal directly with consumers to carry out marketing strategies in carrying out their activities. In carrying out marketing activities that occurred requires a marketing strategy, namely a number of integrated actions directed at achieving sustainable competitiveness (Kotler & Keller, 2016).

Supply chain management is the further development of product distribution management to meet consumer demands. This concept emphasizes an integrated pattern involving the product flow process from suppliers, manufacturers, retailers to consumers. Supply chain is a concept in which there is a regulatory system related to product flow, information flow and financial flow (Indrajit & Djokopranoto, 2002). This arrangement is important to do due to the many links involved in the beef supply chain and the price is relatively high when compared to

other livestock commodity products. Activities in the supply chain are the process of delivering a product that was originally in the form of live beef cattle into beef ready to be marketed from beef cattle breeders to meat consumers. Internal mistakes in choosing a distribution channel can slow down and even cause congestion in the distribution of goods and services from producers to consumers. The length of the supply chain for livestock products if not managed properly can cause high costs, both for transaction costs, transportation costs, storage costs, packaging costs, damage costs and profits for each actor and so on (Mulyadi, 2016).

The beef supply chain must pay attention to several aspects that can affect the smoothness of the distribution process to the hands of the final consumer. Because in addition for fulfilling consumer demand, the form of regulation in the meat supply chain also aims to benefit the links involved. Therefore there is the need for an approach to the supply chain system in the form of an approach to find out the product flow, financial flow, information flow, because this will affect the decision making of the existing chain. Making the right decision will be beneficial in maintaining the supply and quality of the meat.

Research Purpose

This study aims: (1) To determine product flow, financial flow and information flow in the beef supply chain in Kupang City; (2) To determine the level of marketing efficiency in the beef supply chain in Kupang City; and (3) To find out the added value of the process of slaughtering beef cattle in the City of Kupang.

THEORITICAL REVIEW

Supply Chain

The supply chain is the system through which business organizations distribute goods or services to customers. This chain is also a network of various interconnected organizations, which have the same goal, namely to be as effective and efficient as possible in carrying out the procurement or distribution of these goods or services (Indrajit & Djokopranoto, 2002). The supply chain concept is a new concept in looking at logistics issues. The old concept saw logistics as an internal problem for each company and the solution was focused on solving it internally within each company. In the new concept, logistics problems are seen as a broader problem that stretches very long from basic materials to finished materials used by end consumers, which are the supply chain of goods (Indrajit & Djokopranoto, 2002)

Based on the supply chain concept, there are three stages in the material flow. Raw materials are distributed to manufacturers to form a physical supply system, manufacturers process raw materials, and finished products are distributed to end consumers to form a physical distribution (Maghfiroh, 2010). Raw materials are distributed to suppliers and manufactures who carry out the processing, so that they become finished goods that are ready to be distributed to customers through distributors. Demands from customers are translated by distributors and distributors convey to manufacture, then manufacture conveys this information to suppliers. The supply chain includes the entire interaction between suppliers, manufacturing companies, distributors, and consumers (Siagian, 2005). According to (Maghfiroh, 2010), supply chain mechanisms for agricultural products are naturally formed by

the supply chain actors themselves. In a developing country like Indonesia, the supply chain mechanism for agricultural products is characterized by weak agricultural products and market composition. These two factors will determine the continuity of the supply chain mechanism. Supply chain mechanisms for agricultural products can be traditional or modern. The traditional mechanism is that farmers sell their products directly to the market or through middlemen, and middlemen sell them to traditional markets and supermarkets. Modern supply chain mechanisms are formed by several things, including overcoming the characteristic weaknesses of agricultural products, increasing customer demand for quality products, and expanding existing markets. According to (Simchi-Levi et al., 2009), key issues related to supply chain management consist of distribution network configuration, inventory control, supply contracts, distribution strategy, supply chain integration and strategic partnerships, procurement and outsourcing strategies, product design, information technology and decision support systems as well as customer assessment. Supply chain management is not only carried out so that all parts of the system provide effective overall performance, but also efficiency according to (Chopra & Goel, 2001). The goal to be achieved from each supply chain is to maximize the value generated as a whole. An integrated supply chain will increase the overall value generated by the supply chain. In a supply chain, a network of companies working together to create and deliver a product into the hands of the end user. These companies usually include suppliers, manufacturers, distributors, stores or retailers, as well as support companies such as logistics service companies. Supply chain strategy is a set of activities and strategic actions along the supply chain that end customers require with the capabilities of existing resources in the supply chain (Pujawan & Goyal, 2005). Strategy cannot be separated from long-term goals. It is this goal that is expected to be achieved, to be able to win market competition, the supply chain must be able to provide products that are cheap, of good quality, on time, and varied.

Supply Chain Management

Supply chain management is a system for making a product and delivering it to consumers from a structural point of view (Irgandi et al., 2019). According to (Irgandi et al., 2019) the emergence of supply chain management is motivated by 2 (two) main things, namely: 1. Traditional logistics management practices in the modern era are no longer relevant, because they cannot create competitive advantage 2. Changes in the business environment are increasingly rapid with increasingly fierce competition. The strength of a supply chain depends on the strength of all the elements in it. A healthy and efficient factory will not mean much if the supplier is unable to meet timely deliveries. According to Jebarus in (Yusman et al., 2010), Supply chain management is a further development of product distribution management to meet consumer demand. This concept emphasizes an integrated pattern involving the product flow process from suppliers, manufacturers, retailers to consumers. According to Kalakota in Irgandi (2008), supply chain management is the coordination of materials, information and financial flows between participating companies. Supply chain management can also mean all kinds of basic commodity activities right up to the sale of the final product to consumers to recycle used products, namely: Supply chain management

is the coordination of material, information and financial flows between participating companies. Supply chain management can also mean all kinds of basic commodity activities right up to the sale of the final product to consumers to recycle used products, namely: Supply chain management is the coordination of material, information and financial flows between participating companies. Supply chain management can also mean all kinds of basic commodity activities right up to the sale of the final product to consumers to recycle used products, namely:

- Material flows involve the flow of physical products from suppliers to consumers through the chain, as well as the feedback flows from product returns, service, recycling and disposal.
- Information flows include demand forecasts, order transmission and order status reports, this flow runs both ways between the end consumer and the raw material supplier.
- Financial flows include credit card information, credit terms, payment schedules in assigning ownership and shipping.

According to (Turban, 2012), there are 3 (three) types of supply chain components, namely:

- a. **Upstream Section of the Supply Chain** The upstream portion of the supply chain includes the activities of a manufacturing company with its suppliers (which can be manufactures, assemblers, or both) and their connections to their suppliers (second-tier suppliers). The relationship with the supplier can be expanded to several levels according to the needs and all lines of origin of the material. For example, directly from mining, plantations and others. At the upstream end of the supply chain, procurement is an activity that receives top priority.
- b. **Internal Parts of the Supply Chain** The internal parts of the supply chain include all the processes of getting goods into the warehouse used in transforming input from suppliers into the company's products. In the internal part of the supply chain, the main attention is focused on production management, manufacturing, and inventory control.

The downstream part of the supply chain includes all the activities involved in delivering the product to the final customer. Downstream of the supply chain, attention is paid to distribution, warehousing, transportation and after-sales service.

RESEARCH METHOD

This research was carried out from August to September in Kupang City. The location of the research was determined purposively or purposively (Singarimbun, 2005), namely in the city of Kupang. The choice of location was based on the consideration that the City of Kupang has a slaughterhouse which has a fairly large scale in the number of slaughtered beef cattle which play a role in supplying the meat needs for the people in Kupang City. The snowball sampling technique was used for sampling the links involved in the beef supply chain in Kupang City. The method used in this research is the survey method. The survey method is a research method that is carried out on large and small populations, but the data studied is the data that was taken from samples from that population, so that relative events, distribution, and relationships between variables are found (Sugiyono, 2019). The

survey phase was carried out to collect primary and secondary data. Primary data was obtained through interviews and filling out questionnaires by respondents. Secondary data was obtained from the relevant agencies in this study, namely the Kupang City slaughterhouse (RPH) and other related sources.

Data Analysis

The descriptive analysis was carried out to provide an overview (description) of product flows, financial flows and information flows so that the data presented is easy to understand and informative for those who read it. According to (Sekaran et al., 2003) the descriptive method is carried out to find out and be able to explain the characteristics of the variables studied in a situation, whereas according to (Sugiyono, 2011) the descriptive method is a method used to describe or analyze a research result but is not used to make more large conclusions. Marketing efficiency analysis is used to determine marketing efficiency, which can be seen based on the marketing margin distribution value and share value in the beef supply chain. Tests can be carried out using marketing efficiency analysis, marketing margin analysis and margin distribution.

This research is focused on knowing the beef supply chain in Kupang City. The data analysis method used in this research is a quantitative descriptive analysis method. Quantitative descriptive analysis is a type of research that produces findings that can be achieved (obtained) using statistical procedures or other methods of quantification (Sujarweni, 2014). Beef marketing efficiency is analyzed quantitatively using marketing margins. According to (Sugiyono, 2019) marketing margin can be interpreted as an analysis of the difference between the price at the producer level (purchasing price) and the final consumer level (selling price) of beef.

Mathematically, the marketing margin is formulated as follows:

$$M_i = P_{si} - P_{bi}$$

Where:

M_i : Marketing margin at the i -th marketing agency level

P_{si} : Market selling price at level i marketing agency

P_{bi} : Market purchase price at the i -level marketing agency

According to Soekartawi 2002 as for calculating marketing efficiency in the research area as follows:

$$Efficiency = \frac{Marketing\ Costs}{Final\ Product\ Value} \times 100\%$$

So if the value of marketing efficiency is $< 50\%$ then marketing is efficient, if the value of marketing efficiency is $> 50\%$ then marketing is not efficient, and if the value of marketing efficiency = 50% then marketing is efficient.

RESULTS AND DISCUSSION

The pattern of flow in the beef supply chain shows that there are three flows in the pattern, namely in the form of product flow, financial flow and information flow. The product flow flows from upstream to downstream, from the butcher to the beef consumer. Financial flows flow from downstream to upstream, namely from the final consumer of beef to the butcher. The flow of information flows in

the chain reciprocally. This is in accordance with previous research conducted by (Emhar et al., 2014) in Jember Regency that the beef supply chain has 3 streams namely product flow, financial flow and information flow. The product flow flows from the breeders to the final consumer of beef. Financial flows flow from the final consumer of beef to the breeder, while the flow of information flows in two directions from the breeder to the final consumer of beef. The supply chain is the system through which business organizations distribute goods or services to customers. This chain is also a network of various interconnected organizations, which have the same goal, namely to be as effective and efficient as possible in carrying out the procurement or distribution of these goods or services (Indrajit, 2002).

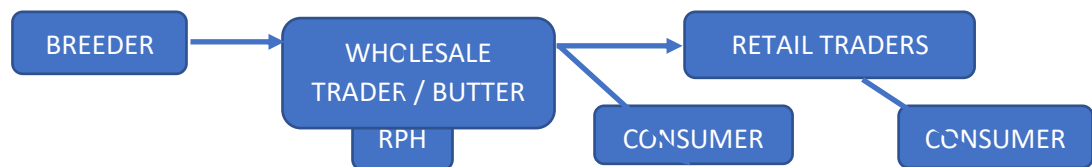


Figure 1
Beef Supply Chain in Kupang City

Product Flow

Based on the research results, it is known that there are 2 channel patterns in the product flow. The channel patterns formed are: (1) breeders - wholesalers/butchers - retailers - end consumers; (2) breeders - wholesalers/butchers - end consumers. In accordance with the statement of Wibawa et al., (2015) that product flow flows from upstream to downstream. Channel 1, product flow in channel 1 starts from the wholesaler/butcher as the main ingredient provider, then the butcher slaughters the cattle through the RPH, an average of 2-5 cows depending on market demand. Then the RPH performs its functions such as monitoring and inspecting the beef that is slaughtered every morning. Furthermore, beef is distributed by wholesalers/butchers to consumers through retailers in traditional markets. The average total volume of fresh beef supplied by wholesalers/butchers from slaughterhouses in Kupang City is around 800-1500 kg each day. Retailers buy directly from wholesalers/butchers in Kupang City with an average purchase volume of 20-30 kg per day. Channel 2, RPH and wholesalers/butchers perform their functions as in channel 1. Channel 2 is distinguished from wholesalers/butchers who distribute to consumers consisting of hotels, restaurants, hospitals according to the quantity ordered. Consumers at this level buy directly from butchers with an average purchase of 20-40 kg. Retailers buy directly from wholesalers/butchers in Kupang City with an average purchase volume of 20-30 kg per day. Channel 2, RPH and wholesalers/butchers perform their functions as in channel 1. Channel 2 is distinguished from wholesalers/butchers who distribute to consumers consisting of hotels, restaurants, hospitals according to the quantity ordered. Consumers at this level buy directly from butchers with an average purchase of 20-40 kg. Retailers buy directly from wholesalers/butchers in Kupang City with an average purchase volume of 20-30 kg per day. Channel 2, RPH and wholesalers/butchers perform their functions as in

channel 1. Channel 2 is distinguished from wholesalers/butchers who distribute to consumers consisting of hotels, restaurants, hospitals according to the quantity ordered. Consumers at this level buy directly from butchers with an average purchase of 20-40 kg.

Financial Flow

Based on the research results, it is known that there are 2 channel patterns in financial flows. The channel patterns formed are (a) consumers - retailers - wholesalers/butchers - slaughterhouses - breeders; (b) consumers - wholesalers/butchers - RPH - breeders. In accordance with the statement of Wibawa et al. (2015) that financial flows flow from downstream to upstream. The results of research conducted by Emhar et al. (2014) found that financial flows flowed from wholesalers/butchers to slaughterhouses regarding the cost of cutting fees, from retailers to wholesalers/butchers and from consumers to retailers regarding the type of payment and method of payment. The flow of finance in channel a, money flows from consumers then retailers, wholesalers/butchers and finally to slaughterhouses. A payment system is made by parties that involved in the supply chain by paying cash. Retailers in traditional markets and vegetable stalls buy beef from butchers at an average price of Rp. 100,000 per kg and resell to final consumers at an average price of Rp. 110,000/per kg. The flow of finance on channel b, money flows from consumers to wholesalers/butchers and finally to slaughterhouses. Consumers buy beef directly from wholesalers/butchers with a cash or credit payment system, namely the consumer makes a 50% down payment with repayment and a grace period according to the agreement. Payment system made by parties involved in the supply chain is by cash. Processing traders buy directly from wholesalers/butchers at a price of IDR 100,000 per kg.

Information Flow

The flow of information that occurs in all channels runs in both directions from downstream to upstream and upstream to downstream (Wibawa et al., 2015). The flow of information that runs between beef marketing agencies is information related to suppliers, beef purchasing locations, beef quality, beef supply quantities, and market prices. Information related to suppliers, beef purchasing locations, beef quality, beef stock quantity flows between slaughterhouses and butchers as beef producers, while information regarding market prices flows from retailers in traditional markets and processed meat traders to wholesalers/butchers and vice versa.

Supply Chain Analysis in Kupang City

1. Supply Chain Flow I

In this first supply chain, from the slaughterhouse there are wholesalers/butchers who directly sell the beef to retailers, and from the retailers to sell it back to consumers, as shown in the image below:



Figure 2
Supply Chain I

Wholesalers/butchers put their pets in slaughterhouses to be slaughtered every day. The beef is then sold to retailers, finally to consumers, beef that has been purchased from wholesalers sells to retailers, finally to consumers in the market. Large traders entrust their livestock to the Slaughterhouse (RPH) and are subject to cage rental fees, medical fees and slaughter service fees with a cage rental fee of IDR 5,000/cow/day, medical expenses of IDR. 10,000, -/cow, and a cutting service fee of Rp. 100,000,-/cow. Beef that has been slaughtered is then sold to retailers at a price of IDR 100,000/kg and retailers sell beef to consumers at a price of IDR 110,000/kg.

Table 2
Marketing costs, prices and margins Wholesalers and Retailers of Beef
(Channel 1)

No	Distribution channel	Fees & Prices (Rp/Kg)	Marketing Margin (Rp)	Efficiency (%)
<i>Wholesalers</i>				
1	Purchase price	90,000	10,000	0.05
	Cost	5,000		
	Profit	5,000		
	Selling price	100,000		
Retail Trader				
2	<i>Purchase price</i>	100,000	10,000	0.01818
	Cost	2,000		
	Profit	8,000		
	Selling price	110,000		
Total		420,000	20,000	
Average		52,500	10,000	

Source: Data processed 2022

Meanwhile, the calculation of marketing efficiency aims to see whether the marketing channel is said to be efficient or inefficient. To find out the marketing efficiency of beef in this study, the data has been collected and processed based on calculations and can be seen as follows:

1. Wholesalers

$$Efficiency = \frac{Marketing\ Costs}{Final\ Product\ Value} \times 100\%$$

$$Efficiency = \frac{5.000}{100.0000} \times 100\%$$

$$Efficiency = 0.05$$

2. Retail Trader

$$Efficiency = \frac{Marketing\ Cocts}{Final\ Product\ Value} \times 100\%$$

$$Efficiency = \frac{8.000}{110.0000} \times 100\%$$

$$Efficiency = 0.01818$$

Based on the marketing margin table and the calculation of marketing efficiency, it can be seen that the wholesaler institution level has a marketing margin of 0.05%, while the retailer institution level has a margin of 0.01818%. From the calculation results, the marketing is efficient because it is less than 50%.

2. Supply Chain Flow II

In this second beef supply chain, we can see from the slaughterhouse that wholesalers sell the beef directly to the consumers, as can be seen in the image below:

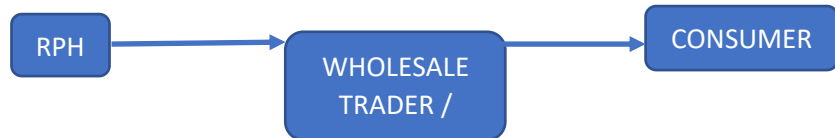


Figure 3
Supply Chain II

In this second supply chain, wholesalers directly sell beef that has been slaughtered at (RPH) to end consumers who have become regular customers at a price of IDR 100,000/kg. The marketing margin table can be seen in the table below:

Table 3.
Costs, prices and marketing margins of Beef Wholesalers (Channel II)

No	Distribution channel	Fees & Prices (Rp/Kg)	Marketing Margin (Rp)	Efficiency (%)
<i>Wholesalers</i>				
1	Purchase price	90,000	10,000	0.05
	Cost	5,000		
	Profit	5,000		
	Selling price	100,000		
Total		200,000	10,000	
Average		50,000	10,000	

Source: Data processed 2022

Meanwhile, the calculation of marketing efficiency aims to see whether the marketing channel is said to be efficient or inefficient. To find out the marketing efficiency of beef in this study, the data has been collected and processed based on calculations and can be seen as follows:

- Wholesalers

$$Efficiency = \frac{Marketing\ Costs}{Final\ Product\ Value} \times 100\%$$

$$Efficiency = \frac{5.000}{100.0000} \times 100\%$$

$$Efficiency = 0.05$$

Based on the marketing margin table and the calculation of marketing efficiency, it can be seen that at the wholesaler institution level, it has a marketing margin of 0.05%, from the calculation results, the marketing is efficient because it is less than 50%.

Added Value in the Process of Slaughtering Beef Cattle in Kupang City

The average value added calculation results in the beef supply chain at the butcher business level can be seen in Table 4.

Table 4

Average Calculation of Value Added at Level Wholesaler/Butcher

No.	Variable	Score
Output, Input and Price		
1	output	
	Sales Volume	
	a. Primary Product (beef)(kg)	110
	b. Side Product (kg) 1)	25
	c. Total sales volume (kg)	135
	d. Total sales value (Rp)	7,800,000
2	a. Value of raw materials (Rp/head)	10,000,000
	b. Raw material volume (kg/head)	187
3	Direct labor (HOK/kg) 1)	2.00
4	conversion factor	1.28
5	Direct labor coefficient (HOK/kg)	0.01
6	Output price (Rp/kg)	100,000
7	Direct labor wages (Rp/HOK)	37,500
	Revenue and Profit (Rp/kg)	
8	Raw material prices (Rp/kg)	53,475.93
9	Other input prices	
	a. Cost of feed (Rp/kg input)	178.25
	b. Transportation costs (Rp/kg input)	534.75
	c. Retribution fee (Rp/kg input)	26,73
	Total price of other inputs (Rp/kg input)	739,73
10	Output value (Rp/kg)	100,000
11	a. Value added (Rp/kg)	45,784.34
	b. Value added ratio (%)	45.78
12	a. Direct labor income (Rp/kg)	401.06
	b. Share of direct labor (%)	0.87
13	a. Profit (Rp/kg)	45,383.28
	b. Profit rate (%)	45,38
	Reply to Owners of Factors of Production	
14	Margin (Rp/kg)	46524.07
	a. Direct labor income (%)	0.86
	b. Contribution of other inputs (%)	1.58
	c. Company profit (%)	97.54

Based on Table 4 regarding the average calculation of added value at the slaughterhouse level shows that conversion factor value of 1.28 where conversion factor is obtained from dividing the output value by the input value for every 1 cow in medium size. Conversion factor of 1.28 has the meaning that every Rp. 1.00 the price of cattle input will produce an output of IDR 1.28 if assessed in rupiah or profits of IDR 0.28. The process of killing 1 alive cow requires 2 HOK with average labor wage IDR 75,000/HOK for work. The price of raw materials is the purchase price of beef cattle shared by the weight of the cow in units rupiahs per kilogram. The average price of beef cattle alive per kilogram of IDR 53,475.93. For support value added activities is required contribution from other inputs with a total cost of Rp739,73 for every kilogram of input (main raw material) is used. The output value of the process for slaughtering a cow is Rp. 100,000. Value added is a change in value happened because of treatment of an input in a production process. Current increase in value added agricultural commodities occur in each supply chain from upstream to downstream starting from breeders and ending with the final consumer. Score added in each supply chain is different depending on the input and treatment by each members of the supply chain (Marimin and Maghfiroh, 2010).

CONCLUSION

The beef supply chain in Kupang City has 3 streams, namely product flow, financial flow and information flow. The product flow flows from the breeder to the final consumer of beef. The financial flow flows from the final consumer of beef to the breeder, while the flow of information flows in two directions from the breeder to the final consumer of beef. The parties that play a dominant role in the beef supply chain in Kupang City are meat entrepreneurs. Based on the research results, there are 2 supply chains Supply Chain I starts from Wholesalers/Butchers then Retailers to Consumers and Supply Chain II starts from Wholesalers/Butchers, to consumers owned by wholesalers. Actors in the beef supply chain from slaughterhouses to final consumers are wholesalers/butchers and retailers. The contribution of supply chain actors, namely in the form of exchange, includes the sales and purchasing functions, the physical function, namely the transportation function and the packaging function, and the facility function, which is the financing function and market information. The role of supply chain actors is as a distributor of beef to consumers in the time, form and place that consumers want. In supply chain I, the value of marketing efficiency for wholesalers is 0.05% and for retailers is 0.018%, in supply chain II, the value of marketing efficiency is 0.05%. Supply chain II is more efficient than supply chain I because the efficiency value of supply chain II is higher small part of the supply chain I

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