

BEEF MARKETING CHANNELS AND EFFICIENCY IN BANYUMAS REGENCY CENTRAL JAVA INDONESIA

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Abstract. The research was conducted in Banyumas Regency, with the objectives of studying 1) beef marketing channels, 2) beef marketing margins, and 3) beef marketing efficiency. To achieve this goal, a survey research method was used, with the research targets being beef cattle wholesalers, beef marketing institutions, and beef consumers. Slaughterhouses (RPH) were selected using a purposive sampling method; they were RPH Purwokerto and RPH Ajibarang. From each RPH, eight beef cattle whole sellers were selected as respondents, from which five retailers were selected. By using the accidental sampling method, two buyers were selected from each retailer. Therefore, there were 96 respondents from each RPH, or 192 in total. The data analysis used included descriptive analysis and marketing analysis, including costs, profits, and marketing margins. The results obtained were that there were two marketing channels, namely: (1) RPH/butcher → wholesalers → stall traders → consumers; (2) RPH/butcher → wholesalers → consumers. The marketing margins were IDR 34,346 and IDR 26,845, and the marketing efficiency was 4.04% and 2.86% in marketing channel 1 and marketing channel 2, respectively. It can be concluded that the beef marketing channel is simple, with quite high marketing efficiency.

Keywords: beef, marketing channels, marketing efficiency, marketing margin

Introduction

With a population of more than 17.6 million heads [1], beef cattle have important roles in Indonesia. The animal provides a source of livelihood and contributes to food production and security. It also serves as a vital component of Indonesia's economy, providing employment opportunities and stimulating economic growth. Additionally, beef cattle production helps meet the increasing demand for meat in Indonesia due to population growth, increasing nutrition awareness, and rising income levels. Moreover, beef production plays a vital role in Indonesia's agricultural sector and economy. It contributes significantly to the country's revenue and food security, while also providing employment opportunities for farmers and boosting rural development [2].

The distribution of beef from producers to consumers requires special processes and actions. These activities are carried out to create, maintain, and increase value and benefits. To reach consumers, beef from farmers usually passes through marketing channels. In Indonesia, the marketing of beef cattle, especially regarding marketing channels, has not been widely regulated by the government and is more controlled by marketing institutions that have a large business scale, such as brokers (*'blantik'*), collecting traders, and butchers [3]. An efficient marketing system is fundamental for steady prices for producers, which are necessary incentives for increased production and supply of goods and services [4]. The long supply chain for agricultural and livestock products, if not managed properly, can cause high costs for transaction costs, transportation costs, storage costs, packaging costs, damage costs, and profits for each actor and others. Therefore, from the marketing side, for the margin portion enjoyed by farmers to be greater, efforts should be made to shorten the existing marketing chain [2].

Banyumas Regency, one of the regencies in Central Java Province, will have a beef cattle population of 16,186 heads in 2023 [5]. Previous studies indicated that the population seems to fluctuate from year to year, but it has a positive improvement trend [6]. Another study concluded that cattle husbandry is an important agricultural activity that contributes to the agricultural sector and plays a vital role in the local economy [7].

During the year, about 2,029,770 kg of beef had been produced in the regency. Distribution of beef cattle from farmers into table meat naturally through a marketing channel. The main chain of marketing involved farmers, slaughterhouses, and meat shops. A better understanding of beef marketing channels and their efficiency would be useful in improving farmers' income as well as affordable meat prices for consumers. By keeping this in mind, this research was focused on studying the existing marketing channels, marketing margins, and beef marketing efficiency in the regency.

Method

A survey method has been applied to the targets of beef cattle slaughterers, beef marketing institutions, and beef consumers. There were 4 slaughterhouses (RPH) in Banyumas Regency, namely RPH Purwokerto, RPH Sokaraja, RPH Ajibarang, and RPH Wangon. Two slaughterhouses were selected using a purposive sampling method, i.e., RPH Purwokerto and RPH Ajibarang. RPH Purwokerto was selected due to its location in Purwokerto City, which is

the biggest city in the regency; consequently, the RPH had the largest number of slaughtered cattle. While RPH Ajibarang is located in the west part of the regency, it has a moderate number of slaughtered cattle. This RPH is considerably a buffer zone for beef marketing.

From each RPH, eight beef cattle whole sellers were selected as respondents, out of which five retailers were selected. By using the accidental sampling method, two buyers were selected from each retailer. Therefore, there were 96 respondents from each RPH, or 192 in total.

The study consisted of two sets of data, namely primary and secondary data. Primary data were gathered from the respondents based on direct observation and interviews, while secondary data were compiled from the Livestock Service Office of Banyumas Regency. Data collected included activities at the selected RPH, the number of beef cattle slaughtered, beef production, and the price of beef at whole-seller and retailer levels. The data obtained were analyzed using descriptive analysis and marketing analysis, including costs, profits, and marketing margins. Beef marketing efficiency is analyzed quantitatively using marketing margins. Marketing margin can be interpreted as an analysis of price differences at the producer level (purchase price) with prices at the final consumer level (selling price) of beef [8].

Mathematically, the marketing margin is formulated as follows:

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

Notes:

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

P_{si} : Market selling price at the i -level marketing institution level

P_{bi} : Market purchasing price at the i -th marketing institution level

To calculate marketing efficiency, the following formula was used:

$$\text{Marketing efficiency} = \frac{\text{marketing costs}}{\text{final product value}} \times 100\%$$

If the marketing efficient value was $\leq 50\%$ then marketing was efficient, if the marketing efficient value was $> 50\%$ then marketing was inefficient [9].

Results and Discussion

A. Beef production in Banyumas Regency

During 2021-2023 the number of beef cattle slaughtered and beef production is presented in Table 1.

Table 1. The number of beef cattle slaughtered and beef production in Banyumas Regency 2021-2023

Item	2021	2022	2023
Number of beef cattle slaughtered (head)	11,943	13,773	15,757
Beef production (kg)	1,767,950	1,841,100	2,029,770

Table 1 indicates that the number of beef cattle slaughtered increased during 2021–2023. Breeds of slaughtered cattle were dominated by local Indonesian breeds such as Bali cattle (*Bos javanicus*), Madura cattle (*Bos madagascariensis*), and Ongolecrosbreed cattle (*Sapi PO*). These breeds are adapted to the tropical climate and are often raised for their meat production. Only a few farmers keep some other breeds of cattle imported from Australia. Most of the cattle were maintained under a traditional intensive system with feeding management using a cut-and-carry system. The majority of beef cattle breeders in Banyumas Regency were small-scale farmers, with three heads of cattle per farmer on average. For many farmers in the regency, the main purpose of keeping beef cattle was for saving. While others had a commercial purpose in which the cattle would be sold during the Islamic feast of sacrifice.

Beef production in Banyumas contributes to food security, rural livelihoods, and economic development in the region. Meat consumption in Banyumas has been increasing over the years. This is due to factors such as economic development and rising incomes, which have led to a greater demand for meat products. Beef is the main ingredient for the most popular beef dishes in the regency called ‘*bakso*’ (meat balls) and ‘*rendang*’ (a spicy beef curry dish that is slow-cooked with coconut milk and a variety of spices).

The slaughterhouse operates every day from 00.30 WIB to 03.30 WIB. After being slaughtered and skinned to become a carcass, the carcass is cut into four parts. Slaughtering 357 heads in August 2023 resulted in carcasses of around 62,475 kg, and in September, 369 heads produced carcasses of around 64,574 kg. Then it is ready to be transported to agents around Banyumas, some even to surrounding regencies.

Slaughterhouse rates, according to Banyumas Regency Regional Regulation No. 20/2022 concerning Business Service Fees in Banyumas Regency, are IDR 48,000 per female cow and IDR 38,000 per male cattle. The rates consist of (i) animal health checks before slaughter/ante mortem of IDR 7,000 per head; (ii) examination of productive females of IDR 10,000 per head; (iii) use of animal house of IDR 5,000 per day; (iv) use of slaughter facilities of IDR 13,000 per

head; and (v) examination of meat and innards/post mortem of Rp. 13,000 per head. The slaughter cost per head is IDR 500,000; therefore, on average, one cow weighing 350 kg costs IDR 2,515 per kg of carcass plus edible ovals (edible parts, including innards) [10].

The supply of beef cattle in Banyumas Regency plays a crucial role in meeting the local demand for meat products. According to the available sources, Banyumas Regency in Indonesia has potential for beef cattle farming based on the availability of natural resources. It is shown that Banyumas Regency has a favorable potential for beef cattle farming, along with other agricultural commodities. Secondary data obtained from various departments and agencies indicates that the potential area for the development of beef cattle farming in Banyumas Regency is significant. Furthermore, the local government suggests some policy strategies for the development of beef cattle in Banyumas Regency. These strategies include optimizing the government program for producing beef cattle calves, providing education and training programs for farmers, utilizing unproductive land for cattle ranching, strengthening farmer institutions, and utilizing livestock markets to increase the selling and demand of beef cattle in Banyumas Regency.

B. Existing marketing channels

Marketing is an exchange process that includes a series of activities to move goods or services from producers to consumers with the aim of creating effective demand, gaining profits, and creating consumer satisfaction [11]. Marketing channels are the route and ownership status taken by a product when the product flows from the raw material provider through the producer to the final consumer. Marketing channels consist of all institutions or intermediary traders who market products, goods, or services from producers to consumers. Throughout the distribution channel, various exchanges of products, payments, ownership, and information occur. Determining marketing channels by producers is very important because it can affect the smoothness of sales, profit levels, models, risks, and so on. Therefore, every producer or company should be able to determine the most appropriate marketing channels. Beef marketing channels in Banyumas Regency are shown in Figure 1.

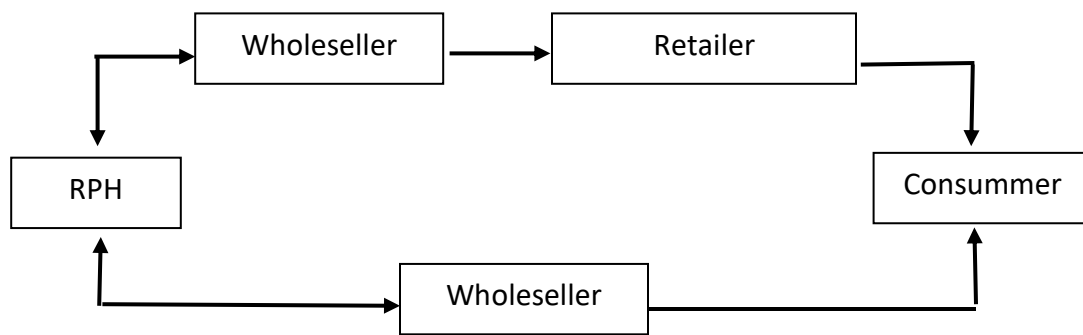


Figure 1. Beef Marketing Channels in Banyumas Regency

The beef marketing channel consists of two distribution channels, namely: (1) wholesalers leave cattle to be slaughtered every day at the Slaughterhouse (RPH) in Banyumas Regency. After being slaughtered, the beef is then sold to retailers, who are found in many markets, and finally sold to meat consumers; (2) meat from slaughterhouses is sold directly to final consumers by wholesalers. Based on operating times, slaughterhouses start operating from 00.30 WIB to 03.30 WIB, wholesalers operate from 04.00 WIB to 07.00 WIB, or no later than 09.00 WIB. Retailers start opening their stalls from 05.00 WIB to 13.00 WIB.

The main problem in marketing agricultural commodities is how efforts should be made so that the services of marketing institutions satisfy farmer producers and consumers of agricultural products, meaning that agricultural products flow from farmer producers to consumers efficiently. A marketing system is said to be efficient if it fulfills two conditions: firstly, it is able to convey results from producers to consumers at the lowest possible cost, and secondly, it is able to provide a fair distribution of the total price paid by final consumers to all parties involved in the production and marketing of the goods.

Beef marketing channels in Banyumas Regency were quite simple and efficient; there were only two marketing channels. These results are in line with another study conducted to study the livestock and beef supply chain in NTT in the 2010–2011 period, which indicated that the marketing flow for livestock and beef was considered quite short with quite efficient marketing margins [12]. A study on supply chain analysis for beef from slaughterhouses to consumers in Surakarta City reported that there were three flows in the beef supply chain in Surakarta City, namely product flow, financial flow, and information flow, running optimally [13].

Marketing institutions involved in beef marketing channels have established high levels of trust among their members, and an association of butchers or beef wholesalers has even been formed in Banyumas Regency. This trust will facilitate beef marketing channels. A case study of supply chain partnerships in the UK beef industry showed the importance of building trust in supply chain partnerships, moving away from the spot trading environment that characterizes commodity markets, and focusing explicitly on value-added initiatives as a source of differentiation and competitive advantage [14]. During this study, it seemed that the involvement of technology is also important to apply to beef marketing channels, particularly in communication between actors in the channel. In the United States, the use of technology applications in the beef industry and supply chain has increased marketing efficiency [15].

C. Wholesellers

Marketing institutions are bodies that carry out trading activities or functions that move goods from the producer to the consumer. So it can be said that all parties involved in implementing the marketing function are part of the marketing institution, whether in the form of groups or individuals. Wholesalers are included in marketing institutions, where, in the marketing process, wholesalers carry out the marketing function, namely the purchasing function, and then carry out the next function, namely the function of selling beef to retailers.

Wholesalers or butchers in this study were owners of live cattle who leave the cattle at the slaughterhouse to be slaughtered every day and distribute them to retailers. The number of wholesalers in Banyumas Regency is 31, but 3 of them are no longer active, so there are 28 butchers who slaughter 1-3 cows every day and are spread across 4 slaughterhouses, namely Purwokerto RPH (9 slaughterers), Sokaraja RPH (7 slaughterhouses), Wangon RPH (8 butchers), and Ajibarang RPH (4 butchers). Every day, 41 cows are slaughtered, around 14 from the Banyumas area and around 27 from outside Banyumas Regency.

Cattle to be slaughtered are kept overnight in the slaughterhouse. The cattle are purchased using the '*jugrukan method*', which involves estimating the live weight and determining the price. On average, a cow with a live weight of 350 kg is valued at around IDR 19,250,000, or the price per kg of live weight is IDR 55,000. After slaughtering, there will be a carcass plus edible ovals (edible parts, including innards), at a price of IDR 108,155 kg. Beef is sold to retailers at a price of IDR 130,000 per kg and IDR 135,000 per kg when sold to final consumers. Wholesalers get margins and marketing profits, as shown in Table 3.

Table 3. Marketing Margins and Profits for Beef Wholesalers

Details	Marketing Channel 1	Marketing Channel 2
Purchase Price (IDR/kg)	108.155	108.155
Selling price (IDR/kg)	130.000	135.000
Marketing Margin (IDR/kg)	21.845	26.845
Slaughter Cost (IDR/kg)	2.515	2.515
Transportation, Packaging and Labor Costs (IDR/kg)	1.346	1.346
Profit Margin (IDR/kg)	17.984	22.984
Marketing Efficiency (%)	2,97	2,86

The profit margin obtained through marketing channel 2 was higher than marketing channel 1. Both marketing channels had high efficiency, namely 2.97% and 2.86%. The existing marketing was efficient because its value was below 50% [9]. A similar finding was also reported in Surakarta City, where the efficiency was efficient with an efficiency value of 0.79% [15]. Setiaji et al. (2017) stated that the Indonesian beef market is very attractive considering that 250 million people live in that country. In a year, around 670 million kg of beef is consumed; 440 million kg was supplied by local production and 230 million was imported [16].

D. Retailers

Retailers are marketing institutions that deal directly with consumers. Retailers are the spearheads of a commercial production process. This means that the continuation of the production process carried out by producers and marketing institutions is very dependent on the activities of retailers in selling products to consumers. Therefore, it is not uncommon for a company to control the production process all the way to the retailer. Marketing costs are all costs incurred on various marketing channels for marketing activities. These costs include packaging costs, risk of damage costs, and transportation costs (IDR/kg).

Retailers or stall traders in this study opened stalls in markets throughout Banyumas Regency. Retailers bought beef from wholesalers at a price of IDR 130,000 per kg, then sold it for IDR 140,000 to IDR 145,000, so they get a marketing margin of between IDR 10,000 and IDR 15,000. Marketing costs incurred by retailers were transportation costs, levy costs, packaging costs, and labor costs, which amount to IDR 1,905 per kg. The profit margin obtained were between IDR 8,095 and IDR 13,095, with marketing efficiency between 1.31% and 1.36%,

so it could be said that marketing was efficient. Research on the efficiency of the beef distribution network in Bogor City reported that the majority of beef traders in Bogor City West Java were retailers, which means that the longest channel is the most widely used channel [17]. The channel with the longest supply chain, involving at least five marketing institutions, has proven to be one of the factors causing the high selling price of beef.

Consumers are all individuals and households who purchase or obtain goods and services for personal consumption. The respondents to the research were consumers who were housewives. Consumers bought between 0.25 kg and 1 kg of meat at prices between IDR 140,000/kg and IDR 145,000/kg. Based on the results of interviews, consumers bought beef to fulfill household animal protein needs. The main consumers of beef sold in wet markets were meatball producers, street vendors, households, and restaurants [18]. Marketing and cutting costs were only a fraction of the market price. It could be concluded that the main beef marketing chain from small-scale producers to consumers in East Java was quite competitive and efficient, with many actors at each stage.

Household-level consumption did not directly reflect the fulfillment of protein from beef. From a national survey, it was found that consumption of processed meat or eating outside the home was higher. The Center for Agricultural Data and Information Systems (2022) states that we differentiate the fresh beef consumption figures from the survey into household beef consumption and total beef consumption (beef equivalent). Beef equivalent consumption is the sum of fresh beef consumption and processed meat consumption, which has been converted to fresh beef. Processed beef includes shredded beef, preserved beef, meatballs, and fried or grilled meat. Over the last five years (2018–2022), household beef consumption has increased by 0.45% per year, or less than the increase in total beef consumption. The ratio of household consumption of beef compared to total consumption of equivalent meat is 19%; this means that meat cooked at home is only around 19%; the remaining 81% of meat is mostly consumed as processed meat or ready-to-eat meat [19].

Conclusion

There were two beef marketing channels in Banyumas Regency, namely: (1) RPH/butcher → wholesalers → stall traders → consumers; (2) RPH/butcher → wholesalers → consumers. The marketing margin for beef in marketing channel 1 was IDR 31,845 and IDR 36,845, while in

marketing channel 2, it was IDR 26,845. Beef marketing efficiency in marketing channel 1 was 4.11% and 3.98%, while in marketing channel 2, it was 4.27% and included efficient marketing.

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