Differences in Dairy Product Supply Chain Partnerships and Independent System

Sitti Nurani Sirajuddin, Hastang, Ilham Rasyid, Hermanto Siregar, Bambang Juanda, Arya Hadi Dharmawan

Received 08 January 2015; accepted 16 February 2015; published 28 February 2015

ABSTRACT

This research aimed to find out the differences in dairy product supply chain partnerships and independent system of dairy farmers in South Sulawesi Province, Indonesia. A purposive sampling and secondary data collection from the Regency, District and Village were conducted September-December 2013 by using descriptive method. The primary data was obtained by direct interviews with the sampled respondents in addition to in-depth interviews using questionnaire surveys while the secondary data was collected from some selected institution. Research location is purposively determined in Sinjai district which is the area of dairy business partner and Enrekang district in which the dairy business is independently system. The result of the research shows that dairy product supply chain partnerships (susin) is longer and inefficient than dairy product supply chain independent (dangke). Therefore, the dairy product business system developed independently and prioritizes more sustainable consumer demand.

KEY WORDS

supply chain; partnership; independent; susin; dangke

INTRODUCTION

Dairy cows commodity is a tool in empowerment because its product characteristic can be harvested every day, allow the breeders to earn sustainable income. The earned income is capable to employ labors, cover the opportunity cost from interest on loans and employ breeders to raise the livestock and manage the business. It cannot be separated from cooperative role that provides development and service to the dairy cow breeder as backbone of the dairy development [15].

Dairy farming is mostly dominated by farms with small-scale holdings from 1 until 3 productive cows. They mostly join the cooperative. Number of breeders is continuously increased from year to year but the image of business never develops. Smith and Rietmuller [12] succeeded formulating some problems of dairy cow industry in Indonesia; include less livestock forage, poor quality of concentrate feed, poor way of feeding, low health livestock, no record production, no intensive counseling and so on.

Based on its business scale, dairy farm in Indonesia is classified to dairy company and local dairy farm. Farm boundary for dairy farm is owned less than 10 adult cattle or total number of dairy cows is less than 20 cows. Dairy company is the company of dairy cow in order to get maximal profit and get business license and use new technology in producing dairy milk with 10 adult cows or more than 20 mixed dairy cows [18].

Effort to increase breeder’s income is not comparable with the effort to increase product but the most important thing is giving guarantee that the product will be always bought by market. Effective and efficient marketing is the key to business success. In marketing activity, breeder as producer will involve marketing...
agency because the producers mostly don’t sell directly to the consumer. Marketing agency contributes to inform the movement of goods and services and cultivate crops/livestock, level 1 process or advanced process. Besides that, marketing agency does the marketing functions; physical function, exchange function, and facility. Functions of each marketing institution differ each other depend on the activity or the business scale [17].

Alternative approach to the marketing is supply chain approach. Marketing approach focuses to analysis of a commodity and supply chain approach emphasizes not only the commodity but also the products. Thus, the value-added process must be seen in the supply chain. Institutional analysis is the main thing in the supply chain approach. Deciding whether to sell farm output or not should also be seen in the context of solving an optimization problem. Not only do ceasing milk sales reduce the number of available income sources, it is also likely to result in a need to find an alternative to top-up the household budget. Again, given the heterogeneous impact of different modes of market participation on farm performance [10].

The supply chain design and management afford the key to the VBO’s success. In order to attain the necessary price premium, the unique product attributes acquired through the natural beef production process must be sustained along the entire supply chain and communicated to the end customer [9] and Oktaviani [11] proposed that supply chain management is seen as significant change that influences small scale. Supply chain management shows overall management production, distribution, and marketing process in which a consumer is supplied by the product. Some advantages can be taken from good supply chain management especially from small businessman point of view such as information about new technology, input, credit, extension service and marketing activity. All activities simplify the businessman broaden resource trouble and reduce production and marketing.

Related to this research, cooperation contract in dairy farm between breeder and company in this case animal husbandry department will simplify the breeder to get input needed also dependence to the marketing result. Different price and increased supply chain possibly happen. Higher product price and supply chain relative in partnerships farm cause the margin pattern relatively higher than the independent marketing margin. The bigger marketing margin ratio the price paid by consumer means farmer share for breeder will be lower [19]. For the development of an efficient and effective supply chain consisting of farmers, slaughter houses, wholesalers and retailers. In supply chain, product physically flows downstream from supplier to retailer. Besides upstream from consumer to supplier flow information about to require product by consumer.

In South Sulawesi Province, development of dairy cow is done in Enrekang regency to support the processing of dangke from dairy milk and in Sinjai regency to produce pasteurized milk for consumers. Therefore, development of dairy cow in South Sulawesi is necessary to be done with improving skill in processing and marketing. One thing that is clear that there will be increasing attempts to add value to the base product rather than staying in the commodity sector [1]. The key finding is that farms maintaining commercial dairy business were better off than those who ceased milk sales. Although the overall picture is mixed, the evidence from transition countries seems to suggest the positive impact of supplying the modern marketing channel. Throughout the region, beneficial effects have been observed on output, productivity and product quality [5,3,20,3].

MATERIALS AND METHODS

This research is done in Sinjai regency as an area in which partnerships dairy business and Enrekang regency as an area where the independent dairy business take place. Primary and secondary data were collected. The primary data was obtained from respondents directly by using in depth interviews questionnaire. To find out the distribution flow model of pasteurized milk and dangke marketing, we use descriptive qualitative analysis that explains every marketing distribution lines by categorizing every existing line.

RESULTS AND DISCUSSION

3.1 Dairy Product Supply Chain Partnerships and Independent System:

Business is considered success if the business gain profit from the product and it is influenced by the cost spent from the supply chain product. As well as dairy product supply chain partnerships and independent system pasteurized milk and dairy product independent system (dangke) whose profit is influenced by supply chain costs

3.2 Pasteurized Milk Supply Chain:

Cooperative has significant role for the dairy product internship system role to receive dairy product in the developed area. The members of cooperative are the dairy farmers and the cooperative runs its function by using command system to the members. The command system start from the way of selecting its members which is done by cooperative associated to the giving dairy cow support. From breeder side, they are low educated villagers.
In cooperative Sintari which processes fresh milk become pasteurized milk, give service to the breeders include milk distribution and all services must be recharged by the breeders to cooperative by cutting the product price so the cooperative requires the breeders to sell their milk to the cooperative. The marketing of dairy product partnership system directly to cooperative then fresh dairy products into pasteurized milk and sold to Makassar IDR.1600/cup. From the fresh milk marketing, dairy farmer’s partnerships system doesn’t get any profit because the cooperative gains the profit. There are 2 forms of pasteurized milk supply chain:

1.2.1 Supply Chain Form I:
Form of pasteurized milk supply chain from producer (cooperative) to consumer through intermediary, in this case the agent in Makassar and has cooperation contract with Department of Animal Husbandry Sinjai. Marketing system of susin on Figure 1 is producer brings it to agent to help sales project and then agent sell it to final consumer.

Fig. 1: Form of Supply Chain I.

Figure 1 showed that producer (cooperative) in selling susin to consumer using agent who directly sells it to consumer. Sinaga said that generally there are 2 combination of direct sales level; sales line without intermediary and indirectly sales line that consist of one or more than marketing level.

In the form of supply chain 1, agent is in Makassar. Number of susin given by producer to agent twice a week is around 800 cups. Producer gives price IDR.1500/cup to agent but the payment after the susin sold and agent sells to the consumer IDR.2000/cup.

In supply chain 1, producer does the sales functions; sales function that is producer distributes susin to agent, then storage function in which agent stores the susin till it is sold. Besides that, transport function where the agent sells the susin by bicycle and every week agent sells and introduces susin to people in coast by bicycle, motor tricycles, and car. In the marketing, the agent usually uses Sales Promotion Girl (SPG) service so that the consumers will be more attracted to buy it.

3.2.2 Supply Chain Form II:
In supply chain form II in which the agent distributes the susin to retailer then to consumer. The form can be seen in Figure 2.

Fig. 2: Supply Chain Form II.

Figure 2 shows that supply chain form II susin through the intermediary that is retailer where agent gives price around IDR.1800/cup then retailer sells it IDR. 2000/cup, and number of the susin sold every day about 15 cups/day. Number of susin sold every day is about 10-20 cups/day.

In this supply chain uses transport function where the producer transports the susin to agent then agent to retailer. The supply chain also uses sales function where the retailer sells the susin to the consumer and storage function in which the agent stores the rest of susin sales in the freezer. Marketing margin obtained from both of supply chain can be seen on Table 1.

<table>
<thead>
<tr>
<th>Supply Chain Form</th>
<th>Marketing Institution</th>
<th>Sales Price (IDR/Cup)</th>
<th>Purchase Price (IDR/Cup)</th>
<th>Margin (IDR/Cup)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Producer</td>
<td>1.500</td>
<td>1.300</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Agent</td>
<td>2.000</td>
<td>1.500</td>
<td>500</td>
</tr>
<tr>
<td>II</td>
<td>Producer</td>
<td>1.500</td>
<td>1.300</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Agent</td>
<td>1.733,33</td>
<td>1.500</td>
<td>233,33</td>
</tr>
<tr>
<td></td>
<td>Retailer</td>
<td>2.000</td>
<td>1.733,33</td>
<td>266,7</td>
</tr>
</tbody>
</table>

Table 1 shows that supply chain whose highest margin is agent in form I IDR. 500/cup, supply chain whose lowest margin that is retailer in form II IDR. 266, 7 /cup. The height of margin which is obtained by supply chain I because the sales price of susin is higher than the purchase price, the small of margin obtained by retailer I to supply chain form II because the sales price is lower than the purchase price. The height of profit margin in supply chain I shows that price proportion that is accepted by agent means having profitable bargaining position and vice versa.
Supply chain form with the highest margin is forming II IDR.566, 7/cup, while supply chain with the lowest margin is form I IDR.500/cup. From the data, we know that the margin between supply chain forms is not really different, because margin which is obtained by each marketing institution is almost similar.

The cost that is spent by producer in processing and marketing susin and by marketing institution is varied. The cost spent by each marketing institution is different. Marketing institution with the highest marketing cost is the agent in supply chain form II IDR.928, 46/cup, because agent distributes the susin directly to the retailer so the transportation cost is high. Marketing institution with the lowest marketing cost is retailer in form II IDR.31.25/cup because the retailer didn’t spend the transportation and marketing cost, so the spent cost is low. So the supply chain with the highest cost supply chain form II IDR.1.553.45/cup, because so many marketing institutions get involved, while the lowest cost is form I IDR.1.169.3/cup because only a few marketing institutions get involved.

Types of marketing costs that is spent by supply chain person:

a. Transportation cost:

Transportation is transport the susin to supply chain person to another one until to the consumer. In supply chain form I, every person spend transportation cost to sell it, but in form II there is supply chain person without transportation cost, because the agent directly distributes the susin so the retailer just sell it. In supply chain I, producer transports susin by car, while agent by bicycle, and sometimes by car. In supply chain form II, agent transports this to retailer by car.

b. Labor cost:

In supply chain form I, producer spends labor cost IDR.46, 87/cup and agent spends IDR.509, 09/cup. In form II, agent doesn’t spend labor cost because agent doesn’t use labor service in transporting the susin to retailer and the retailer directly runs the business without any labor cost.

c. Storage cost:

Storage cost is the cost which is spent during the storage of goods in particular time until it is sold. In supply chain form I, producer and agent spend storage cost because they use freezer to keep the susin in good condition. So does the supply chain form II, but retailer only uses cool box to store susin.

d. Packaging cost:

Packaging cost is cost that is spent in packaging the susin. The cost is only spent by agent in supply chain form I IDR.60/cup because sometimes consumer buys this more than 2 cups so it needs tool to package susin. By knowing the supply chain form, marketing cost and sales price so it can be known the efficiency of this marketing, it can be seen in Table 2.

<table>
<thead>
<tr>
<th>Supply chain Form</th>
<th>Marketing Cost (IDR/cup)</th>
<th>Sales Price (IDR/cup)</th>
<th>Marketing Efficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1.169,3</td>
<td>2.000</td>
<td>58,5</td>
</tr>
<tr>
<td>II</td>
<td>1.553,45</td>
<td>2.000</td>
<td>77,7</td>
</tr>
</tbody>
</table>

Table 2 shows that supply chain form I has marketing efficiency 58, 5% or 0.58 and supply chain form II 77,7% or 0.77. Thus, we know that each line is considered inefficient because they spend higher marketing cost than the sales price. This result is in accordance with Iskandar et al. (1993) who said that marketing cost which is spend by each lines are different.

3.3 Supply Chain Dangke:

Dangke is nutritious and preservative-free traditional food from Enrekang regency. The main ingredient is pure fresh milk. Price per item is around IDR 10.000 – IDR 17.000. Before dangke, fresh milk must be cooked for long time until the milk is clot and ready to be dangke.

3.3.1 Supply Chain Form I of Dangke:

Dairy product independent system in Enrekang regency is not marketed in fresh milk but directly processed by cow breeders and their family to be typical food from Enrekang regency and this activity is household scale industry and its price IDR.10.000/item – IDR.17.000/item, to make a dangke, we need 1.5 liter fresh milk. After the dangke is finished then it is sold to consumer, from the dangke dairy farmers get promised profit. Supply chain I dairy product internships system can be seen in Figure 3.

Figure 3 shows that marketing line of fresh milk from dairy business independent system is very short because the dairy farmers in Enrekang regency directly process the fresh milk then the processed milk will be sold to consumers in traditional market. The activities are profitable for the dairy farmers’ independent system because they don’t need to spend marketing cost. As Siregar and Kusnadi [2004] said that the expensive price of
milk that is accepted by breeder in Cirebon because it directly comes to consumer without intermediary. The height of profit from dangke is caused by the product is wanted by market (consumer). Approach to modern agribusiness must leave orientation characteristic of production but must be centered to market and resource oriented.

![Diagram of Dairy Farmer to Consumer](image)

**Fig. 3:** Supply Chain dairy product Independent system.

### 3.3.2 Supply chain form II of Dangke:

Dangke that has been made by breeder not only directly bought by consumer but also some sellers buy to producer usually if they want to buy dangke in great number, they order it one day before. Supply chain of dairy product independent system can be seen in Figure 4.

![Diagram of Producer to Retailer to Consumer](image)

**Fig. 4:** Supply Chain Form 2 of Dangke.

Figure 4 show that dairy product independent system (dangke) not only directly sold to consumer but also trader buys from producer then sells it to consumer. Sales location is in traditional market and along the way in Enrekang regency which is near Tana Toraja regency. Marketing margin that is obtained from both supply chain forms can be seen in Table 3.

<table>
<thead>
<tr>
<th>Supply Chain Form</th>
<th>Marketing Institution</th>
<th>Sales Price (IDR/item)</th>
<th>Purchase Price (IDR/item)</th>
<th>Margin (IDR/item)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Producer</td>
<td>13.217.4</td>
<td>12.478.3</td>
<td>739.1</td>
</tr>
<tr>
<td>II</td>
<td>Producer</td>
<td>13.217.4</td>
<td>12.478.3</td>
<td>739.1</td>
</tr>
<tr>
<td></td>
<td>Retailer</td>
<td>13.285.7</td>
<td>11.762</td>
<td>1.513.7</td>
</tr>
</tbody>
</table>

**Table 3:** Margin and supply chain dangke in Enrekang regency, 2013.

**Costs spent in marketing dangke:**

a. **Transportation Cost:**

   Transportation cost is cost which is spent by marketer that is producer who often sells to retailer in traditional market in Enrekang regency while they are purchasing dangke from producer that is to breeders then the retailer doesn’t need to pay for transportation cost because they only wait the consumers along the way in Enrekang regency.

b. **Labor cost:**

   Labor cost is the cost that is spent by producer to make dangke while labor cost by retailer is only when they purchase dangke to producer.

c. **Packaging cost:**

   Packaging cost is the cost which is spent by producer is IDR.1000/item, that only use banana leaves so the retailer doesn’t need to pack the dangke.

By finding out supply chain form, marketing cost and sales price so we can know the efficiency of dangke marketing which can be seen in Table 4.

<table>
<thead>
<tr>
<th>Supply Chain Form</th>
<th>Marketing Cost (IDR/item)</th>
<th>Sales Price (IDR/item)</th>
<th>Marketing Efficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1.267.87</td>
<td>13.217.4</td>
<td>95.8</td>
</tr>
<tr>
<td>II</td>
<td>6.354.87</td>
<td>13.285.7</td>
<td>47.8</td>
</tr>
</tbody>
</table>

**Table 4:** Efficiency of dangke marketing in enrekang regency, 2013.

Table 4 shows that supply chain form I is the most efficient form because the low cost spent while the sales prices high because the high demands by people in Enrekang regency. The result of the research shows that supply chain dairy product independent system (Pasteurized milk) means longer supply chain form so the
marketing margin relatively higher. The bigger ratio of marketing margin to the price which is paid by consumer means portion that breeder got will be smaller.

So the different between supply chain dairy product partnerships system and independent system is on the pattern of transactions between dairy farmer and merchants. In independent system, dairy farmer negotiates directly to the consumer. However, in partnerships system, the transaction between dairy farmer and consumer is indirectly done through the main company that is Cooperative Sintari. It happened because dairy farmer in partnerships system has contract with major company that dairy farmer must sell the dairy milk to cooperative that is processed by major company similarly said Sirajuddin et al [16] is cooperative Sintari is not good management marketing susin.

Conclusion:
Supply chain form of dairy product in Sinjai regency consists of 2 forms; form I from producer to agent and to consumer and form II from producer to agent then to retailer finally to consumer. Similar with Sinjai regency, supply chain form of dairy product in Enrekang regency is from producer directly to consumer and the other form is from producer to retailer and retailer to consumer. Dairy product supply chain partnership system pasteurized milk is not efficient than dairy product supply chain independent system dangke. The local government of Sinjai regency should make the costs efficient in supply chain pasteurized milk so the profit gained by dairy farmer will be higher

REFERENCES


