

Formulation of SCP-Based Coconut Sugar Marketing Model Through Analysis of Marketing Patterns in Central Java Province, Indonesia


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Abstract

This study aims to analyze the marketing pattern of coconut sugar products, describe the stakeholders involved in the marketing of coconut sugar, and develop a structure, conduct, performance (SCP) based marketing model for coconut sugar. This research method is a quantitative descriptive method. The research location was determined purposively in the coconut sugar production center of Central Java Province (Banyumas, Purbalingga, and Cilacap Regencies). The research respondents were 60 people consisting of coconut sugar makers who were members of the Joint Business Group (KUB) and 60 people, 10 collectors traders, 2 wholesalers, and 4 institutional exporters. Data were analyzed descriptively. Data analysis for the basic structure by measuring market share size and concentration (CR4). The basis of conduct is through analysis of sales and purchasing processes, payment systems, and institutional cooperation. The basis of performance is obtained from the analysis of the margins of the trading system and the level of prices received by farmers. The results showed that there are two marketing channels for coconut sugar. A tight oligopsony is formed based on the CR4 (Concentration Ratio for the Big Four) value, while the Herfindahl index value shows that the market formed is an oligopoly. Market behavior occurs when the payment system is made in cash at the level of collectors and non-cash at the level of wholesalers. In market performance, the largest marketing margin is in the marketing channel pattern 1 of Rp. 8415.4/kg, the lowest in the channel 2 pattern of Rp. 6500/kg. The highest Farmer share value is in the marketing channel pattern 2 as 74%, and the lowest is in the channel 1 pattern at 66.3%.

Keywords: Marketing model, Coconut sugar, SCP, Marketing sugar, Agricultural product marketing

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1. Introduction

The agroindustry is an industry that processes agricultural products into finished products oriented to consumer tastes (Djamali et al., 2018). It is known that 70.5% of students consume sugar as crystal sugar, and 83.2% prefer to consume sugar every day (Konyali, 2019). Empowerment of agroindustry through marketing aims to increase the product's added value so that farmers get a higher selling price (Amir et al., 2018). Marketing agro-industrial products, including coconut sugar, has an important role in improving the national economy. Coconut sugar is a processed coconut product that evaporates the juice until it reaches a saturated liquid and forms a coconut structure (Nurhadi et al., 2018). Indonesia is one of the world's leading producers of coconut sugar (Suliyanto, 2013). Most exported coconut sugar products come from Central Java Province, especially Banyumas, Purbalingga, and Cilacap Regencies. The coconut sugar agroindustry, one of the important subsystems in the agribusiness system, has great potential to encourage high economic growth due to its relatively large market share and added value.

It is believed that the coconut sugar agroindustry will continue to grow due to the availability of vast land and a sharp increase in international market demand. However, the welfare of coconut sugar farmers in Indonesia is still low because they cannot meet the export market's organic needs (Restianto et al., 2021), as well as low prices at the producer level (Suyono et al., 2020). The low price of coconut sugar products at the producer level is also inseparable from a less competitive market structure, where parties are more dominant in determining prices (price makers). Therefore, on the one hand, producers tend to be price takers. On the other hand, from the description above, it is very important to research a marketing model based on structure conduct performance (SCP) in the coconut sugar agroindustry.

Marketing of coconut sugar agroindustry products generally works in an imperfect market. High transaction costs cause these imperfections. Imperfections in infrastructure (markets) and market structure and behavior can hinder optimal prices for farmers (Van Tilburg et al., 2008). Bagchi et al. (2022) research said that based on structure-behavior-performance theory and previous field experience research, smallholder collectivization helps explore a larger set of strategic options for better yields and the importance of addressing market imperfections through policy and institutional interventions. This study aims to analyze the marketing pattern of coconut sugar products, describe the stakeholders involved in marketing coconut sugar, and develop a marketing model for coconut sugar based on SCP. The research problem formulation is (1) how is the marketing pattern of coconut sugar agroindustry products? (2) who are the stakeholders involved in marketing coconut sugar agroindustry products? (3) how is the SCP-based marketing model for coconut sugar agroindustry products?

2. Materials and Methods

The basic method used in this research is the descriptive quantitative survey method, which is a research method that focuses on a current problem by collecting data, compiling, and analyzing it. The research location was determined purposively in the coconut sugar production center of Central Java Province, covering Banyumas, Purbalingga, and Cilacap Regencies, coconut sugar producer had become members of the Joint Business Group (KUB). The sample of coconut sugar producer farmers was determined by the Simple Random Sampling method from the population of coconut sugar producer who were members of the Joint Business Group (KUB) in the research area. In contrast, the Snowball Sampling method determined the sample of traders (collecting traders, wholesalers, retailers, and exporters). The data taken include primary data obtained from respondents by conducting direct interviews using a list of questions (questionnaires) that have been provided. The survey research variables include fixed production costs, variable costs, coconut sugar production volume, coconut sugar selling price, buying and selling volumes, revenues, and profits. This research will obtain the pattern of marketing of coconut sugar, stakeholders involved in marketing coconut sugar, market structure, market behavior, and market performance in the marketing of coconut sugar. Moreover, secondary data from relevant agencies is related to research, journals, and other literature.

Data analysis uses a descriptive and structured conduct performance (SCP) approach. Market structure is described by the size of market share (market share) and market concentration (CR4) (Martin, 2012; Tomek and Kaiser, 2014).

$$MS_i = \frac{S_i}{S_{tot}} \times 100\% \quad (\text{Eq. 1})$$

Information:

- MS_i = trading market share (%)
- S_i = sales (Rp)
- S_{total} = total of all sales researched (Rp)

The measurement of the Hirschman Index is based on the total number and size distribution of firms in the industry. Where the Hirschman – Herfindahl Index (HHI) equation can be solved by the formula:

$$HHI = (MS_1)^2 + (MS_2)^2 + \dots + (MS_n)^2 \tag{Eq. 2}$$

Information:

- HHI : Hirschman – Herfindahl Index
- MS_i : commodity buyers from the i-th trader (i= 1,2,3...,n)
- n : number of traders in a product market area

Criteria as follows:

- HHI = 1 or 1,800-10,000 then it leads to monopoly or monopsony
- HHI = 0 or 0-1000 then it leads to perfect competition
- 0 < HHI < 1 or 1000-1800 then oligopoly or oligopsony

The next step is to calculate the market concentration of the four largest buyers (CR4)

$$CR4 = \sum_1^4 S_{ij} \tag{Eq. 3}$$

Information:

- CR4 = concentration ratio of the 4 largest traders
- S_{ij} = market share of the 4 largest coconut sugar traders

If the value of CR4 < 33% (competitive market structure); 33-50% (weak oligopsonistic market structure); > 50% (strongly oligopsonistic market structure).

Conduct analyzed descriptively includes sales and purchase processes, equilibrium prices, payment systems (cash, credit), and cooperation with other trading institutions. Performance shows the level of marketing efficiency of coconut sugar. The analysis carried out is the margin of trade and the price level received by farmers (farmer share).

3. Results and Discussion

3.1. Coconut Sugar Marketing Channel Pattern

The pattern of marketing channels for coconut sugar in the research area starts from coconut sugar producers as producers and then to collectors and wholesalers (KUB) who eventually relate to exporters or consumers. From the study results, it was found that there are 2 patterns of coconut marketing channels. 58 people (96.67%) sugar makers use the channel 1 pattern, and 2 people (3.33%) use the channel 2 pattern. There are no coconut sugar producers who use more than one marketing pattern, and this is because each producer already has a fixed channel pattern. The selection of marketing channels is based on several things, including the selling price, distance (transportation), source of purchase, and purpose of sales. Some wholesalers determine the purchase price per kilogram, and then the collectors adjust the prices that the wholesalers have determined. The forms of the pattern of coconut sugar marketing channels in the research location are described below.

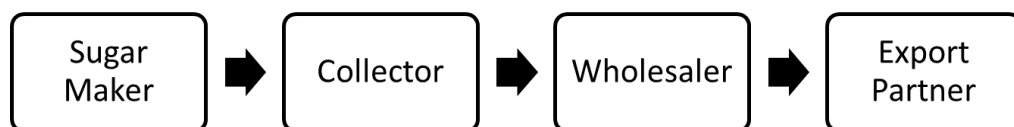


Figure 1. Marketing Channel Pattern 1

In this channel, coconut sugar producer sells their products to collectors, with the consideration of easy access to the collectors' place so that sugar producers do not have to go far to sell their products and a cash payment system that makes it easier for a producer to fulfill their daily needs and the purchase price of coconut sugar which the producer feel is already profitable. Collecting traders deposit to wholesalers, wholesalers then supply coconut sugar to exporter partners. In this pattern, sugar producers sell to collectors near their homes; the products sold by the producer are wet coconut sugar products that have not been dried. All products from sugar producers are sold to collectors who are deposited 2-3 times a week and paid in cash. Collecting traders collect and store, which will later be sold to wholesalers who pick up the place once a week and payment systems in cash and non-cash (credit). Wholesalers carry out the drying process by oven, sorting, and packaging, which will be sent to export partners. Coconut sugar products are marketed to several countries such as Singapore, Japan, United Arab Emirates, Qatar, the UK, Poland, and Russia. Exporting partners that work together are PT Haldin Pacific Semesta, PT Mega Innovation Organic (MIO), CV Realsa Natural Indonesia, and CV Itrade International.

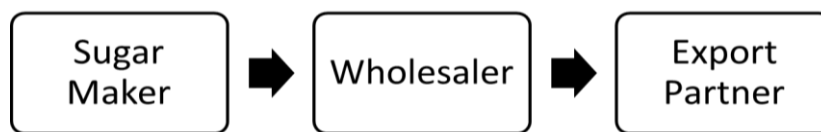


Figure 2. Marketing Channel Pattern 2

In the channel 2 pattern, coconut sugar producers sell wet coconut sugar products that have not been dried to wholesalers. All products from coconut sugar producers are sold to wholesalers who are deposited once a week. Wholesalers go directly to the coconut sugar producer and pay in cash. Then wholesalers carry out the drying process with ovens, sorting, and packaging, which will be sent to exporter partners.

3.2. Coconut Sugar Marketing Stakeholders

From the results of the study, it was found that the stakeholders involved in marketing coconut sugar are coconut sugar producer who are members of the Joint Business Group (KUB) as producers, collectors, wholesalers, and exporter partners, namely PT Haldin Pacific Semesta, PT Mega Innovation Organic (MIO), CV Realsa Natural Indonesia, and CV Itrade International.

3.3. SCP-Based Coconut Sugar Marketing Model

3.3.1. Market Structure

The market structure shows market characteristics, such as the number of buyers and sellers, the state of the product, the state of knowledge of buyers and sellers, and the state of market obstacles. These differences will determine the company's behavior and performance. To examine the market structure used, the concentration ratio of the four companies (CR4) and the Herfindahl-Hirschman index (HHI) (Sim and Hassan, 2020). Market share is the percentage of total sales in the target market obtained from a company. The size of the market share ranges from 0 to 100 percent of the total sales of the entire market. A large market share characterizes a large market power. On the other hand, a small market share means that the company cannot compete under competitive pressures. In the coconut sugar market structure that occurs in the Karanganyar and Kutasari sub-districts with a market share of mediators, there are 10 different collectors. The following is the market share size of trading collectors, which can be seen in *Table 2*.

In *Table 1*, the strength of each market share at the collectors is different because of the difference in the amount of production for each collector in one deposit. The greater the production power or the number of deposits, the higher the market share value. Factors that affect the size of the market share are the large number of producers who sell coconut sugar products, the amount of coconut sugar production produced by producers, and the number of coconut sugar deposits.

CR4 (Concentration Ratio for Biggest Four) measures the industry's share of total asset value. In general, the number of N traders whose market share proportion is calculated is 4 traders. In determining the CR4 value based on the output value or the amount of coconut production selected from the four largest traders.

Table 2 shows the CR4 value of the market structure for collectors at 56.8% or 0.56, meaning that the concentration ratio (CR4) is > 50% (strongly oligopsonistic market structure), meaning that the market has only a few buyers. In this case, the collectors, while the product has few buyers, have similar offerings with little price competition and relatively little product information.

Table 1. Market Share Percentage Value of Each Collecting Trader

Collecting Merchant	Total deposit (kg)	Percentage Market Share (%)
1	700	6.3
2	1000	9.0
3	840	7.5
4	1050	9.5
5	750	6.7
6	1800	16.2
7	2450	22.1
8	950	8.5
9	900	8.1
10	650	5.8
Total	11,090	100

Table 2. The Four Biggest Collecting Traders to Analyze CR4 Value

Collecting Merchant	Total deposit (kg)	Percentage Market Share (%)
1	1,000	9.0
2	1,050	9.5
3	1,800	16.2
4	2,450	22.1
Concentration Ratio Value	6,300	56.8

Measurements on the Hirschman – Herfindahl Index (HHI) are based on the total number and size distribution of coconut sugar collectors by adding up the square of the market share of all these collectors. The following results of calculations from HHI can be seen in Table 3.

Table 3. Hirschman – Herfindahl Index (HHI) Value for Each Collecting Trader

Collecting Merchant	Total deposit (kg)	Percentage Market Share (%)	Percentage ² (% squared)
1	700	6.3	39.69
2	1,000	9.0	81.00
3	840	7.5	56.25
4	1,050	9.5	90.25
5	750	6.7	44.89
6	1,800	16.2	262.44
7	2,450	22.1	488.41
8	950	8.5	72.25
9	900	8.1	65.61
10	650	5.8	33.64
Total	11,090	100	1,297.79

Table 3 can be seen that the HHI value for collectors is 1297.79, indicating that competition in the market share of coconut sugar collectors is an oligopoly with a range between more than 1000 and less than 1800, which means the higher the Hirschman Herfindahl index value, the higher the size distribution. from merchants. This, of course, will result in a policy of reducing the price of goods by one trader to be followed by other traders.

3.3.2. Market Conduct

Market behavior is related to the behavior of traders. Constructive validity is found in the market behavior function, where indicators of consumer demand and product supply have a significant effect (Darma et al., 2022). Market behavior is related to the behavior of traders, the behavior of the coconut sugar producer, the collectors,

and wholesalers carried out several strategies to facilitate the distribution of coconut sugar. Collectors and wholesalers carry out purchasing activities for producers of coconut sugar producer. The cash and credit payment strategies between coconut sugar producers and collectors are carried out after depositing coconut sugar products and price agreements. Collectors and wholesalers determine the price of coconut sugar, and there is no price bargaining. According to coconut sugar producers, this is because the purchase price by traders is already profitable. It can cover the costs of daily needs and the costs incurred by a producer in producing coconut sugar. Sales activities occur to traders, from collectors to wholesalers, and from wholesalers to exporter partners. In sales activities from collectors to wholesalers, data on the name of the coconut sugar craftsman who deposited it must be included. In the middleman's trade, only storage activities occur, and later every week, wholesalers will take the goods.

Meanwhile, at wholesalers of coconut sugar, drying, sorting, and packaging are carried out before delivery to exporter partners. The payment system for coconut sugar at the collectors level to coconut sugar producers is in cash, which is done to make it easier for coconut sugar producer to cover their daily needs and sugar production costs. Meanwhile, payments from wholesalers to retailers are partly made in cash (Susilo, 2016) and partly on credit. Payments from exporter partners to wholesalers are non-cash with an upfront payment of 50%. The price determined by traders and wholesalers is based on the quality or color of the sugar to be sold; the darker the color of the coconut sugar, the lower the price offered. The dominant price determinants are traders, not farmers, even though there is bargaining between farmers and traders (Wa Ode Al, 2019). Market behavior in cooperative activities between coconut sugar marketing institutions, producers and collectors, wholesalers, and exporter partners is well established. Coconut sugar producer may sell their products to more than one collecting trader from the origin of these traders as members of the KUB. In addition, increasing farmers' knowledge about production and marketing is important and must be developed (Torun, 2014). Developing an integrated marketing channel system for agricultural products will advance industrial and agricultural production and increase farmers' income steadily (Wang, 2010).

3.3.3. Market Performance

Market performance is used to see the influence of market structure and behavior in the coconut sugar marketing process. Market performance is a combination of market structure and market behavior which shows the interaction between market structure, market behavior, and market performance which are not always linear but influence each other. Collaborating with suppliers (in this case, coconut sugar producers) companies will support sustainability values and maintain market performance (Ukko et al., 2022). Institutional relationships with government officials, local communities, and other companies affect market performance (Nwoba et al., 2021). A more effective food production strategy is critical to sustainable agro-industry development along with poverty reduction (Leite et al., 2017). *Table 4* shows the marketing margins of coconut sugar in the two marketing channels found in this study.

Table 4. Coconut Sugar Marketing Margin Summary

Marketing channel	Price (Rp/Kg)				
	Producer	Consumer	Cost	Profit	Margin
1	16,584.6	25,000	623.28	7,892.03	8,415.4
2	18,500	25,000	623.28	5,976.72	6,500

Table 4 shows the distribution of selling prices from sugar producers and the margins formed from the different marketing channel processes. In the marketing channel pattern 1, the margin formed is Rp. 8415.5/kg while in marketing channel 2, it is Rp. 6500/kg. The share received by coconut sugar producer is a percentage of the price at the producer level with the price paid by consumers (*Tabel 5*).

The amount of share received by coconut sugar producers differs in each marketing channel. In the marketing channel pattern 1, the farmer share received by the coconut sugar producer is 66.3%, while in channel 2 farmer share pattern received by the producer is 74%. From the description above, the share of the price received by the largest sugar producers is in the channel 2 pattern due to the short chain of marketing channels for Coconut sugar. While the share received by coconut sugar producers is lower in the channel 1 pattern, this is due to additional marketing agencies distributing coconut sugar products.

Table 5. Farmer Share Coconut Sugar Marketing

Marketing channel	Price at Producer Level (Rp/kg)	Price at Final Trader level (Rp/kg)	Farmer Share (%)
1	16,584.6	25,000	66.3
2	18,500	25,000	74

4. Conclusions

This study concludes that two marketing channels for coconut sugar can be chosen by producers, with the ultimate goal of marketing being exporter partners. Stakeholders involved in marketing coconut sugar are coconut sugar producers who are members of KUB, collectors, wholesalers, and exporter partners. The market formed from the marketing of coconut sugar in Central Java Province is a tight oligopoly market, as indicated by a CR4 value of 56.8%. But the price of coconut sugar is determined by the buyer by looking at the quality and color of the sugar. The performance of the coconut sugar market from both marketing channel pattern 1 and 2 is quite profitable for producers because it has a margin value of 8,415.4 IDR/kg in channel pattern 1 and a high farmer share (above 50%). Of the two patterns, several factors influence marketing patterns, namely access (distance from producers to traders), payment systems (cash and non-cash), selling prices, number of products, and marketing agency cooperation. The results of this study only describe the SCP-based coconut sugar marketing channel in Central Java Province, without comparing the two marketing channels. It is necessary to carry out similar research in other regions to describe how the coconut sugar marketing channels are in Indonesia and to compare between marketing channels to see the advantages and disadvantages between channels.

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