



Pattern Analysis and Marketing Efficiency of Bokar in Rural Area, Batanghari Regency, Indonesia

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Abstract— Marketing is said to be efficient if it is considered capable of distributing products from farmers to the crumb rubber industry at a reasonable cost and a fair distribution of the price paid by the crumb rubber industry. For this reason, this study aims to analyze the marketing efficiency of bokar. This research was conducted in the Rural Area of Batanghari Regency, with a sample size of 77 farmers. Sampling uses the sSimple Random Sampling method. The data analysis used is quantitative descriptive analysis. with the One Way Anova test. Bokar marketing in Batanghari Regency consists of three marketing channels, namely: (1) Farmers - Auction Market - Provincial Collector Traders (PPPProv) - Factory (Crumb Rubber). (2) Farmers - Village Collector Traders (PPD) - Provincial Collector Traders (PPPProv) - Factory (Crumb Rubber). (3) Farmers - Provincial Collector Traders (PPPProv) - Factories (Crumb Rubber). Based on the efficiency indicators of bokar marketing through marketing margin, farmer's share and profit ratio and marketing cost of bokar marketing channel I is more efficient than channels II and III. Based on the results of the One Way Anova test, the farmer's share received by bokar farmers in marketing channel I, marketing channel II and marketing channel III there is a significant difference. This means that the existence of a bokar auction market pool is able to significantly increase the efficiency of bokar marketing, and for this it is necessary to establish auction market poo in other villages.

Keywords— bokar, marketing channel, efficiency, margin, farmer share

I. INTRODUCTION

In Jambi Province, rubber commodity is one of the plantation commodities which has an important role in the economy. Rubber is an export commodity that contributes a lot to the country's foreign exchange besides oil and gas. There are five rubber-producing provinces in Indonesia, one of which is Jambi Province (Indonesian Rubber Statistics, 2018). Rubber commodities are spread in almost all regions in Jambi Province, including Batanghari Regency. Based on data (Plantation Office of Jambi Province, 2020) Batanghari Regency is an area that cultivates rubber plantations with the fourth largest land area after Bungo, Muaro Jambi and Sarolangun Regencies, which cover an area of 113,576 ha with a production of 75,357 tonnes and a productivity of 945 kg/ha. The wide distribution of rubber plantations in Batanghari Regency is in all Districts. Bajubang District is one of the Districts

whose residents work as rubber farmers. The area of rubber plantation area is 22,944 ha with a production of 16,464 tons and productivity reaching 965 kg/ha.

The marketing of rubber plantation products is in the form of Processed Rubber Materials (Bokar). In the process of marketing bokar, the price of rubber received by farmers is different, due to the length of the marketing channel from farmers to final consumers. Marketing of Processed Rubber Materials (Bokar) has three marketing channels, namely first, rubber farmers sell their bokar through the Auction Market marketing channel, and secondly, rubber farmers sell their bokar. to Village Collector Traders (PPD) and the three rubber farmers sell their bokar to Provincial Collector Traders (PPPProv). The price for bokar on the auction market for the period August - September 2022 is Rp. 10,000 – Rp. 11,000, - and the price of bokar at the collectors in the same period is Rp. 9,000 – Rp.

10,000,- / kg. Fewer farmers sell to the auction market through the Bokar Processing and Marketing Unit (UPPB) than farmers who sell to collectors. In terms of the purpose of forming an auction market is to increase production, rubber farmers' income, the price of the auction market is more open, the marketing of bokar is carried out simultaneously at one time, and there is uniformity in the quality of bokar (Kurniati et al., 2020). Meanwhile, the price for collecting traders is determined based on the provisions of the collecting traders themselves. The number of farmers who sell to collectors on the basis of engagement and socio-economic factors. The long bokar marketing channels and the low prices received by farmers have caused problems with the bokar marketing system.

In bokar marketing, rubber farmers occupy a less profitable bargaining position. Marketing institutions that are heavily involved in bokar marketing cause differences in prices received by farmers through the auction market and collectors. According to (Sutoyo et al., 2017) marketing agencies are basically intermediaries for producers. Analyzing marketing efficiency of bokar. Analyzing differences in farmer's share received by farmers in each bokar marketing channel in Batanghari Regency

II. RESEARCH METHODS

This research was conducted in Batanghari District, Bajubang District, with the research locus in Ladang Peris Village and Panerokan Village. The selection of the research location was carried out purposively with the consideration that the village was served by a rubber auction market pool. The size of the sample taken was determined using Taro Yamane or the slovin method with a precision of 15% (Ridwan and Akdon, 2009). The bokar farmer population and sample can be seen in Table 1:

Table 1. Population and Sample of Bokar Farmers in Research Area, 2022

No.	Market Name	Total Population	Total Sample
1.	Auction Market	150	34
2.	Non Auction Market	1.039	43
Total		1.189	77

The sampling of farmers was carried out using the simple random sampling method.

Methods of data analysis using quantitative descriptive analysis to analyze the marketing efficiency of bokar from

the aspect of marketing margins, farmer's share and profit and cost ratios.

a. Marketing Margins

$$M = H_e - H_p$$

Where :

M : Marketing margin (Rp)

H_e : Price paid by consumers to marketing agencies (Rp)

H_p : Rubber Producer Price (Rp)

b. Farmer's Share

$$F_s = P_f / P_r \times 100 \%$$

Where :

F_s : Farmer's share of farmers (%)

P_f : Bokar price at farmer level (Rp)

H_e : Bokar prices at the end consumer level (Rp)

If the farmer's share value is $\geq 40\%$, marketing is said to be efficient and if the farmer's share value is $\leq 40\%$, marketing is said to be inefficient (Fatima et al., 2022).

c. Profit and Cost Ratio

$$\text{Profit and Cost Ratio} = L_i / C_i$$

Where:

L_i: Profits of marketing agencies

C_i : Marketing costs

If $\pi/c > 1$, then the marketing activity is said to be efficient, and can be continued. Whereas $\pi/c < 1$, the marketing activity is said to be inefficient, so it will be detrimental if it continues to be carried out (Fatima et al., 2022).

d. One Way Anova test

According to (Muhson, 2016) the purpose of one way ANOVA is to test the average difference of more than two groups of data. To test differences in farmer's share of marketing channels, a one-way ANOVA test was carried out. With a hypothesis

H₀ : There is no difference in farmer share based on bokar marketing channels.

H_a : There are differences in farmer share based on bokar marketing channels

III. RESULTS AND DISCUSSION

Bokar Marketing Channel

Marketing is a process of distributing goods or services that involves marketing institutions (Nasrudin and Musyadar, 2018). Bokar marketing involves farmers as producers, collectors and rubber auction market.

From the results of the study, it was found that there were differences in the bokar marketing paths taken by farmers to go to the factory (Crumb Rubber), namely that there were 3 marketing channels found. First, the bokar marketing channel through the rubber auction market, 44.2% of farmers selling bokar at the rubber auction market. The two bokar marketing channels are through village collector traders (PPD), farmers who sell bokar to PPD as much as 14.3%. The three bokar marketing channels are through Provincial Collector Traders (PPProv), farmers who sell bokar to PPProv as much as 41.6%. The bokar marketing channels in the research area can be seen in Figure 1.

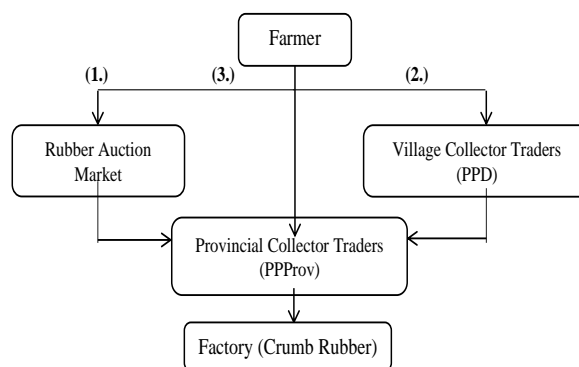


Fig.1. Bokar Marketing Channel, Batanghari Regency

Bokar Marketing Costs, Profits and Margins

Bokar marketing starts from farmers as producers to the crumb rubber industry. The costs, profits and marketing margins in the marketing channel I bokar can be seen in Table 2

Table 2. Costs, Profits and Marketing Margins of Bokar Marketing Channel I 2022

Description	Rp/kg	%
The selling price of farmers to the auction market	10.778	82,91
Cost:		
Transportation	41	0,32
Unload and load	90	0,69
Consumption	3	0,02
Sorting	-	-
Storage	-	-
Tax	15	0,12
shrinkage	-	-
Total cost	149	1,15
Profit	-149	-1,15
margins	-	-
PPProv purchase price from the auction market	10.778	82,91
Cost:		
Transportation	46	0,36
Unload and load	105	0,81
Sorting	-	-
Storage	-	-
Tax	15	0,12
shrinkage	90	0,69
Total cost	256	1,97
Profit	1.966	15,12

margins	2.222	17,09
Factory selling price	13.000	100

Table 2 shows that in marketing channel I, the average price received by farmers from the auction market is Rp. 10,778 / kg, while the price for Provincial Collectors to Factory (Crumb Rubber) is IDR 13,000 / kg, there is a price difference between the auction market and the factory, the price difference is due to marketing costs and profits from each marketing agency involved. The marketing margin from the price received by bokar farmers minus the price paid by the factory is Rp. 2.222/kg. Bokar marketing costs incurred in marketing channel I amounted to Rp. 405/kg. The marketing profit obtained is Rp. 1,817 / kg, (Khaswarina et al., 2018)

marketing profit is the difference between marketing margin and marketing costs.

The reason farmers sell their bokar at the rubber auction market is because the auction market processes the bokar weighing more transparent than selling to collectors, and the price received by farmers is also transparent. The quality of the bokar (dry rubber content) is also of great concern on the auction market because the quality of the bokar will determine the price, the dry rubber content (KKK) of bokar sold by farmers must be 50-60%. The costs, profits and marketing margins on the Bokar II marketing channel can be seen in Table 3.

Table 3. Costs, Profits and Marketing Margins of Bokar Marketing Channel II 2022

Description	Rp/kg	%
Selling price of farmers to PPD	9.300	71,54
Cost:		
Transportation	-	-
Unload and load	60	0,60
Sorting	-	-
Storage	-	-
Tax	15	0,12
shrinkage	90	0,69
Total cost	165	1,27
Profit	490	3,77
margins	655	5,03
Selling price of PPD to PPProv	9.955	76,57
PPPprov purchase price	9.955	76,57
Cost:		
Transportation	180	1,38
Unload and load	105	0,81
Sorting	-	-
Storage	-	-
Tax	15	0,12
shrinkage	90	0,69
Total cost	390	3,00
Profit	2.655	20,43
margins	3.045	23,43
Factory selling price	13.000	100

Table 3 shows that the marketing channel II through Village Collector Traders (PPD), the average selling price of bokar from farmers to Village Collector Traders (PPD) is Rp. 9,300 / kg, the selling price of bokar from Village Collector Traders (PPD) to Provincial Collector Traders (PPPProv) is Rp. 9,955 / kg, while the selling price of Provincial Collector Traders to the Factory (Crumb Rubber) is IDR 13,000 / kg. There are price differences between PPD, PPPProv and factories, these price differences are due to marketing costs and profits from each of the marketing agencies involved. Bokar marketing costs incurred on channel II amounted to Rp. 555/kg. Marketing profit of Rp. 3.145/kg. The marketing margin obtained is Rp. 3,700/kg. This means that the longer the bokar marketing channel is traversed, the greater the marketing margin received by the collecting traders, because there are many marketing agencies that take advantage. Consistent with Sutaryadi et.al (2021) the more intermediaries in the marketing channel, the longer the marketing level. The reason farmers sell bokar to Village Collector Traders (PPD) is because there is no time limit for farmers to sell bokar to Village Collector Traders, it is easy for farmers to get loans. Village Gathering Traders will personally come to the farmer's house to buy bokar. The location of the factory which is far away causes farmers to prefer to sell their bokar to Village Collector Traders. The costs, profits and marketing margins on marketing channel III bokar can be seen in Table 4.

Table 4. Costs, Profits and Marketing Margins of Bokar Marketing Channel III 2022

Description	Rp/Kg	%
Selling price of farmers to PPPProv	9.681	74,47
Cost:		
Transportation	52	0,40
Unload and load	140	1,08
consumption	5	-
Sorting	-	-
Storage	-	-
Tax	15	0,12
shrinkage	90	0,69
unexpected costs	10	-
Total cost	312	2,40
Profit	3.007	23,13
margins	3.319	25,53
Factory selling price	13.000	100

Table 4 shows that marketing channel III is through Provincial Collector Traders (PPPProv), the average selling price of farmers to Provincial Collector Traders (PPPProv) is Rp. 9,681 / kg, while the selling price of Provincial Collector Traders to the Factory (Crumb Rubber) is IDR 13,000 / kg. There is a price difference between the Provincial Collector Traders (PPPProv) and the factory, (Tarmizi, 2007) that the collector traders take advantage of the sale of daily necessities and also the results of buying rubber from farmers who are subject to cuts and deception of the scales they use. Bokar marketing costs incurred on channel III amounted to Rp. 312/kg. Marketing profit of Rp. 3.007/kg. Marketing margin of Rp. 3.319/kg. Farmers choose to sell bokar to Provincial Collector Traders (PPPProv) because these traders provide convenience for farmers in borrowing money such as to meet basic family needs, school children's fees, medical expenses and party expenses, and fast marketing service processes. The return of money borrowed by farmers is done by cutting directly from the bokar sold by farmers to pay off the farmers' debts.

Marketing Efficiency

(Sutaryadi et al., 2021) that marketing efficiency is said to be efficient if it is considered capable of conveying results from producers to consumers at a reasonable cost and a fair distribution of the prices paid by consumers. Bokar's marketing efficiency is seen from marketing margins, farmer's share and profit and cost ratios.

Marketing Margins

The marketing margin is the difference between the price at the farmer producer level and the price at the final consumer level. Marketing margin includes all marketing costs and profits during the bokar marketing process from each marketing channel (Fahrurrozi et al., 2012). Marketing margins based on bokar marketing channels can be seen in Table 5.

Table 5. Bokar Marketing Margin Calculation Based on Marketing Channels, 2022

Marketing channel	Average Purchase Price at Farmer Level (Rp)	Average Selling Price at End Consumer Level (Rp)	Marketing Margin (Rp)
I	10.778	13.000	2.222
II	9.300	13.000	3.700
III	9.681	13.000	3.319

Source: Results of Processed Primary Data 2022

Table 5 shows that in marketing channel I the value of marketing margins is smaller compared to marketing channels II and marketing channels III. This means that the bokar auction market can increase the efficiency of the marketing channel. Research (Apriyanti and Ramadhani, 2018) states that the lower the value of the marketing margin obtained, the more efficient the marketing channel will be. According to (Situmorang et al., 2015) the amount of marketing margin earned in each marketing channel is influenced by sales volume, distance to marketing locations, length of marketing channels and marketing functions performed.

Farmer's share

Farmer's share is the percentage of the price received by farmers with the price paid by the final consumer. Farmer's share is inversely proportional to the marketing margin, the higher the marketing margin, the lower the farmer's share received by farmers (Apriyanti and Ramadhani, 2018). Farmer's share based on bokar marketing channels can be seen in Table 6.

Table 6. Bokar Farmer's Share Calculation Based on Marketing Channels, 2022

Marketing channel	Average Price at Farmer Level (Rp)	Average Selling Price at End Consumer Level (Rp)	Farmer's Share (%)
I	10.778	13.000	82,91
II	9.300	13.000	71,54
III	9.681	13.000	74,47

Source: Results of Processed Primary Data 2022

Table 6 shows that in marketing channel I the prices received by farmers are higher, in contrast to marketing channel II the prices received by farmers are smaller, meaning that the size of the farmer's share does not always indicate the size of the profits received by farmers. The large number of marketing agencies involved in the marketing channel makes the selling price of bokar at the farm level different and the price paid by consumers is lower, even though the price paid by the final consumer is higher. Consistent with research (Khaswarina et al., 2018) the greater the value of the farmer's share, the higher the bokar price received by farmers, so that the bokar marketing channel becomes efficient. According to (Fatima et al., 2022) explains that if the farmer's share value is $\geq 40\%$ then marketing is said to be efficient and if the farmer's share value is $\leq 40\%$ then marketing is said to be inefficient. According to (Iswahyudi and Sustiyana,

2019) states that the large value of the farmer's share does not always indicate that the marketing channel is efficient.

Profit and Cost Ratio

The profit and cost ratio is a comparison between the costs incurred and the profits generated (Putri et al., 2018). The higher the value of the ratio the greater the profit earned. The ratio of benefits and costs based on marketing channels can be seen in Table 7.

Table 7. Calculation of Profit Ratios and Bokar Costs Based on Marketing Channels, 2022

Marketing channel	Total Profit (Rp)	Total Marketing Expenses (Rp)	Profit and Cost Ratio
I	1.817	405	4,49
II	3.145	555	5,67
III	3.007	312	9,63

Source: Results of Processed Primary Data 2022

Table 7 shows that the value of the profit and cost ratio for each bokar marketing channel has results > 1 , meaning that every bokar marketing institution has profits and is feasible to run. According to (Fatima et al., 2022) if $\pi/c > 1$, then the marketing activity is said to be efficient, and can be continued. While $\pi/c < 1$, the marketing activity is said to be inefficient, so it will actually be detrimental if it continues to be carried out. According to (Irawan et al., 2021) states that each marketing channel has a different ratio of benefits and costs, with an even distribution of the value of the ratio of benefits and costs in each marketing institution, the marketing is technically more efficient.

Marketing Efficiency Analysis

Marketing margins, farmer's share, and profit and cost ratios, based on bokar marketing channels can be seen in Table 8.

Table 8. Bokar marketing efficiency based on marketing margin, farmer's share and profit and cost ratio, 2022

Marketing channel	Marketing margin (Rp)	Farmer's share (%)	Profit and cost ratio
I	2.222	82,91	4,49
II	3.700	71,54	5,67
III	3.319	74,47	9,63

Table 8 shows that the bokar marketing channels are not categorized as efficient because seen from three

aspects of efficiency the results obtained on each bokar marketing channel do not show efficiency, the efficiency requirements of the bokar marketing channel have a smaller marketing margin value, meaning the lower the marketing margin value obtained on the marketing channel bokar, then the marketing channel becomes efficient. The farmer's share value in the marketing channel must be greater, meaning that the greater the farmer's share value obtained in the bokar marketing channel, the greater the bokar price received by farmers, so that the bokar marketing channel becomes efficient. The value of the profit and cost ratio in the marketing channel must be greater than 1, meaning that the bokar marketing channel has advantages and is feasible to run, and can be said to be efficient. Based on research (Stevan et al., 2015) that economically the marketing channel through collectors is more efficient than through the auction market marketing channel.

One Way Anova test

The one-way ANOVA test is a parametric statistical test that aims to test the difference in the mean or more of two groups of data or samples (Susilawati et al., 2021). To examine differences in farmer's share received by bokar farmers, through bokar marketing at the auction market and collecting traders based on marketing channels I, II and III. The results of one way ANOVA testing on marketing channel I, marketing channel II and marketing channel III bokar can be seen in Table 9.

Table 9. Hasil uji One Way Anova Farmer's Share Petani Bokar Pada Saluran Pemasaran I, II dan III 2022

	<i>Sum of Squares</i>	<i>Df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
Between Groups	1672.730	2	836.365	91.203	.000
Within Groups	678.606	74	9.170		
Total	2351.336	76			

Table 9 shows that the results of the one way ANOVA test obtained a test value (sig) = 0.000 < alpha 0.005, then H_0 was rejected. This means that there is a significant difference in farmer's share received by bokar farmers in marketing channel I, marketing channel II and marketing channel III. From the multi-comparison test seen from the Tukey HSD and LSD tests, it was found that there were significant differences (Appendix 8). The results of the Tukey HSD test showed that marketing channel I had a difference with marketing channel II and marketing channel III with a sig value of 0.000. However,

for marketing channel II and marketing channel III there is no difference because the sig value > 0.005 is 0.019. The results of the LSD test also showed that marketing channel I was different from marketing channel II and marketing channel III with a sig value of 0.000. However, for marketing channel II and marketing channel III there is no difference because the sig value > 0.005 which is equal to 0.007.

IV. CONCLUSION

Bokar marketing in Batanghari Regency consists of three marketing channels, namely: (1) Farmers - Auction Market - Provincial Collector Traders (PPProv) - Factory (Crumb Rubber). (2) Farmers - Village Collector Traders (PPD) - Provincial Collector Traders (PPProv) - Factory (Crumb Rubber). (3) Farmers - Provincial Collector Traders (PPProv) - Factories (Crumb Rubber). Based on the efficiency indicators of bokar marketing through marketing margin, farmer's share and the profit and cost ratio of marketing bokar marketing channel I is more efficient than channels II and III. Based on the results of the One Way Anova test, the farmer's share received by bokar farmers in marketing channel I, marketing channel II and marketing channel III there is a significant difference. This means that the existence of a bokar auction market pool is able to significantly increase the efficiency of bokar marketing, and for this it is necessary to establish auction market pool in other villages.

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