Marketing channel efficiency of Robusta coffee in Argopuro mountain area, Jember Regency

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Abstract. Jember Regency is one of the districts in the Argopuro mountain region which has a relatively intensive land use for coffee plants with an area of 7,329 hectares. Robusta is one of the most cultivated coffee in Argopuro. The important step in development the people's coffee plantation is to determine the marketing channel efficacy. Efficient marketing can provide the maximum benefit to the farmers. Indicators that can explain the efficacy of marketing channels is by margin calculation, the allocate of distribution, and the farmer's margin. This study purposed to identify marketing channels, the factor of choice on channel marketing and calculate the marketing efficiency of Robusta coffee in Argopuro mountain, especially in Bangsalsari subdistrict, Jember. The results showed that land area, farming experience, income, total production, contract farming, and land tenure affecting the choice of channel marketing opportunities of Robusta coffee. There were two marketing channels, namely marketing channels 1 (farmers - brokers - exporters - consumers) and marketing channels 2 (farmers - brokers - wholesalers – consumers). The marketing margin of marketing channel 1 is IDR 10,000, while the marketing channel 2 is IDR 3,500. The marketing channel 2 is more efficient than marketing channel 1.

1. Introduction

The agricultural sector has a strategic role as the cogs of national economy. Most major agricultural subsector and the largest foreign exchange earner beside oil and gas subsector is an estate [1]. One of the commodities grown in the estate subsector in Indonesia is coffee. Indonesia's coffee production is currently ranked fourth largest after Brazil, Vietnam and Colombia. Approximately 67% of the coffee production are exported while the rest 33% are to meet the domestic needs. The needs of coffee in the country each year has increased. In 2016 rate of coffee consumption in Indonesia has increased by 14%, while the rate of production only increased by 10% [2].

According to the intensity of the coffee cultivation in the area of Industrial Plantation Society (KIMBUN) of East Java, there are only two areas that showed the level of utilization of the relatively intensive land one is the Ijen area – Raung – Argopuro include Bondowoso (5,633 ha), Banyuwangi (3,857 ha), Jember (7,329 ha), and Situbondo (1,981 ha) [3].

The mountains of Argopuro Jember has high potential and opportunities for coffee planting. The geographical condition of which consisted of rolling hills and fertile soil is appropriate media for the growth of coffee plant. In addition, the coffee commodity in Jember Regency is one of the best qualities of Javanese coffee and has penetrated the international market. One of the most potential area is a subdistrict of Bangsalsari.

Marketing is an important aspect for agricultural businesses, because agricultural products have characteristics that are produced seasonally, easily broken, large number but relatively little value, need further processing, and not durable for long time storage. Marketing can be conducted either personally or through marketing agencies. Involving more marketing agencies involved results in a long marketing channels and farmers became a party aggrieved. Based on preliminary research, there are two efficiently marketing channels, that is marketing channels 1 (farmer – consumer – exporter – middleman) and marketing channel 2 (farmer – broker – the great merchant – consumer). The marketing efficiency calculations need to be done to see the more efficient channel.

2. Methods

Research areas specified intentionally (purposive method) that includes the place and subject of research as well as the target object with consideration: 1) one of the KIMBUN that shows the level of utilization of land a relatively intensive, that is KIMBUN South (Bondowoso, Situbondo, Banyuwangi, Jember,). KIMBUN is a plantations development program in East Java, that divide the territory of agricultural commodities, especially coffee according to potential of an area; 2) Jember Regency is a potential region for coffee commodity in the southern region of KIMBUN with the highest production of 1,880 tons; 3) Bangsalsari sub-districts has suitable land for Robusta coffee plantation and the highest producer of coffee production in Argopuro mountain slope area in 2016 by 9,945.8 quintals; 4) According to data from the Department of Food Crops, Horticulture and Plantations in Jember Regency in 2016, Tugusari and Curah Kalong Villages are the largest coffee plantation areas in Bangsalsari.

The research method used in this study is observation, questionnaires, literature studies, and interviews by applying the survey method of the research location carried out on the mountain slopes of Argopuro, Bangsalsari District, Jember Regency. The samples were the coffee farmer group in Bangsalsari subdistrict with the slovin method of 10% leeway. The total members of the farmer groups in Tugusari and Curah Kalong Villages are 75 people. Based on the Slovin calculation with a 10% percentage allowance, the number of samples obtained was 43 people. Sampling to find out the factors which affect the opportunities of marketing channel choice was done using a simple random sampling method. Population sampling members were carried out without regard to the strata in the population [4].

Data were analyzed by using a marketing margin analysis, share costs, and share of profits each institution uses marketing distribution marketing margin analysis. Marketing margin can be calculated through the following formulation [1]:

$$MM = Pr - Pf$$

Description:
MM = Marketing margin
Pf = price at the level of farmers or producers
Pr = price level the retailer/consumer uptake of the decision
The smaller value of the marketing margin indicates the more efficient a company.

Calculation of profits and costs in the profit section [5]:

$$\text{Farmer Ski} = \frac{\text{Farm price}}{\text{Final retail price}} \times 100\%$$

$$\text{Agency Sbi} = \frac{\text{Absolute margin of two price levels}}{\text{Final retail price}} \times 100\%$$

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Calculation of profits and costs on share of cost (distribution of margins):

$$\text{Ski} = \frac{\text{Ki}}{\text{MP}}\, x\ 100\%, Ki = \text{Pji} - \text{Pbi} - \text{£bij}$$

$$\text{Sbi} = \frac{\text{bi}}{\text{MP}}\, x\ 100\%$$

Description:
Ski = Profit distribution of marketing institutions number-i (%)
Ki = profit of marketing institutions number-i (IDR/kg)
bi = Marketing cost number-i
MP = Marketing margin (IDR)
Pji = selling price of the institution number-i (IDR/Kg)
Pbi = buying price of the institution number-i (IDR/Kg)
bij =Marketing agency of marketing costs number-i from various types of fees number-j

3. Results and discussions

3.1. Factors affecting the choice of marketing channels

The Robusta coffee marketing of on the slope of Argopuro mountain is simple. Originally, the coffee farmers market their products in two ways, namely by direct selling in the form of coffee beans and sold after the processing is done either by wet or dry basis. As time went on, coffee farmers started reluctantly sell coffee in the form of coffee beans due to a cheap price, thus the coffee farmers prefer to sell coffee in green beans.

There are factors that influence the selection of Robusta coffee marketing channels by the farmers. Based on earlier research, there are six factors that influence the selection of channel marketing by farmers [5]. Factors that influence decision making in the selection of marketing channels are:

3.1.1. Land area. Land area defined as the magnitude of the physical environment made up of climate, relief, soil, water, and vegetation as well as existing objects on it including the results of human activities in the past and present. Farmer respondents do business activities on land less than or equal to 1 hectare with percentage of 44% or 19 farmers. Farmers who cultivate coffee on land between 1.5-3 hectares of 51% or 22 people, while the rest of 5% is the farmer who owns the land of more than 3 hectares. The land used by farmers is mostly owned by the Ministry of Forestry, while the private garden is only slightly so that at harvest, farmers must pay the Ministry of Forestry 30% of the total harvest.

3.1.2. Farmer experience. The farming experience is an activity that has been done by farmers, by managing and using agricultural production facilities to get results or profits. The experience of farming in this research is measured in units of years, this illustrates the time in cultivating Robusta coffee. Most respondents experienced in Robusta coffee cultivation, this was evident from 43 respondents as many as 38 people (88.3%) had experience of Robusta coffee cultivation for more than 10 years, while the remaining 11.7% less than 10 years. Experience in farming, certainly affects the success rate of coffee farmers, it also affects the strength of the network in the Robusta coffee market. Coffee farmers in the Tugusari and the Curah Kalong Villages are mostly incorporated in village farmer groups and become active members, the number of farmers is 75 people for both villages. But there are also be coffee farmers but not incorporated in the farmer groups.

3.1.3. Revenue. Revenue represents the number of incomes which is rated with a unit of currency and produced by someone in a certain period. The income received by Robusta coffee farmers is closely

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related to product prices and also the amount of production. If the price received by farmers is high, then the amount of production can be increased, and it can increase farmer's income.

3.1.4. The amount of the production. The amount of production is influenced by the amount of coffee planted. The amount of production is also affected by the weather, if the weather is good, the production is high. The high amount of production will motivate farmers to sell the coffee to middlemen who offer high prices, so that the income that farmers will also increase.

3.1.5. Contract attachment. Contract attachment is an agreement desired by two people or two parties to be implemented. In contract attachment, there is an agreement to bind and the ability of the parties to make an engagement. Contract attachments usually occur by coffee farmers with middlemen, between marketing institutions with farmers, or between cooperative associations with farmers where the previous farmer (before harvest) gives his consent to sell the harvest to the first party (ijon).

3.1.6. Land. Land mastery is an order that regulates the rights and obligations of individuals, or groups in the use and supervision of land. Land mastery is expected to have a positive effect on traders with a broad scope, farmers who own land are expected to sell Robusta coffee to large traders. The land owned by the farmers of Tugusari and the Curah Kalong Villages are privately owned land and also Perhutani's gardens. However, most of these farmers are as cultivators and also land owners, thus saving the costs incurred for land management.

3.2. Analysis of marketing channel efficiency
There are several marketing agencies involved in marketing Robusta coffee in Tugusari and Curah Kalong Villages to reach consumers. Generally, Robusta coffee farmers already have a middleman subscription to sell their coffee. Farmers do not sort coffee, but all coffee both small and large, is sold all and valued by the middlemen.

Based on the results, marketing research in the Tugusari and the Curah Kalong Villages consisted of two marketing channels which can be seen in the Figure 1.

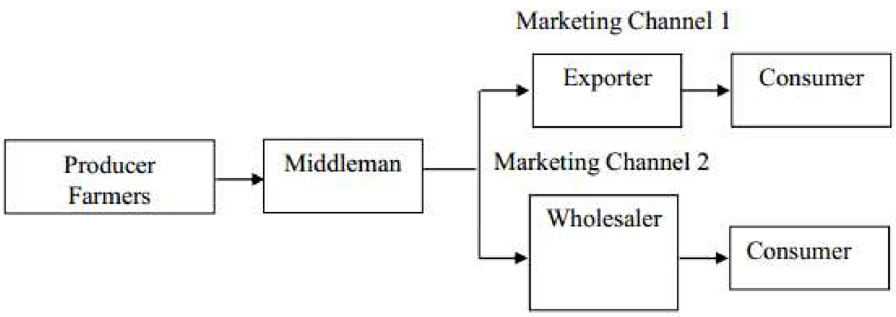

Figure 1. Marketing channel Bangsalsari sub-district Jember Regency

Based on Figure 1, Robusta coffee marketing in Bangsalsari has two marketing channels, namely marketing channel 1 (farmer – middleman - exporter - consumer) and marketing channel 2 (farmer - middleman - wholesaler - consumer). The longer the marketing chain, the greater the level of profit taken by each marketing agent. This causes the selling price of coffee to consumers to be higher and, the value of marketing margin increases. If the value of them margin is high, the marketing channel of a commodity will be inefficiency. Table 1 shows the marketing efficiency analysis on marketing channel 1.

Table 1. Marketing margin analysis on marketing channel 1 in Bangsalsari subdistrict, Jember Regency

No.	Marketing Institution	Price (Rp/Kg)	Share		DM	
			Ski	Sbi	Ski	Sbi
1.	Farmer	25,000	71.4			
2.	Middleman					
	Buying cost	25,000				
	Transportation cost	60.85		0.17		0.60
	Human resource fees			0.32		
	Packaging cost	58.3				0.583
	Selling cost			0.16		
	Profit	114.2				1.142
		28,000				
		2766.6	7.9		27.6	
3.	Exporter					
	Buying cost	28,000				
	Transportation cost					
	Human resource fees					
	Packaging cost					
	Selling cost					
	Profit					
		35,000				
		7,000	20		70	
4.	Consumer					
	Buying cost	35,000				
	MP	10,000				
	Total		99.3	0.65	97.6	2.32

Table 1 explains the marketing margin analysis for marketing channel 1, namely farmers - brokers - exporters - consumers with the obtained margin value of IDR 10,000/kg. The marketing margin value is obtained from the difference between the price received by the farmer, which is IDR 25,000/kg at prices received by consumers, which is IDR 35,000/kg. Share profits (Ski) amounting to 99.3% greater than the share of costs (Sbi) that is equal to 0.65%, meaning that this marketing channel 1 can be said to be rational because the amount of profits obtained is greater than the amount of marketing costs during the process of distributing Robusta coffee from the producer to the exporter.

The average price of one kilogram of coffee beans at the farmer level in marketing channel 1 is IDR 25,000 with a percentage of profit of 71.4% and prices at the level of exporters of IDR 28,000 kg. The share value of farmers' profits is 71.4%, the middlemen's profit share is 7.9%, and the exporter's profit share is 20%. The percentage value explains that the price of coffee at the farmer level is higher than the price at the consumer level, meaning that farmers are not disadvantaged because, the share of farmers' profits is greater than the middleman's and exporter's profit share.

The middleman is a coffee trader who buys coffee directly from farmers and then sells it to other marketing agencies. The delivery of Robusta coffee beans from middlemen to exporters uses 6 tons of truck transportation. Deliveries are made if the coffee beans meet the truck quota and there is an agreement on the delivery request between exporters and brokers. The exporter that is the destination for the delivery of Robusta coffee beans by middlemen, namely PT. Olam Indonesia and PT. Indokom Citra Persada. Costs incurred in one delivery are transportation costs of IDR 365,135 (IDR 60.85/kg), the cost of packing coffee beans as much as 6 tons with a sack of IDR 685,714 (IDR 114,2/kg). Workers to send and reduce Robusta coffee beans to exporters need 2 people, with a wage per shipment of IDR 350,000 (IDR 58,3/kg).

Margin distribution of Robusta coffee marketing is used to determine the even distribution of profit sharing in each marketing institution. Margin distribution value, the share of profits gained by middlemen is 27.6%, smaller than the share of profits obtained by exporters which is 70%. The difference between the two share profits of marketing channel 1 is more than 5, indicating that the profit sharing of each marketing agency is uneven.

Table 2. Marketing margin analysis on marketing channel 2 in Bangsalsari subdistrict, Jember Regency

No.	Marketing Institution	Price (Rp/Kg)	Share		DM	
			Ski	Sbi	Ski	Sbi
1.	Farmer	24,500	87.5			
2.	Middleman					
	Buying cost	24,500				
	Transportation cost	43.87		0.15		1.25
	Human resource fees					
	Packaging cost	40		0.14		1.14
	Selling cost					
	Profit	114.2		0.40		3.26
		25,000				
		301.9	1.07		8.62	
3.	Exporter					
	Buying cost	25,000				
	Transportation cost	0				
	Human resource fees					
	Packaging cost	0				
	Selling cost					
	Profit	0				
		28,000				
		3,000	10.7		85.7	
4.	Consumer					
	Buying cost	28,000				
	MP	3,500				
	Total		99.27	0.69	94.32	5.65

Table 2 described on the margin analysis for marketing channel marketing 2 namely farmers – the middleman – the great merchant – consumer with obtained values for the margin of IDR 3,500/kg. The value of the marketing margin obtained from the difference between the price received coffee farmers, that is IDR 24,500/kg at a price acceptable to consumers IDR 28,000/kg. Big nothingness of the marketing margin indicates that the number of institutions involved in the marketing channel, the length of the marketing channel then the greater the margin value marketing and will have an impact on the high selling price of coffee at the consumer level.

Based on the results of the analysis on marketing channel 2 obtained share profit of 99.27% greater than the share of cost of 0.69%, it means marketing channel 2 is logical since the major benefit is greater than the amount of the costs issued during the process of distribution marketing Robusta coffee from farmers through to consumers. Therefore, the level of profits that accrue to the entire marketing principals involved in the marketing of Robusta coffee on the marketing channels of 2 larger than the costs incurred by the perpetrators of such marketing.

On the marketing channel 2, it can be seen that the middleman is the only perpetrators of the marketing spend of marketing in the form of transportation costs IDR 219,390 with average transportation costs IDR 43.87/kg, cost of packaging IDR 571,428 with average value of packaging IDR 114,2/kg. The labor needed to send and lose the big traders in Robusta coffee as much as 2 people, with wages per shipments of IDR 200,000 to the value of the average wage of IDR 40/kg. The cost of packaging, and labor are covered by the middleman because the middleman is usually taking the Robusta coffee to retailers in the market town or out of town. The transportation used trucks with payload capacity 5 tons. Several large merchants were sent Robusta coffee by the middleman between other retailers in major markets and major market Levee Jember Dampit Malang. The deliveries are carried out when there is a request from an existing big trader in the city, because of the way from the village at the slope of Argopuro subdistrict of Jember Bangsalsari (Tugusari and Curah Kalong villages) to market the big fair distances and conditions the path is broken.

The price of Robusta coffee farmers obtained the present IDR 24,500/kg, with a percentage of profit of 87.5% of the consumer-level price of IDR 28,000/kg. The percentage value explained that farmers were not harmed in the marketing channel 2. Share of the profit obtained Robusta coffee farmers is greater than the share of the profit obtained by the marketing agencies involved namely the middleman profit share for retailers 1.07% and merchants 10.7%. The value of the distribution margin, share of profits earned by the middleman 8.62% i.e. smaller than the share of profits earned by wholesalers of 85.7%. The distribution of the marketing margin of Robusta coffee is used to know the equity division profit for each of the marketing agency. The difference of both share the advantage of marketing channel 2 is too much larger than five, meaning shows that profit per marketing agency is uneven. This is because the cost of distribution ranging from packaging, transportation, and labor are covered by the middleman.

The level efficiency of the Robusta coffee marketing on marketing channels 1 and 2 can be measured by analyzing the value of share of cost and marketing margin (MP) on each of the institutions involved in marketing the marketing of Robusta coffee. Table 3 shows the marketing margin value accumulation, share costs, and share of profits for Robusta coffee marketing channels 1 and 2.

Table 3. Marketing margin value, share cost, dan share marketing profit of Robusta coffee

No.	Marketing Channel	Marketing Margin Value	Share (%)		DM (%)	
			Ski	Sbi	Ski	Sbi
1.	Marketing Channel 1	10,000	99.3	0.65	97.6	2.32
2.	Marketing Channel 2	3,500	99.27	0.69	94.32	5.65

Marketing margin analysis results shows marketing channel 1 IDR 10,000, and marketing channels 2 IDR 3,500. The value of the marketing margin of 2 smaller than 1, this means the marketing channel marketing channel 2 is capable of channeling the Robusta coffee from the producer to the consumer with smaller marketing expenses rather than marketing channels 1. Thus, marketing channels 2 is more efficient than marketing channel 1, based on the marketing efficiency criteria which States that the less the value of the marketing margin then the more efficient marketing channels such.

4. Conclusion
On the slope of Argopuro mountain in particular Tugusari and Curah Kalong villages and Bangalsari subdistrict, Jember Regency, marketing channel 2 (farmer - middleman - wholesaler - consumer) is more efficient that marketing channel 1 (farmer – middleman - exporter - consumer), because the marketing margin is smaller than the channel Marketing 1, that is IDR 3,500.

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References

[1] Sudiyono 2002 *Pemasaran Pertanian* (Malang: UMM Press)
[2] Pusat Penelitian Kopi dan Kakao Indonesia(ICCRI) 2013 *Bahan Tanam Kopi* (Jember)
[3] Badan Pusat Statistik Provinsi Jawa Timur 2013 *Perkebunan Kopi Provinsi Jawa Timur* (Surabaya: Badan Pusat Statistik Provinsi Jawa Timur)
[4] Putri, Karlina R dkk. 2018 *Jurnal Ilmiah Manajemen* **8** 109–135
[5] Jumiati E dkk 2013 *Jurnal AGRIFOR* **7**5–9