Study of the Performance of the Organic Robusta People's Coffee Agribusiness Supply Chain in Pasuruan Regency

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ABSTRACT

Indonesia is a coffee producer and also an important consumer of coffee commodities. As a producer, Indonesia ranks fourth after Brazil, Vietnam and Colombia, and as a consumer it is in seventh place (International Coffee Organization, 2019). Organic farming is the answer to the green revolution promoted in the 1960s which caused reduced soil fertility and environmental damage due to the uncontrolled use of chemical fertilizers and pesticides. Agricultural systems based on high energy input such as chemical fertilizers and pesticides can damage the soil which can ultimately reduce soil productivity, resulting in the development of organic farming. According to (Pebrianti et al., (2020), the enthusiasm of coffee-based businesses is increasing so that coffee and its various product derivatives are increasingly popular in the country. Coffee consumption has now become one part of the lifestyle and daily lives of the world's people and the most important trading commodity after oil. Indonesia is one of the fourth largest producers in the world.

This research aims to analyze the performance of the organic robusta people's coffee supply chain in Pasuruan Regency. The data used in this research includes primary and secondary data. Research locations include Tutur, Purwosari and Prigen Districts in Pasuruan Regency. The data collection process was carried out using knowledge directly provided by researchers to 150 organic robusta coffee farmers. The data analysis method used in this research uses the stochastic frontier production function to answer supply chain performance and farmer's share for marketing. (10 pt).

1. Introduction

Indonesia is a coffee producer and also an important consumer of coffee commodities. As a producer, Indonesia ranks fourth after Brazil, Vietnam and Colombia, and as a consumer it is in seventh place [1]. Indonesian people in general drinking coffee has become a part of everyday life, especially for the elderly and now also young people and teenagers. Potentially, various derivative products can be produced from coffee commodities, both originating from the main products that are generally traded in the form of rice coffee (coffee beans) and by-products. The coffee industry and trade are still concentrated in processing coffee beans, especially roasted coffee products (roasted coffee), ground coffee, extracted coffee, dipped coffee and low caffeine coffee (decaffeinated coffee). Increasing the added value of coffee is very important and needs to be optimized for the country's foreign exchange income [2]. According to [3], the marketing system for agricultural products is a form order marketing agencies which carry out marketing activities in order to smooth the flow of agricultural products from the initial producers into the hands of the final consumers, on the other hand also smooth the flow of money, the value of products created by productive activities carried out by marketing agencies. The marketing system is a productive activity carried out by marketing institutions in horizontal and vertical order. The level of productivity of the marketing system can be seen from the efficiency and effectiveness of all functional marketing activities which also determine the performance of system operations and processes. According to [4], Coffee production and marketing connects several poor villages in the world with global markets. In recent years, many initiatives have emerged, aimed at making coffee production and marketing have a social and sustainable impact. Supply chains (supply chains) in agricultural commodities must be managed well because they are easily damaged and there are obstacles in rural areas. Meanwhile, according to [5] Supply chains (supply chains) are characterized by high economic and social potential. The agricultural systems that are developing are organic farming and organic production systems [6]. Certified organic production systems also provide a variety of active learning to enhance innovation in analytical skills. The organic certification scheme is an attractive agribusiness model for governments, non-governmental organizations, funders and other driving partners involved in increasing income and the flow of sustainable agricultural systems to smallholder farmers through high economic value markets [7]. The problem that every business person will always face is performance, therefore business people need to study and anticipate the factors that influence performance. Factors that can influence performance will help business people in making the right policies, so that they can improve performance so that it meets the expectations and goals of business people.

2. Method

The study design used in this study used a comparative causal design. The comparative causal design was chosen due to the absence of manipulated independent variables. The profits obtained are more efficient by saving human and economic resources because the time required is faster.

2.1. Search Strategy

The choice of research location was chosen deliberately (purposively) [8], namely in Pasuruan district considering that Pasuruan district is an area for the development of organic robusta people's coffee.

2.2. Analysis

The stages of coffee supply chain efficiency analysis are carried out with marketing efficiency. According to [9], marketing efficiency is divided into three, namely price efficiency, operational efficiency and relative efficiency. In this research, an assessment was carried out of the efficiency used, namely operational efficiency and relative efficiency. Assessment of efficiency from an operational perspective can be seen from marketing margin and farmer's share indicators. Assessment of relative efficiency is carried out by comparing one marketing channel with another from marketing equivalent products by looking at qualitative indicators, namely marketing functions, market behavior, and institutional relationships [10]. An efficient marketing process is marketing that provides an even distribution of business or shares starting from farmers, marketing institutions, according to the victims of each marketing institution. This means that an efficient marketing process provides an even or fair advantage to each marketing agency involved.

Marketing margin as the difference or difference between prices at the farmer producer level and prices at the final consumer level [11]. Total marketing margin is used to calculate the absolute margin value from farmers to final consumers. The total margin is obtained from the difference between the selling price of the farmer and the selling price of the retail trader. Total margin can also be obtained from the amount of margin generated by all marketing institutions involved. The marketing margin is the sum of marketing costs and profits obtained from the relevant institution. According to [12], the calculation of marketing margin can be formulated as follows:

$MT = Pr - Pf = Ci + \pi i = \Sigma_{(i=1)}^{n} Mi$

Where;

MT : Total marketing margin

Pr : Price at retail level (final consumer level)

Pf : Price at the producer farmer level

Mi : ith level marketing margin

Ci : Costs of marketing institutions of the ith level

Πi : Ith level of profit

Calculation of total marketing margin can also be done using percentages. Marketing margin in percentage form is often used as an indicator of efficiency in marketing because it is easier to compare. The marketing margin percentage calculation is as follows:

$MT = (Pr-Pf)/p_r \times 100\%$

A supply chain channel can be said to be efficient if the margin value of the channel formed is lower than the margin value of other supply chain channels, and the marketing profits obtained are greater than the marketing costs incurred. According to Asmarantaka (2012), the low marketing margin value does not adequately reflect efficient marketing, so farmer's share analysis is needed.

Farmer's share is a comparison of the percentage of prices received by organic and non-organic robusta coffee producer farmers with the prices paid by final consumers (Limbong and Sitorus, 2019). The size of farmer's share is the opposite of marketing margin. The greater the marketing margin, the greater the farmer's share, and vice versa. The lower the marketing margin, the higher the value:

$F'S = Pf/p_r \times 100\%$

Where:

F's : Percentage accepted by farmers

Pf : Price in farmer level

Pr : Price in final consumer level

Farmer's share can be another indicator of marketing efficiency. Farmer's share shows how much the receipt value obtained by organic and non-organic robusta coffee farmers, the higher the price at the producer level compared to the price at the consumer level, the higher the value of farmer's share obtained. The higher the value obtained, the more efficient supply chain marketing will be.

3. Results and Discussion

3.1. Supply Chain Performance System

The supply chain structure explains who the parties involved are and their role in carrying out supply chain flow activities. The supply chain structure for organic robusta folk coffee in Pasuruan district was analyzed through the chain members involved. Chain members are institutions or actors involved in the flow of products, finances and information. Members of the organic robusta people's coffee supply chain in Pasuruan district, East Java province are farmers, village collecting traders,

sub-district collecting traders, farmer groups and home industry. The structure of the organic robusta folk coffee supply chain relationship can be seen in figure 3.1 below.

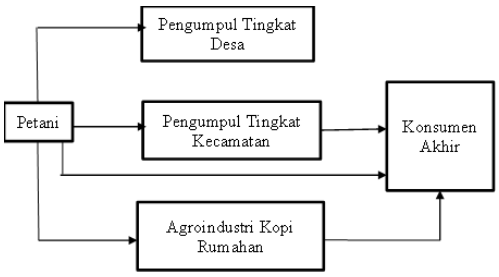

Figure 3.1 Supply Chain for Organic Robusta Folk Coffee

3.2. Margin

Margin looks at the calculations of each member of the chain whose values vary, the chain institution consisting of farmers, village collecting traders, sub-district collecting traders and home coffee agro-industry. The calculation of the marketing margin is used to measure price differences at producer farmer level up to prices at final consumer level. The costs incurred and profits obtained by farmers, village collecting traders, sub-district collecting traders and home coffee agro-industries are also not the same. The marketing margin for the coffee supply chain in Pasuruan Regency is calculated through reducing the sales price by purchasing wet cheri coffee from farmers to rice coffee (green bean) which is received by the final consumer.

Anggota Rantai	Satuan (Rp/Kg)	Persentase (%)
Produsen (Petani)		
Biaya Produksi/HPP	Rp 12.000,00	14,11
(Biaya Pengemasan) (Rp/Kg)	Rp 75,00	0,08
(Biaya Transportasi) (Rp/Kg)	Rp 50,00	0,05
Biaya Pemasaran (Rp/Kg)	Rp 75,00	0,08
Keuntungan	Rp 800,00	0,94
Harga Jual (Rp/Kg)	Rp 13.000,00	15,29
Pedagang Pengumpul Desa		
Harga Beli/HPP (Rp/Kg)	Rp 13.000,00	15,29
(Biaya Pengemasan) (Rp/Kg)	Rp 100,00	0,11
(Biaya Transportasi) (Rp/Kg)	Rp 75,00	0,08
(Biaya Pengeringan) (Rp/Kg)	Rp 1.000,00	1,17
(BiayaPenyusutan) (Rp/Kg)	Rp 20.800,00	24,47
Biaya Pemasaran (Rp/Kg)	Rp 95,00	0,11
Keuntungan (Rp/Kg)	Rp 2.930,00	3,44
Margin	Rp 25.000,00	29,41
Harga Jual (Rp/Kg)	Rp 38.000,00	44,70
Pedagang Pengumpul Kecamatan		
Harga Beli/HPP (Rp/Kg)	Rp 38.000,00	44,70
(Biaya Pengupasan) (Rp/Kg)	Rp 1.000,00	1,17
(Biaya Penyusutan) (Rp/Kg)	Rp 43.700,00	51,41
(Biaya Pengemasan) (Rp/Kg)	Rp 100,00	0,11
(Biaya Transportasi) (Rp/Kg)	Rp 500,00	0,58
Biaya Pemasaran (Rp/Kg)	Rp 200,00	0,23
Keuntungan (Rp/Kg)	Rp 1.500,00	1,76
Margin	Rp 47.000,00	55,29
Harga Jual (Rp/Kg)	Rp 85.000,00	100,00
Total Margin	Rp 72.000,00	84,70
Total Biaya Pemasaran	Rp 370,00	0,43

Source: Primary Data Analysis, 2025

Based on table 3.2.1, the research results show that in channel 1 there are three supply chain members involved, namely: farmers, village collecting traders and sub-district collecting traders. The selling value of coffee at the wet cheri coffee farmer level is 15.29 % of the purchase price at the consumer level, which means there is a total margin of 84.7 % of the price of coffee sold by the farmer at the price paid by the consumer. The total marketing costs required by farmers, village collecting traders and sub-district collecting traders are IDR 370.00/kg or 0.43 % of the coffee paid by consumers.

Anggota Rantai	Satuan (Rp/Kg)	Persentase (%)
Produsen (Petani)		
Biaya Produksi/HPP	Rp 12.000,00	14,11
(Biaya Pengeringan) (Rp/Kg)	Rp 1000,00	1,17
(Biaya Penyusutan) (Rp/Kg)	Rp 16.800,00	19,76
(Biaya Pengemasan) (Rp/Kg)	Rp 100,00	0,11
(Biaya Transportasi) (Rp/Kg)	Rp 150,00	0,17
Biaya Pemasaran (Rp/Kg)	Rp 100,00	0,11
Keuntungan	Rp 7.900,00	9,29
Harga Jual (Rp/Kg)	Rp 38.000,00	44,70
Pedagang Pengumpul Kecamatan		
Harga Beli/HPP (Rp/Kg)	Rp 38.000,00	44,70
(Biaya Pengemasan) (Rp/Kg)	Rp 100,00	0,11
(Biaya Pengupasan) (Rp/Kg)	Rp 1.000,00	1,17
(Biaya Penyusutan) (Rp/Kg)	Rp 43.700,00	51,41
(Biaya Transportasi) (Rp/Kg)	Rp 500,00	0,58
Biaya Pemasaran (Rp/Kg)	Rp 200,00	0,23
Keuntungan (Rp/Kg)	Rp 1.500,00	1,76
Margin	Rp 47.000,00	55,29
Harga Jual (Rp/Kg)	Rp 85.000,00	100,00
Total Margin	Rp 47.000,00	55,29
Total Biaya Pemasaran	Rp 300,00	0,35

Source: Primary Data Analysis, 2025

By table 3.2.2 shows that the results of research on channel 2 show that there are two supply chain members involved, namely: farmers and sub-district collector traders. The selling value of dried glondong coffee at the farmer level is 44.70 % of the purchase price at the consumer level, which means there is a total margin of 55.29 % of the price of coffee sold by farmers at the price paid by consumers. The total marketing costs required by farmers and sub-district collecting traders on channel 2 are Rp. 300.00 /kg or 0.35 % of the price of organic robusta people's coffee paid by consumers.

Anggota Rantai	Satuan (Rp/Kg)	Persentase (%)
Produsen (Petani)		
Biaya Produksi/HPP	Rp 12.000,00	13,33
(Biaya Pengeringan) (Rp/Kg)	Rp 1000,00	1,11
(Biaya Pengupasan) (Rp/Kg)	Rp 1000,00	1,11
(Biaya Penyusutan) (Rp/Kg)	Rp 21.000,00	23,33
(Biaya Pengemasan) (Rp/Kg)	Rp 100,00	0,1
(Biaya Transportasi) (Rp/Kg)	Rp 2.500,00	3,01
Biaya Pemasaran (Rp/Kg)	Rp 250,00	2,77
Keuntungan (Rp/Kg)	Rp 25.150,00	27,94
Harga Jual (Rp/Kg)	Rp 63.000,00	70,00
Agroindustri Kopi Rumahan		
Harga Beli/HPP (Rp/Kg)	Rp 63.000,00	70
(Biaya Pengemasan) (Rp/Kg)	Rp 1.500,00	1,66
(Biaya Transportasi) (Rp/Kg)	Rp 2.500,00	2,77
Biaya Pemasaran (Rp/Kg)	Rp 500,00	0,55
Keuntungan (Rp/Kg)	Rp 15.500,00	17,22
Margin	Rp 20.000,00	22,22
Harga Jual (Rp/Kg)	Rp 90.000,00	100,00
Total Margin	Rp 20.000,00	22,22
Total Biaya Pemasaran	Rp 750,00	0,83

Source: Primary Data Analysis, 2025

According to table 3.2.3, the results of the research on channel 3 show that there are two supply chain members involved, namely: farmers and home coffee agro-industry. The selling value of rice coffee (green bean) at the farmer level is 70.00 % of the purchase price at the consumer level, which means there is a margin of 22.22 % of the price of coffee sold by farmers at the price paid by consumers. The total marketing costs required by farmers and home coffee agro-industries on channel 3 are IDR. 750.00 /kg or 0.83 % of the price of organic robusta people's coffee paid by consumers.

Anggota Rantai	Satuan (Rp/Kg)	Persentase (%)
Produsen (Petani)		
Biaya Produksi/HPP	Rp 95.000,00	15,78
(Biaya Pengeringan) (Rp/Kg)	Rp 1.000,00	1,05
(Biaya Pengupasan) (Rp/Kg)	Rp 1.500,00	1,57
(Biaya Penyusutan) (Rp/Kg)	Rp 26.250,00	27,63
(Biaya Pengemasan) (Rp/Kg)	Rp 150,00	0,15
(Biaya Transportasi) (Rp/Kg)	Rp 2.500,00	2,63
(Biaya Pemasaran) (Rp/Kg)	Rp 10.000,00	10,52
Keuntungan (Rp/Kg)	Rp 38.600,00	40,63
Harga Jual (Rp/Kg)	Rp 95.000,00	100,00
Total Margin	Rp 0,00	0,00
Total Biaya Pemasaran	Rp 10.000,00	10,52

Source: Primary Data Analysis, 2025

Based on table 4.14, the results of research on channel 4 show that there is one supply chain member involved, namely: farmers who also double as village collecting traders and have a home coffee agro-industry as well as retail traders in the market. The selling value of coffee at the farmer level is 100.00 % of the buying price at the consumer level, which means there is a margin of 84.21 % of the price of organic robusta people's coffee sold by farmers at the price paid by consumers.

Based on the marketing margin results in the Table, it shows several marketing channels by having each margin value. The margin amount will be different for each chain channel, because each chain actor has a different selling price. The margin between coffee farmers and coffee consumers with the largest total margin is on channel 4, namely 84.21 % of the price of wet cheri coffee sold by farmers and owned by the farmers themselves who also double as traders for village collectors and have a coffee agrondustry business as well as retail traders in the market. This is because on channel 4 retailers are able to buy wet cheri coffee from farmers at prices that match market prices and even more. and retail traders are able to take greater profits from the sale of rice coffee (green beans), because it serves small purchases.

Total margin the lowest in the organic robusta people's coffee supply chain channel in Pasuruan Regency is on channel 3 with a value of 22.22 % of the price of coffee sold by farmers at the price paid by consumers. Chain channel 3 is a supply chain channel that buys coffee in the form of rice coffee (green bean) from Langasung farmers, so that farmers get high profits from sales. This is in accordance with the opinion (Rattanawong, et al, 2024) Variation in marketing margins is caused by differences in cost structure and profitability as goals in marketing a product.

3.3. Channel Efficiency

Efficiency in a marketing activity can affect the welfare of the perpetrators. This welfare occurs throughout both producers, marketing institutions and end consumers. Marketing producers will be considered efficient if the income obtained is of decent value and proportional to the costs incurred. For marketing institutions, marketing is efficient if the margins formed are not too large or rational. A measurement of marketing activities in a supply chain can reflect the level of efficiency in a chain. In this study, measurements of organic robusta coffee marketing activities were analyzed using marketing margins and farmer's share.

Saluran Pemasaran	Biaya Pemasaran (Rp)	Harga Jual (Rp)	Efisiensi Pemasaran	Katagori
1	370,00	85.000,00	0.43	Efisien
2	300,00	85.000,00	0.35	Efisien
3	750,00	90.000,00	0.83	Efisien
4	10.000,00	95.000,00	1.00	Efisien

Source: Primary Data Analysis, 2025

An efficient marketing process is marketing that can provide an even share or share for all members of the supply chain or marketing agency involved. An efficient supply chain channel is the channel that has the lowest margin and the highest farmer's share (Asmarantaka 2012). The research results of Table 3.3 show that all organic robusta people's coffee supply chain channels in Pasuruan Regency are classified as efficient in accordance with efficiency criteria, of which 0-33% are classified as efficient.

3.4. Farmer's Share

According to Hidayat et al (2021), Farmer's share is an indicator that measures how much share coffee farmers receive in selling prices at the consumer level in each marketing channel. The value of farmer's share shows the percentage of consumer prices that can be accepted by farmers. Farmer's share is calculated by comparing prices at the farmer level with prices at the consumer level and expressed in percent (%). A high farmer's share value does not absolutely indicate that the marketing system is running efficiently. This relates to the size or small amount of value added to a product by the marketing agencies involved. The value of farmer's share is inversely proportional to marketing margin. This means that the higher the value of the farmer's share, the lower the marketing margin value, and vice versa. The farmer's share value in each organic robusta coffee supply chain channel pattern in Pasuruan Regency studied can be seen in Table 3.4

Saluran Pemasaran	Harga di Tingkat Petani (Rp/kg)	Harga di Tingkat Konsumen (Rp/kg)	Farmer's Share (%)
1	13.000,00	85.000,00	14.11
2	63.000,00	85.000,00	74.11
3	63.000,00	90.000,00	70.00
4	95.000,00	95.000,00	100.00

Source: Primary Data Analysis, 2025

Table 4.18 shows that channel 3 pattern has the lowest farmer's share value among other channels, namely 14.11 percent. This shows that farmers in marketing channel 1 only get 14.11 percent of the price paid by consumers. Farmer's share pattern 1 marketing channel is low because farmers' selling prices are much lower than prices sell in the last chain are District level traders. The average price of organic robusta people's coffee in the form of wet cheri in farmers is IDR 13,000.00 per kg, then after going through a distribution chain process from village-district level traders, drying and stripping is carried out, the price of organic robusta coffee at the final consumer's purchase price becomes IDR 85,000.00 / kg of rice coffee (green bean). The channel pattern that has the largest farmer share's value is channel pattern 4, which is 100.00 percent. The price received by the final consumer is IDR 95,000.00/kg coffee. The high value obtained is caused by the only supply chain members involved being farmers who also serve as retail traders in the market, so they can sell directly to consumers.

4. Conclusion

a. Marketing channel 1 has the lowest farmer's share value compared to other channels, which means that the share received by farmers is equal to the price paid by the final consumer. This is because channel 1 has the longest channel and a high margin value, resulting in a low farmer's share value.

b. Marketing channel 4 has the highest farmer's share value compared to other channels, which means that the share received by farmers is equal to the price paid by the final consumer. This is because channel 4 has a supply chain channel for farmers and final consumers.

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Data and Software Availability Statement

The data supporting this study are derived from published literature included in the systematic review. No new data sets or software were generated. Citation management is carried out using Mendeley. The extracted data are available from the authors concerned upon reasonable request.

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