

ANALYSIS OF MARKET STRUCTURE AND MARKETING CHANNEL OF ROBUSTA COFFEE IN PAGAL VILLAGE, MANGGARAI REGENCY

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Abstract: Robusta coffee is the most widely cultivated plantation commodity in Kabupaten Manggarai, especially in Pagal Village. However, farmers in Pagal Village are faced with inefficient marketing. The objectives of this study are (1) to determine the market structure of robusta coffee in Pagal Village, Manggarai Regency (2) to determine the marketing efficiency of robusta coffee in Pagal Village, Manggarai Regency. The determination of the research location was purposive. Sample determination using simple random sampling method with the number of samples using the slovin formula so that 47 respondents were obtained. Market structure used CR4 and IHH analysis while marketing efficiency was analyzed through marketing channels, farmer's share, and marketing efficiency. The results of the analysis show that the robusta coffee market structure in Pagal Village, Manggarai Regency at the farm level is a perfectly competitive market with a low level of concentration, at the retailer trader level is a medium concentrated oligopoly market, while at the wholesaler and collector trader level is a highly concentrated monopoly market type. Robusta coffee marketing in Pagal Village goes through three (3) channels, namely marketing channel I: Farmers - Retailers - Consumers, marketing channel II: Farmers - Wholesalers - Retailers - Consumers, and marketing channel III: Farmers - Collecting Traders - Wholesalers - Retailers - Consumers. The value of farmer share in channels I, II, and III is 86.18%, 81.29%, and 71.93%, respectively. While the value of marketing efficiency in channel I is 2.37%, channel II is 1.70%, and channel III is 2.22%. This indicates that based on the value of farmer's share and marketing efficiency, the three marketing channels are in the efficient category.

Keywords: *Efficiency, Market Channels, Market Structure, Robusta Coffee, SCP*

INTRODUCTION

Indonesia is known as an agricultural country where farmers play an important role in the country's economy. This is reflected in the percentage of agricultural GDP contribution of 12.42% in 2022 (BPS, 2023). The agricultural sector itself has several subsectors, namely food crops, horticulture, plantations, livestock, forestry, and fisheries. One of the most widely cultivated subsectors in Indonesia and plays a role in the national economy is plantation crops. Indonesia has the potential for plantations because it is located on the equator so that the climate in Indonesia tends to be tropical. In 2022, plantations occupy the first position as the largest contributor to GDP, which is around 3.76% of total agricultural GDP.

Indonesia is known as an agricultural country where farmers play an important role in the country's economy. This is reflected in the percentage of agricultural GDP contribution of 12.42% in 2022 (BPS, 2023). The agricultural sector itself has several subsectors, namely food crops, horticulture, plantations, livestock, forestry, and fisheries. One of the most widely cultivated subsectors in Indonesia and plays a role in the national economy is plantation crops. Indonesia has the potential for plantations because it is located on the equator so that the climate in Indonesia tends to be tropical. In 2022, plantations occupy the first position as the largest contributor to GDP, which is around 3.76% of total agricultural GDP.

There are generally two varieties of coffee cultivated in Indonesia, namely arabica coffee and robusta coffee. Until 2020, coffee production was dominated by robusta varieties by 70.15% while the rest was arabica coffee 29.85% with the amount of robusta coffee production in 2022 reaching 526.52 thousand tons (BPS, 2023). Robusta coffee has a more strategic market because it has a wider planting coverage than arabica varieties. Robusta varieties can grow well at an altitude of 400-800 masl (Taqiyuddin, 2023).

Manggarai is one of the regions in NTT Province that relies on coffee as a source of income. The contribution of GRDP in the agricultural sector in Manggarai occupies the first position with a contribution of 20.01%. Coffee farming, including robusta coffee, is still a sector that is cultivated by farmers on a small scale, but the

dependence on the standard of living of the community is very large and has a long-term impact. The coffee area in Manggarai is 7,537 hectares with a production level of 2,522 tons (BPS Kabupaten Manggarai, 2024).

Cibal is a sub-district in Kabupaten Manggarai that is known for its fertile soil, with a topography that varies between valleys and hills with an altitude of 500-710 meters above sea level (BPS Kabupaten Manggarai, 2023). With the potential for plantation crops such as coffee, cloves, and candlenuts. The potential for coffee farming development is very large when viewed from the aspect of the location of the hilly area from medium to highlands. Cibal Sub-district has 16 villages and 1 sub-district, each of which has a coffee farm. The coffee commodity is the staple farming of the community with the Robusta type. The total coffee land area in Cibal District is 353 hectares with a production of 198.30 tons, with a productivity level of 14,400 kg/ha (BPS Kabupaten Manggarai, 2023).

Price is one of the constraints found in robusta coffee marketing in Pagal Village. The number of marketing institutions involved causes differences in coffee prices. The extent of price changes at the consumer level affects the price received at the farm level (Asriani et al., 2023). The price of robusta coffee in Pagal Village at the producer level continues to increase every year, followed by the price at the retailer level. Coffee farmers in Pagal Village do not have a strong bargaining position and are only price takers. This results in a sizable margin between farmers and retailers. The amount of marketing margin is influenced by the long marketing channel so that the price received by farmers is lower while the one received by consumers is higher, which causes an inefficient marketing system (Ahlar, 2022). Inefficient marketing is caused by an unhealthy market structure. Not only that, the profits received by farmers also have an impact on the use of inputs and the selection of marketing channels used in farm cultivation and marketing. Farmers with low profits or income tend to choose long marketing channels, while farmers with high income tend to cut marketing channels (APANDI et al, 2019). Thus, this study aims to determine the market structure and marketing efficiency of robusta coffee in Pagal Village, Manggarai Regency.

METHOD

The research was conducted for 3 (three) months from April to June 2024, in Pagal Village, Manggarai Regency with the consideration that the area is one of the areas that has robusta coffee farming. Sample determination in this study was simple random sampling method. The total population of robusta coffee farmers in Pagal Village, Manggarai Regency was 89 people with the determination of the number using the slovin formula so that a sample of 47 coffee farmers was obtained. While determining respondents for marketing institutions using the Snowball Sampling method. To analyze the market structure, it was analyzed using the calculation of CR4 and IHH.

The calculation of CR4 uses the following formula:

CR4 =

Description:

CR4 = Concentration Ratio For Biggest Four

S1 = Market Share of Coffee Producer 1

S2 = Market Share of Coffee Producers 2

S3 = Market Share of Coffee Producers 3

S4 = Market Share of Coffee Producers 4

Sn = Total Market Share

The IHH analysis aims to see the degree of buyer concentration in a market so that a picture of the balance of bargaining power of robusta coffee buyers with robusta coffee farmers is known. Anandita's study on IHH can be mathematically formulated as follows (Gangkur, 2020):

$$IHH = \{100 \times Kr1\}^2 + \{100 \times Kr2\}^2 + \dots + \{100 \times Krn\}^2$$

Description:

IHH : Harfindahl Hirschman Index

n : Number of traders in a robusta coffee market

Kri : Share of tomato purchases at the i-th trader (1,2,3,...n)

The IHH testing criteria according to Anandita and Baladina (in (Gangkur, 2020) Gangkur, 2020) are as follows:

Table 1. IHH Testing Criteria

No	IHH Value	Concentration	Market structure
1	1.800-10.000	High	Monopoly
2	1.000-1.800	Medium	Oligopoly
3	0-1.0000	Low	Perfect Competition

Source: Anandita and Baladina (in Gangkur, 2020)

Meanwhile, to determine marketing efficiency through marketing channel analysis, farmer's share, and marketing efficiency. Marketing channels were analyzed descriptively qualitatively. Farmer's share analysis uses the following formula:

$$Fs = Pf/Pr \times 100\%$$

Description:

Pf = Price at producer level

Pr = Price at consumer level

With the criteria according to Ginting (2023) (GINTING, 2023) if farmer's share > 50% then marketing is said to be efficient and vice versa. if farmer's share < 50% then marketing is not efficient. While the calculation of marketing efficiency uses the following formula:

Where:

EP: Marketing efficiency

TB: Total marketing cost

TNP : Total product value

According to Apandi, et.al (2019) (APANDI, NOOR and HAKIM, 2019) if the EF value = 0-33% is categorized as efficient, if the EF value = 34-67% is categorized as less efficient, and if the EF value = 68-100% is categorized as inefficient.

RESULT

Market Structure

The market structure of the robusta coffee commodity in Pagal Village can be seen from the value of the concentration ratio (CR) and IHH. This analysis is used to measure the four largest market shares in a market and provides an overview of the balance of bargaining power between farmers and traders. In this study, the market structure was analyzed in four marketing institutions,

namely farmers, retailers, wholesalers, and collectors with the following repaitulation:

Table 2. Recapitulation of CR4 and IHH in Coffee Marketing Institutions in Pagal Village, Manggarai Regency

N o	Marketing Institution	CR4 (%)	IHH	Concentratio n	Type of Market
1	Farmers	25,2 9	385,35	Low	Perfect Competitio n
2	Retailers	51,0 6	1.080,8 5	Medium	Oligopoly
3	Wholesaler s	100	3.606,4 3	High	Monopoly
4	Collecting Traders	100	10.000	High	Monopoly

Source: Primary data, processed 2024

Based on the results of the analysis, it is known that the robusta coffee market structure in Pagal Village is different at each level of the marketing institution. Based on the results of the CR4 and IHH analysis, it is known that the robusta coffee market structure in Pagal Village, Manggarai Regency at the farm level is a perfectly competitive or monopolistic market with a low level of concentration. The CR4 value at the farm level is 25.29% and the IHH value is 385.35. Coffee farming in Pagal Village, Manggarai Regency is dominated by robusta coffee with products produced in a homogeneous form or in the form of coffee beans and without regard to quality. The reality in the field shows that there is no differentiation of robusta coffee at the farmer, collector, wholesaler and retailer levels. In addition, each farmer has the same information regarding prices and also the selling price of each farmer is almost the same. This is in line with research conducted (Imronah, 2022) which states that in a perfectly competitive market structure there are many farmers with homogeneous goods that encourage farmers to follow the prevailing price in the market (price taker). Research conducted (Blawing & Listiyani, 2021) also shows

that the market structure of potato commodities in Gronggongan Village, Sirampok Subdistrict, Brebes Regency is a perfectly competitive market that positions farmers at a disadvantage.

The market structure of robusta coffee in Pagal Village, Manggarai Regency at the retailer level is an oligopoly market with a medium level of concentration. The CR4 value at the retailer level is 51.06% and the IHH value is 1,080.85. Although the number of robusta coffee retailers is large, the number of consumers is much greater and coffee has become a necessity for the community so that the opportunity for retailers to get consumers is also large. This is in line with research conducted by Susanti (2019) which states that the choice of actions of traders with an oligopoly market structure often depends on the policies taken by the closest competitors. In accordance with the facts in the field, robusta coffee retailers tend to follow the development of other retailers.

The robusta coffee market structure in Pagal Village, Kabupaten Manggarai, both at the wholesaler and collector level, is a monopoly with a high level of concentration, which means that traders have a high level of power to influence the market. The CR4 value at the level of collecting traders and large traders is the same, namely 100%. While the IHH value at the large trader level is 3,606.43 and at the collecting trader level is 10,000. The monopoly market structure at the trader level is in accordance with the facts in the field, robusta coffee price information is centered on large traders. This is in accordance with the opinion of Sumarni (2022) that large traders and collecting traders usually lead to imperfect competitive markets, because to become such traders require greater capital in buying and collecting robusta coffee from each farmer in one planting period.

Marketing Channels

Based on the results of the analysis, it is known that there are three (3) robusta coffee marketing channels in Pagal Village, Kabupaten Manggarai, namely:

Channel I: Farmers - Retailers - Consumers

Channel II: Farmers - Wholesalers - Retailers - Consumers

Channel III: Farmers - Collecting Traders -Wholesalers -- Retailers - Consumers

Channel I is a channel that only involves retailers as intermediaries between producers and consumers. There were 9 farmers with a percentage of 19.15% who chose this marketing channel. In channel I, robusta coffee is sold directly to retailers located at the Ruteng Inpres Market. Farmers go directly to retailers in marketing their products to retailers. The payment system between retailers and farmers is paid on the same day. However, the disadvantage is that farmers do not know the price information in advance so that farmers can only accept all the consequences of the price offered by retailers. The selling price of robusta coffee at the farm level in marketing channel I is Rp. 32,750 while the price at the retailer level is 38,000.

Marketing Channel II is a marketing channel that involves wholesalers and retailers in marketing robusta coffee. Retailers obtain robusta coffee by buying from large traders. In channel II, 32 respondents or 68.09% chose to market their products. Farmers make sales by going directly to large traders. The selling price of farmers to large traders is around Rp. 30,889. Large traders then distribute the harvest to retailers at a price of Rp. 33,000 to be marketed or sold directly to consumers. Retailers sell robusta coffee to consumers at a price of Rp. 38,000.

Marketing channel III is the longest marketing channel chosen by farmers in distributing robusta coffee to consumers. The marketing institutions involved in this marketing channel are collectors, wholesalers, and retailers. Farmers who choose this marketing channel in selling robusta coffee are 6 people with a percentage of 12.77%. Farmers who choose this channel generally have production of less than 50 Kg (<50 Kg). Traders purchase robusta coffee in Pagal Village, Manggarai Regency by directly visiting farmers/producers at the location. The transportation costs for picking up robusta coffee are borne by the farmers themselves, amounting to Rp. 500/Kg. The price received by farmers is lower than other marketing channels, namely Rp. 27,333. However, farmers save more on transportation costs and time in marketing robusta coffee. Collecting traders sell to large traders at a price of Rp. 30,000, then large traders sell to retailers at a price of Rp. 33,000. The price received by the final consumer is Rp. 38,000. The most efficient marketing channel based on the calculation of farmer share

is marketing channel I. This is because in marketing channel I there are fewer marketing institutions involved compared to marketing channels II and III. This is in line with research conducted (Butarbutar, 2019) which shows that the percentage of prices received by farmers will be higher in short marketing channels where fewer marketing institutions are involved.

Famer's Share

Based on the results of data analysis, it is known that the three robusta coffee marketing channels in Pagal Village, Manggarai Regency are in the efficient category. The farmer share value in the three marketing channels is more than 50% where the farmer share value in marketing channel I is 86.18%, marketing channel II is 81.29% and marketing channel III is 71.93% which is presented in the following table:

Table 4. 7 Percentage of Farmer's Share in Each Marketing Channel in Pagal Village, Manggarai Regency

N o	Marketing Channel	Purchase Price (Rp/kg)	Selling Price (Rp/kg)	Margin (Rp/Kg)	<i>Farmer share</i> (%)
1	Farmer		32.750		86,18
	Retailer	32.750	38.000	5.250	
	Consumer	38.000			
2	Farmer		30.889		81,29
	Wholesaler	30.889	33.000	2.111	
	Retailer	33.000	38.000	5.000	
	Consumer	38.000			
3	Farmer		27.333		71,93
	Collecting traders	27.333	30.000	2.667	

Wholesaler	30.000	33.000	3.000
Retailer	33.000	38.000	5.000
Consumer	38.000		

Source: Primary data, processed 2024

The most efficient marketing channel based on the calculation of farmer share is marketing channel I. This is because in marketing channel I there are fewer marketing institutions involved compared to marketing channels II and III. This is in line with research conducted (Butarbutar, 2019) which shows that the percentage of prices received by farmers will be higher in short marketing channels where fewer marketing institutions are involved.

Marketing Efficiency

According to Apandi, et al (2019) marketing is said to be efficient if the EF value ranges from 0-33%, less efficient in the range of 34-67% and inefficient when it is 68-100%. Based on the explanation described above, channel I, channel II, and channel III fall into the efficient category because the EF value is less than 33% (<33%). It also shows that the most efficient robusta coffee marketing channel in Pagal Village, Manggarai Regency is channel II with a value of 1.70%, then marketing channel III with a value of 2.22%, then marketing channel I with a value of 2.37%. In addition, based on the level of profit received, farmers who choose marketing channel II have a higher profit level of Rp. 24,643. The marketing costs of farmers who choose marketing channel II are lower than those of other marketing channels, namely Rp. 525. While the marketing costs of robusta coffee farmers who choose marketing channels I and III are Rp. 777 and Rp. 606, respectively. This is in line with research conducted by Butarbutar (2019) which states that marketing efficiency is economically a measurement of efficiency seen from the amount of marketing costs and profits.

DISCUSSION

Based on the results of the study, the coffee market structure on farmers resulted in farmers as price takers, due to the lack of

market information, especially prices. Farmers also market their products individually so that the bargaining position of farmers is low. In contrast, the oligopoly and monopoly market structure at the level of retailers, collectors, and wholesalers causes traders to have price information, a strong bargaining position, and act as price makers. In addition, most farmers with a percentage of 68.09% chose marketing channel II. In terms of marketing efficiency and profits received by farmers, channel II is the most profitable.

CONCLUSION

The robusta coffee market structure in Pagal Village, Manggarai Regency at the farm level is a low-concentrated perfect competition market with a CR4 value of 25.29% and an IHH value of 385.35. Meanwhile, the market structure formed at the retailer level is a medium-concentrated oligopoly with a CR4 value of 51.06% and an IHH value of 1,080.85. The market structure at the level of collecting traders and retailers is a highly concentrated monopoly with a CR4 value of 100% for both marketing institutions and an IHH value of 3,606.43 and 10,000 for each marketing institution.

There are 3 marketing channels used by farmers in Pagal Village in marketing robusta coffee, namely marketing channel I: Farmers - Retailers - Consumers, marketing channel II: Farmers - Wholesalers - Retailers - Consumers, marketing channel III: Farmers - Collecting traders - Wholesalers - Retailers - Consumers.

The farmer share value in marketing channel I is 86.18%, in marketing channel II is 81.29%, and in marketing channel III is 71.93%. This indicates that based on the value of farmer share, the three marketing channels are in the efficient category. The marketing efficiency value in marketing channel I is 2.37%, in marketing channel II is 1.70%, and in marketing channel III is 2.22%. This indicates that based on the value of marketing efficiency, the 3 marketing channels are in the efficient category.

REFERENCES

- Ahiar, N.N.A. (2022). Analysis of Market Structure and Marketing Margin of Potato Commodity (*Solanum Tuberosum* L) in Pattapang Village, Tinggimoncong District, Gowa Regency. Bosowa University. Thesis.
- Apandi, A., Noor, T.I. & Hakim, D.L. (2019). Marketing Channel Analysis of Robusta Coffee Beans (A Case in Purwaraja Village, Rajadesa District, Ciamis Regency), *Galuh Agroinfo Student Scientific Journal*, 6 (3): 604-614
- Asriani, Hasan, I., Husain, T., & Andi, A. (2023) Market Structure and Performance of Clove Commodities in Kecamatan Cina, Bone Regency, *WIRATANI*, 6(2):108-116.
- Blawing, K.I. & Listiyani, T.E.S. (2021) Market Structure of Potato Commodities in Gronggongan Village, Sirampok District, Brebes Regency, *Agrifitia*, 1(1):73-79.
- BPS. (2023). Indonesian Coffee Statistics 2022. Jakarta: Central Bureau of Statistics of Indonesia.
- BPS Kab. Manggarai. (2023) Cibal Sub-district in Figures 2023. Ruteng: Badan Pusat Statistik Kabupaten Manggarai.
- BPS Kab. Manggarai, B.K. (2024) Kabupaten Manggarai in Figures 2024. Ruteng: Badan Pusat Statistik Kabupaten Manggarai.
- Gangkur, Fabianus. (2020). Analysis of Structure, Behavior, and Performance of Tomato Market in Manggarai Regency. Brawijaya University. Thesis.
- Ginting, P.I.S.B. (2023). Marketing Analysis of Palm Oil Sticks in Kuala District, Langkat Regency, North Sumatra. University of Medan Area. Thesis.
- Imronah, A. (2022). Market Structure and Price Competition in Perfect Competition Market (Islamic Economic Review), *JEBI: Journal of Islamic Economics and Business*, 1(1).
- Ministry of Agriculture. (2022). Coffee Plantation Commodity Outlook. Jakarta.
- Sumarni. (2022). Market Structure Analysis of Red Onion Commodity, *Tarjih: Agribusiness Development Journal*, 2(1).
- Susanti. (2019). Structure, Behavior and Performance of Clove Commodity Market in Tellu Limpoe District, Bone Regency. University of Muhammadiyah Makassar. Thesis.
- Taqiuddin, M. (2023). The History of Coffee Development in the World to Indonesia', in A.P. Kamarudin (ed.) *The Long Journey of a Cup of Coffee*. I. Central Aceh: CV. Ayrada Mandiri,. 1-16.
- USDA (2023) Report Name: Coffee Annual. Jakarta.