



## Marketing Analysis of Rubber (*Hevea brasiliensis*) as a Non-Timber Forest Product in Paringin District, Balangan Regency

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| ARTICLE INFO                                                                                                      | ABSTRACT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <b>Published Online:</b><br>08 July 2026                                                                          | This study analyzes the marketing system of smallholder rubber ( <i>Hevea brasiliensis</i> ) as a non-timber forest product in Paringin Subdistrict, Balangan Regency, South Kalimantan Province. Data were collected through interviews with 35 farmers selected using purposive sampling and 5 key informant traders, supplemented by secondary data from relevant institutions. The analysis employed the Structure-Conduct-Performance (SCP) framework encompassing market concentration ratio, price integration coefficient, price transmission elasticity, marketing margin, and farmer's share. Results revealed that the market structure is characterized by a strong oligopsony, with a Concentration Ratio (CR <sub>4</sub> ) of 83.0%, indicating dominance by four major traders. Market conduct is marked by unilateral price determination in which farmers act solely as price takers, reinforced by patron-client relationships through a debt-binding system involving approximately 40% of farmer respondents. Price integration analysis yielded a Pearson correlation coefficient (r) of 0.65 and a price transmission elasticity (Et) of 0.70, confirming asymmetric and imperfect price transmission. Market performance assessment demonstrated that the primary marketing channel (Channel I) achieved a farmer's share of only 47.22%, below the 50% efficiency threshold, while the shorter Channel II reached 52.78%, accessed by only 20% of farmers. Total marketing margin in Channel I reached Rp 9,500 per kilogram, of which 87.4% constituted net profit for intermediaries. These findings indicate that the rubber marketing system in Paringin Subdistrict is structurally uncompetitive, behaviorally unintegrated, and performs inefficiently to the detriment of farmers' welfare. Strengthening farmer collective institutions, improving access to formal credit, and enhancing price information transparency are critical interventions needed to create a more efficient and equitable rubber marketing system. |
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| <b>KEYWORDS:</b> farmer's share, marketing efficiency, non-timber forest products, oligopsony, smallholder rubber |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### INTRODUCTION

Natural rubber (*Hevea brasiliensis*) is one of the Non-Timber Forest Products (NTFP) commodities that provide donation big to economy national. Based on data from the South Kalimantan Provincial Industry Service (2023), exports rubber Indonesia's nature reaches 2,335,000 tons with value of US\$ 4,016 million, approximately 170,000 tons (3.98%) came from from South Kalimantan Province. South Kalimantan is one of the provinces with area plantation rubber the largest in Indonesia, and the Regency Balangan make commodities rubber as sector featured area.

Subdistrict Paringin is center production rubber the biggest second in the Regency Balangan after Subdistrict Awayan, with area reached 5,660 hectares (LKIP Balangan,

2022). Although own great potential, production rubber in the Regency Balangan experience fluctuations, from 29,091 tons in 2021 to 24,375 tons in 2022 (Regency BPS Balangan, 2023). Condition This emphasize importance efficiency in system marketing to maintain income farmers in the middle challenge existing production.

Most of the results rubber produced by smallholder farmers is marketed through mechanisms involving trader collector, collector big, up to factory processing. Complexity in system marketing This often create inequality in distribution mark add, especially at the level of producer. Problems like asymmetry information price, limitations market options, prices are not transparent, and dependence

farmers to trader's certain make position bid farmers are very weak in chain of commerce (Anestika et al., 2023).

Urgency For analyze system marketing rubber lies in the importance of create efficiency economy and justice distribution throughout chain supply. The Structure–Conduct–Performance (SCP) approach offers framework evaluation comprehensive to interaction between actors, market rules, and results Finally in form efficiency and profitability. Research objectives This is analyze marketing rubber as Non- Timber Forest Products (NTFPs) in the District Paringin, Regency Balangan, includes market structure, behavior market players, and performance marketing.

## MATERIALS AND METHODS

### Location and Time of Research

Study implemented in June –August 2025 in the District Paringin, Regency Balangan, South Kalimantan Province. District Paringin chosen as location study Because is center production rubber the biggest second in the Regency Balangan with area 5,660 hectares of plantation.

### Data Collection

Study use purposive sampling approach with involving 35 farmers rubber as respondents main selected based on criteria: (1) has sell results rubber in a way active at least one year lastly, (2) have involvement direct in transaction with traders, and (3) domiciled in areas with network distribution active rubber. In addition, 5 traders rubber interviewed as informant key for complete market structure and behavior data. Secondary data obtained from agency related such as BPS Regency Balangan, the Department of Food Security, Agriculture and Fisheries (DKP3), and the Unit Balangan Forest Management (KPH).

### Data analysis

Data analysis was performed in a way descriptive-quantitative with Structure–Conduct–Performance (SCP) approach. Analysis market structure using the four Concentration Ratio perpetrator largest ( $CR_4$ ), with the formula:

$$CR_4 = (Q1 + Q2 + Q3 + Q4) / QT \times 100\%$$

where  $Q_n$  is the sales volume of each of the 4 traders largest and  $QT$  is the total sales volume. Interpretation:  $CR_4 < 40\%$  = competitive competitive;  $40\%–80\%$  = oligopoly moderate;  $> 80\%$  = oligopoly strong (Anindita & Baladina, 2017).

Analysis market behavior using two indicators: (1) Coefficient Pearson Correlation ( $r$ ) for measure integration price between market level, with criteria  $r > 0.70$  = integration high;  $0.30 \leq r \leq 0.70$  = moderate;  $r < 0.30$  = low (Sugiyono, 2019); and (2) Elasticity Price Transmission ( $Et$ ) with the formula  $Et = (\Delta Ph / Ph) / (\Delta Pp / Pp)$ , where  $Et = 1$  indicates transmission perfect and  $Et < 1$  transmission No perfect.

Analysis market performance using three indicators main: (1) Margin Marketing ( $MP = Pk - Pp$ ); (2) Farmer's Share ( $FS = Pp/Pk \times 100\%$ ), with system marketing efficient if  $FS \geq 50\%$  (Tamjid et al., 2023); and (3) Profit Marketing ( $\pi = Ps - Pb - C$ ). Analysis equipped with study obstacle market entry and differentiation product in a way qualitative through interview deep.

## RESULTS AND DISCUSSION

### Characteristics Perpetrator Marketing

Subdistrict Paringin own role strategic in economy local as center production rubber in the Regency Balangan. The results of data collection show characteristics farmer rubber dominated by farmers aged carry on productive (average 52 years) with experience farming for an average of 28 years, but level relative formal education low (majority of junior high school). Full description presented in Table 1.

**Table 1. Characteristics Respondents ' Socio -Economics Rubber Farmers in the District Paringin (n=35)**

| Characteristics           | Average            | Minimum           | Maximum            |
|---------------------------|--------------------|-------------------|--------------------|
| Age (Years)               | 52                 | 35                | 68                 |
| Experience (Years)        | 28                 | 10                | 45                 |
| Last education            | JUNIOR HIGH SCHOOL | Elementary School | SENIOR HIGH SCHOOL |
| Land Area (Hectares)      | 1.8                | 0.75              | 4.5                |
| Production per Month (Kg) | 415                | 150               | 850                |

**Source :** Processed Primary Data, 2025

Average ownership land as much as 1.8 hectares with production monthly around 415 kg categorized farmer as smallholders. Small and scattered production scale This make position bid individual farmers are very weak, pushing high dependence on traders collector local (Nainggolan et al.,

2022). Traders big at the level subdistrict own scale operation Far larger (35,000–45,000 kg/ month) with strong capital, facilities warehouse and transportation fleet himself, who places they as player the key that controls channel distribution and information price (Syarifata et al., 2021).

### Identification Channel Marketing

Analysis to channel distribution rubber show the existence of two channels marketing Main. Channel I (used by 80% of farmers): farmers → traders collector village → trader big sub-district → crumb rubber factory. Channel II (used by 20% of farmers): farmers → traders big sub-district → crumb rubber factory. Selection channels by farmers more Lots based on non- price factors, namely proximity geographical, convenience transactions and relationships

socio - economic ties through debt- credit system (Cahyaningsih, 2023). Dominance Channel I which is chain longest indicates market fragmentation and high-cost transactions at the level rural areas.

### Analysis Market Structure

The level of market concentration is measured using CR<sub>4</sub> based on estimated purchase volume monthly of five trader’s key. Calculation results presented in Table 2.

**Table 2. Calculation Ratio Concentration (CR<sub>4</sub>) of Rubber Traders in the District Paringin**

| Merchant Code | Role             | Purchase Volume per Month (Kg) | share (%)    | Cumulative Market Share (%) |
|---------------|------------------|--------------------------------|--------------|-----------------------------|
| PB-01         | Wholesaler       | 42,000                         | 35.0         | 35.0                        |
| PB-02         | Wholesaler       | 36,000                         | 30.0         | 65.0                        |
| PP-01         | Trader Collector | 12,000                         | 10.0         | 75.0                        |
| PP-02         | Trader Collector | 9,600                          | 8.0          | 83.0                        |
| PP-03         | Trader Collector | 8,400                          | 7.0          | 90.0                        |
| Other         | -                | 12,000                         | 10.0         | 100.0                       |
| <b>Total</b>  |                  | <b>120,000</b>                 | <b>100.0</b> |                             |

**Source :** Processed Primary Data, 2025

CR<sub>4</sub> value =  $(42,000 + 36,000 + 12,000 + 9,600) / 120,000 \times 100\% = 83.0\%$ . This value Far beyond oligopoly threshold strong (CR<sub>4</sub> > 80%), indicating that the rubber market in the District Paringin No operate in condition competition perfect, but rather leading to oligopsony with a handful buyers who have dominant market power. Findings This similar with research in Melawi Regency by Yustanto et al. (2022) which found rubber market structure leading to oligopoly.

Obstacle market entry analyzed in a way qualitative and identifying three obstacles main: (1) very high capital requirements (minimum IDR 50 million) For trader collectors, more from Rp. 200 million for trader large); (2) network social and patron- client relationships that have been woke up during years; and (3) access information and networks to owned factory exclusive by merchant dominant. Combination obstacle This in a way effective protect position traders who have exist and prevent emergence competition means (Nainggolan et al., 2022). Differentiation product

based on level rubber dry (K<sub>3</sub>) and cleanliness bokar assessed in a way subjective and not transparent by traders, creating asymmetry significant information related quality products and profitable party buyers (Emhar et al., 2020).

### Analysis Market Behavior

Survey results show that as many as 33 out of 35 respondents’ farmers (94.3%) stated price sell rubber fully determined by traders. Farmers The same very No own room for negotiation and only act as a price taker (Rahmaddiansyah , 2020). Traders set price buy use formula: price sell to factory reduced cost marketing and margin desired profit, but the calculation process This No Once expressed in a way transparent to farmer.

Analysis integration price using price data weekly during period the research (12 data points, June–August 2025) produced two indicators which are presented in Table 3.

**Table 3. Analysis Results Rubber Price Integration (June–August 2025 Period)**

| Indicator                       | Notation  | Mark | Interpretation                                                                                  |
|---------------------------------|-----------|------|-------------------------------------------------------------------------------------------------|
| Coefficient Pearson Correlation | <i>r</i>  | 0.65 | Integration price moderate; price farmer moves one way with price factory However No too strong |
| Elasticity Price Transmission   | <i>Et</i> | 0.70 | Transmission No perfect; increase price factory 10% only transmitted 7% to level farmer         |

**Source :** Processed Primary Data, 2025

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The value of  $r = 0.65$  indicates moderate market integration, while  $Et = 0.70$  provides proof strong existence asymmetry information. Transmission price asymmetric This is characteristics typical market that is not competitive, where when price factory down, decrease transmitted full to farmers, however when prices rise, traders withhold increase for maximize benefits (Nurhadi, 2020). Behavior This reinforced by practice debt system found in around 40% of

respondent's farmers, who are effective create obstacle interlocking market and eliminating freedom farmer choose buyers (Tety et al., 2019).

### Market Performance Analysis

Calculation results structure costs, margins, profits, and farmer's share on both channel marketing presented in Table 4.

**Table 4. Structure Costs, Margins, Profits, and Farmer's Share on Each Channel Rubber Marketing (Average per Kg)**

| Description                            | Channel I (Rp) | Channel II (Rp) |
|----------------------------------------|----------------|-----------------|
| <b>Farmer Level</b>                    |                |                 |
| Farmer Selling Price (PP)              | 8,500          | 9,500           |
| <b>Trader Level Village Collector</b>  |                |                 |
| Purchase price                         | 8,500          | -               |
| Cost Marketing                         | 400            | -               |
| Selling price                          | 10,500         | -               |
| Margin Marketing                       | 2,000          | -               |
| Profit ( $\pi$ )                       | 1,600          | -               |
| <b>District Wholesaler Level</b>       |                |                 |
| Purchase price                         | 10,500         | 9,500           |
| Cost Marketing                         | 800            | 1,000           |
| Selling Price (PK)                     | 18,000         | 18,000          |
| Margin Marketing                       | 7,500          | 8,500           |
| Profit ( $\pi$ )                       | 6,700          | 7,500           |
| <b>Channel Performance</b>             |                |                 |
| Total cost Marketing                   | 1,200          | 1,000           |
| Total Margin Marketing ( $P_k - P_p$ ) | 9,500          | 8,500           |
| Total Profit of Marketing Institution  | 8,300          | 7,500           |
| Farmer's Share                         | 47.22%         | 52.78%          |

**Source :** Processed Primary Data, 2025

Table 4 shows distribution mark add the ones that don't evenly. In Channel I, the total margin marketing reached Rp. 9,500/kg (52.78% of price end of Rp. 18,000). From the total margin this, amounting to Rp. 8,300 (87.4%) to profit clean intermediaries and only Rp. 1,200 (12.6%) is cost real marketing. Disparity This indicates existence taking profit excess profit by traders made possible by oligopsony market forces they.

The farmer's share value on Channel I is only 47.22%, below threshold efficiency of 50%, indicating system marketing main No efficient and not side with farmers. Meanwhile Channel II is shorter yielded a FS of 52.78%, however only can Accessed by 20% of farmers. Conditions in Paringin worse compared to a number of other areas: Tanah Laut Regency achieved FS 54.79% (Tamjid et al.,

2023), Sintang 71–77% (Yufita et al., 2024), and KUB farmers in Kampar even 89.21% (Anestika et al., 2023). Comparison This confirm level inefficiency and injustice experienced farmer rubber in the District Paringin.

### Synthesis The Relationship between Market Structure, Behavior, and Performance

Research result demonstrates connection strong cause and effect in SCP paradigm. First, the highly concentrated oligopsony market structure ( $CR_4 = 83.0\%$ ) and the barriers to entry high entry give external market forces normal to a handful trader big. Second, the market power manifested in behavior determination price unilateral, binding debt system farmers, and utilization asymmetry information ( $Et = 0.70$ ). Third, the combination structure and behavior the produce

poor market performance: very high margins (Rp 9,500/kg), distribution profit No proportional (87.4% to traders), and farmer's share is low (47.22%). All hypothesis zero study rejected, confirmed that system marketing people's rubber in the sub-district Paringin in a way structural No competitive, in terms of behavior No integrated, and in a performance No efficient.

## CONCLUSION

System marketing people's rubber in the sub-district Paringin, Regency Balangan own oligopsony market structure strong with a CR<sub>4</sub> of 83.0%, which is dominated by two traders large and reinforced by obstacles enter in the form of high capital requirements, patron- client networks, and access exclusive to factory. Market behavior is characterized by the determination of price unilaterally by traders with integration price moderate ( $r = 0.65$ ) and transmission price No perfect ( $E_t = 0.70$ ), which is exacerbated by the binding debt system around 40% of farmers. Market performance shows that farmer's share is only 47.22% in the distribution channel. main (below) threshold 50% efficiency), with 87.4% of the total margin of Rp 9,500/kg being profit clean intermediary. For repair condition mentioned, it is necessary strengthening institutional collective farmers (KUB/UPPB), increase access formal credit, transparency information price in real-time, standardization evaluation quality repair and repair infrastructure road production.

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