



Research Article

Analyzing the Efficiency of the Curly Red Chili (*Capsicum annum L.*) Supply Chain: A Structure-Conduct-Performance Approach in East Payakumbuh Subdistrict

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ABSTRACT

Curly red chili (*Capsicum annum L.*) is a strategic horticultural commodity in Indonesia, vital for both food security and rural livelihoods. In East Payakumbuh Subdistrict, West Sumatra, it serves as a primary income source for local farmers. However, the supply chain faces significant challenges, including price volatility, constrained market access, and a high dependence on intermediaries, which collectively erode farmer bargaining power. Applying the Structure-Conduct-Performance (SCP) framework, this study analyzes the market dynamics of curly chili. We collected primary data through in-depth interviews with key supply chain actors farmers, collectors, wholesalers, retailers, and sub-terminal agricultural officers using snowball sampling. Our quantitative analysis employs concentration ratios (CR4), Minimum Efficiency Scale (MES), marketing margins, and farmer's share to evaluate market efficiency. The findings reveal an oligopsonistic market structure, where four dominant firms control 95.48% of purchases, supported by a high MES of 85.82%. This concentration, coupled with farmers' reliance on these few buyers, results in persistently low farmer bargaining power. Furthermore, marketing channel efficiency is heterogeneous; one distinct channel demonstrates superior efficiency and returns a higher profit share to farmers. These results underscore the imperative for policy measures designed to strengthen farmer cooperatives, reform trading mechanisms, and facilitate direct market linkages to enhance overall supply chain equity and performance.

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INTRODUCTION

As an agricultural nation, Indonesia allocates a significant portion of its land to farming. Within this sector, horticulture stands out due to the high economic value of its diverse commodities. Chili peppers (*Capsicum spp.*) represent a key horticultural crop in Indonesia, serving as a staple food ingredient and a commodity of considerable economic importance. Among these, the demand for curly red chili (*Capsicum annum L.*) continues to rise annually, driven by population growth and its use as a raw material in various industries. A critical characteristic of red chili is its low substitutability; as an essential commodity, consumers lack readily available alternatives. This inelastic demand means that any disequilibrium between production levels and market absorption directly triggers significant price volatility.

Curly red chili (*Capsicum annuum* L.) is a cultivar of significant commercial importance, characterized by consistently high market demand. However, an imbalance between supply and demand frequently occurs, leading to pronounced price volatility. Specifically, supply shortages trigger sharp price spikes, whereas prices collapse during peak harvest periods (Novitasari, 2020).

Table 1. Price of Red Chili Peppers (*Capsicum* spp.) in Indonesia (IDR/Kg)

Year					
Month	2019	2020	2021	2022	2023
January	58,750	37,097	54,667	46,806	48,611
February	69,917	40,222	55,778	44,861	46,667
March	62,533	47,694	54,111	48,222	47,111
April	58,125	46,444	52,333	51,222	47,778
May	65,500	46,897	48,000	48,889	49,028
June	67,708	44,220	41,111	42,556	47,733
July	76,875	38,951	41,956	44,583	48,056
August	79,000	40,441	44,028	45,139	47,333
September	85,417	40,997	48,333	45,889	46,528
October	86,667	55,333	50,222	46,389	46,667
November	75,100	55,556	51,278	46,806	43,022
December	38,959	55,222	51,333	47,778	41,250
Average	68,713	45,756	49,429	46,595	46,649

Source: BPS

The Indonesian red chili pepper (*Capsicum* spp.) market experienced significant price volatility between 2019 and 2023. This pronounced instability reveals inherent vulnerabilities to factors including seasonal production cycles, supply chain inefficiencies, and policy shifts. Analyzing the market's structure and conduct is therefore critical to formulating strategies that enhance price stability and bolster farmer welfare.

East Payakumbuh Subdistrict in West Sumatra is a prominent production center for curly red chili (*Capsicum annuum* L.), with key contributions from the villages of Payobasung, Koto Baru, Koto Panjang, and Padang Alai Bodi. The cultivar from this region is distinctive for its larger fruit size compared to other growing areas in West Sumatra and its prevalent chemical-free cultivation and post-harvest practices. Farmers market their produce beyond local boundaries, supplying regional markets in North Sumatra and Riau, which establishes curly red chili as a vital commodity for local livelihoods. Despite this significant production potential, farmers confront substantial challenges, including non-remunerative prices, a high dependency on intermediaries, and constrained access to market information (Rahma et al., 2021).

This study, therefore, employs the Structure-Conduct-Performance (SCP) framework to analyze the regional chili market. This paradigm facilitates a systematic examination of market organization (structure), the strategic actions of firms within it (conduct), and the resulting economic outcomes (performance). Applying the SCP model allows for a precise quantification of market efficiency and an analysis of how value-added is distributed across the supply chain.

Guided by the identified issues, this study analyzes the structure, conduct, and performance of the curly red chili market in East Payakumbuh Subdistrict through the lens of the Structure-Conduct-Performance (SCP) framework.

Curly red chili (*Capsicum annuum* L.) constitutes a key commodity for both household and industrial consumption in Indonesia. However, its market is characterized by significant price volatility. According to BPS (2023), the average price of red chili peppers (*Capsicum* spp.) plummeted from IDR 68,713/kg in 2019 to IDR 45,756/kg in 2020 and remained unstable, averaging IDR 46,649/kg through 2023. This persistent fluctuation points to systemic inefficiencies and a market highly susceptible to seasonal variations, distribution bottlenecks, and fundamental weaknesses in supply chain management.

East Payakumbuh Subdistrict holds significant potential as a regional supply base for curly red chili (*Capsicum annuum* L.), being a primary production center in West Sumatra. Despite this potential, local farmers encounter persistent challenges, including non-remunerative prices, a high dependency on intermediaries, and constrained access to market information (Rahma et al., 2021). These issues collectively erode farmer bargaining power, resulting in incomes that are misaligned with the substantial risks inherent in agricultural production.

Previous research on the Indonesian chili pepper (*Capsicum* spp.) market has often addressed its components in isolation. Studies such as Novitasari (2020) have focused on price volatility, have emphasized its role as a strategic commodity for food security. Concurrently, analyses of local-level marketing have primarily examined

distribution channels and marketing margins without integrating the core components of market structure, conduct, and performance within a unified analytical framework. This fragmented approach reveals a significant gap: the lack of a comprehensive, SCP-based analysis of chili market dynamics at the regional production level.

Syaukat et al. (2020) demonstrate that Indonesia's horticultural market structure is predominantly oligopsonistic, dominated by large traders who undermine farmer bargaining power and reduce marketing efficiency. Regional studies corroborate that farmer reliance on intermediaries suppresses selling prices and constrains distribution channels. These findings highlight the critical need for a comprehensive Structure-Conduct-Performance (SCP) analysis of the local chili market to address persistent research gaps.

The primary novelty of this study lies in its application of the Structure-Conduct-Performance (SCP) framework to analyze the curly red chili (*Capsicum annuum* L.) market in East Payakumbuh Subdistrict. This approach enables a systematic examination of the interrelationships between market structure, the strategic behavior of traders and farmers, and resulting performance metrics, including distribution efficiency and value chain equity. Consequently, the research moves beyond a mere description of prices and margins to provide a holistic diagnosis of the market's underlying mechanics and inefficiencies.

METHOD

Data collection for this study was conducted from February to May 2025 in East Payakumbuh Subdistrict, Payakumbuh City, West Sumatra Province. The study area was selected through purposive sampling based on two key criteria: its status as a primary concentration of chili farmers in the region and its characteristic of stable agricultural production across seasons.

This study employed snowball sampling to identify respondents across the curly red chili supply (*Capsicum annuum* L.) chain in East Payakumbuh Subdistrict. Following Ting (2025), the sampling began with a key informant the head of the local farmer group association who provided referrals to subsequent participants. The methodology secured respondents from all essential market segments: chili farmers, collectors, wholesalers, retailers, and consumers, ensuring comprehensive representation of actors capable of addressing the research questions.

This study employed quantitative descriptive analysis to examine the structure, conduct, and performance of the curly red chili supply chain in East Payakumbuh Subdistrict. Primary data were collected through cross-sectional interviews with key supply chain actors and subsequently analyzed using Microsoft Excel. The analytical framework incorporated several key components:

1) Market Structure

This study employed quantitative methods to analyze market structure, interpreting the results through empirical field data. The analysis reveals the following characteristics:

- (a) Market concentration analysis quantified the collective market share controlled by the four largest collectors and one agribusiness sub-terminal in East Payakumbuh Subdistrict. The four-firm concentration ratio (CR4) was calculated as follows:

$$CR4 = S1+S2+S3+S4/ST \times 100\%$$

Where:

CR4 = Concentration Ratio

S1 = Chili sales volume by Wholesaler 1 (quintals/year)

Sn = Chili sales volume by Wholesaler k-n (quintals/year)

ST = Total sales of all chili by Wholesalers in East Payakumbuh Subdistrict (quintals/year)

- (b) The Minimum Efficiency Scale (MES) analysis assessed barriers to market entry by calculating the proportion of total market sales controlled by the most efficient scale of distribution operations. Following Jaya (2021), MES values exceeding 10% indicate significant entry and exit barriers within the market.

$$MES = \text{Chili sales by wholesalers (kg)} / \text{Total chili in East Payakumbuh Subdistrict} \times 100\%$$

2) Market Conduct

This component of the analysis examined how market institutions perform three core marketing functions: transaction facilitation, physical distribution, and supporting services. How market institutions respond to price signals provides crucial insights into market conduct.

3) Market Performance

Market performance was evaluated through marketing margin analysis and farmer's share calculations. Contrary to common assumptions, extended marketing channels do not necessarily indicate inefficiency. Following Marhawati et al. (2021), marketing systems remain effective when longer channels generate enhanced end-user value.

(a) Marketing Margin

The marketing margin represents the price differential between the final consumer price and the price received by producers, serving as a key measure of supply chain costs. The margin is calculated as follows:

$$MT = Pr - Pf \quad (1)$$

Where:

MT = Total Margin

Pr = Consumer price (IDR/kg)

Pf = Farmer price (IDR/kg)

(b) Farmer's Share

Farmer's share represents the proportion of the final consumer price received by producers, calculated as the ratio of the farmgate price to the retail price (Sinaga, 2024; Hudson, 2020). We calculated this metric using the following formula:

$$FS = Pf/Pr \times 100\% \quad (2)$$

Where:

Fs = percentage received by chili farmers

Pf = chili price at the farmer level (IDR/kg)

Pr = chili price at the consumer level (IDR/kg)

RESULTS AND DISCUSSION

To address the research objective concerning market structure, this study calculated market concentration using the following metric:

- 1) The Four-Firm Concentration Ratio (CR4), with market structures classified as follows: a CR4 value $\leq 33\%$ indicates a competitive market; a value between 33% and 50% signifies a weak oligopsony; and a value $\geq 50\%$ demonstrates a strong oligopsony. In East Payakumbuh Subdistrict, the analysis yielded the following CR4 results:

Table 2. The Four-Firm Concentration Ratio (CR4) from four wholesalers and one Agribusiness Sub-Terminal

No.	Marketing Agency	Sales Volume (kg)
1	Wholesalers I	17,400
2	Wholesalers II	16,600
3	Wholesalers III	15,700
4	Wholesalers IV	14,900
5	Agribusiness Sub-Terminal	9,500
Total sales/production of 4 wholesalers and 1 Agribusiness Sub-Terminal		74,100
Total sales/production in East Payakumbuh Subdistrict		77,600
Concentration Ratio		95.48%

Source: Processed Primary Data (2025)

As presented in Table 2, the Four-Firm Concentration Ratio (CR4) of 95.48% in East Payakumbuh Subdistrict demonstrates that four major wholesalers and one agribusiness sub-terminal controlled the overwhelming majority of curly red chili (*Capsicum annuum* L.) sales volume in 2024. This market structure constitutes an oligopsony, consistent with Kohls and Uhl's (2022) classification where CR4 values exceeding 50% indicate oligopsonistic markets. In such structures, buyers typically dictate prices through oligopsonistic pricing mechanisms. This aligns with Hardianti et al. (2020), who observed that producers in oligopsonistic markets possess minimal price influence and generally accept buyer-determined prices. Consequently, this market concentration creates an inequitable distribution of economic gains, potentially diminishing welfare outcomes for chili farmers.

The market structure in East Payakumbuh Subdistrict exhibits clear oligopsonistic characteristics, with a CR4 of 83.3% for the four dominant wholesalers and an effective concentration ratio of 95.5%. This indicates that a limited number of wholesalers and the Agribusiness Sub-Terminal control most curly red chili (*Capsicum annuum* L.)

purchases. This concentration emerged from long-standing partnerships where farmers depend on specific wholesalers for capital, production inputs, and guaranteed market access. Compounded by limited access to market information and alternative distribution channels, this dependency substantially weakens farmer bargaining power. Consequently, wholesalers exert dominant influence over farmgate price determination.

The findings align with Surbakti et al. (2022), who documented asymmetric price transmission in North Sumatra's red chili (*Capsicum spp.*) market, highlighting the power imbalance between farmers and intermediaries. This study corroborates that oligopsonistic structures relegate farmers to price-taker status due to their constrained bargaining power in non-competitive systems. Sitepu (2022) reinforces this perspective, demonstrating that although price transmission may be symmetrical in theory, concentrated market structures perpetuate inefficiencies in practice. Furthermore, Surbakti et al. (2022) emphasize that extended marketing channels and intermediary dominance exacerbate price distortions along the supply chain.

Consistent with findings from other Indonesian regions, this study's results align with Wardhono et al. (2020); Bocek et al. (2021), who identified oligopsonistic characteristics and non-competitive market structures in East Java's chili markets, where intermediaries capture most economic rents. Saptana et al. (2022) further identified the critical role of wholesaler networks and price information asymmetry in disadvantaging farmers across Indonesia's chili supply chains. Recent research by Mulyani et al. (2024) in Bengkulu demonstrates imperfect price transmission from consumers to producers, indicating market distortions from intermediary oligopsony power. These studies collectively affirm that market concentration among few wholesalers' forces farmers into price-taker positions, preventing equitable price realization.

Three primary factors drive this market inefficiency: constrained marketing channels for farmers, the market dominance of wholesalers with established distribution networks, and ineffective collective action through farmer organizations. Asymmetric price information and limited market access further reinforce farmer dependency on local wholesalers. These conditions systematically strengthen intermediary market power while eroding producer bargaining power. Policy interventions should therefore prioritize developing robust farmer institutions, such as cooperatives, to facilitate collective marketing and enhance negotiation leverage.

2) Minimum Efficiency Scale (MES)

The Minimum Efficiency Scale (MES) analysis evaluates barriers to market entry by measuring the proportion of total market sales accounted for by the most efficient scale of operation. Following Jaya (2021), MES values exceeding 10% indicate significant barriers to market entry and exit.

Table 3. Minimum Efficiency Scale (MES) Value for Eight Distributors

No.	Marketing Agency	Sales Volume (kg)
1	Distributors I	9,400
2	Distributors II	8,500
3	Distributors III	7,400
4	Distributors IV	8,900
5	Distributors V	5,700
6	Distributors VI	7,600
7	Distributors VII	9,200
8	Distributors VIII	9,900
Total sales/production from 8 distributors		66,600
Total sales/production in East Payakumbuh Subdistrict		77,600
MES		85.82%

Source: Processed Primary Data (2025)

The analysis revealed a Minimum Efficiency Scale (MES) value of 85.82%, indicating that new market entrants must achieve a substantial sales volume approaching this threshold to operate competitively. Such elevated MES levels typically foster oligopolistic market structures, as few firms can overcome these significant entry barriers. This finding aligns with Purbayanti et al. (2020), who identified capital requirements, supply chain integration, and quality standard compliance as primary barriers constraining new entrants in agricultural markets, including chili pepper distribution.

Several structural factors explain the high Minimum Efficiency Scale (MES) observed in East Payakumbuh's curly red chili (*Capsicum annum L.*) market. Established traders with extensive distribution networks exert significant control over product flows and market information. Furthermore, entrenched relationships between wholesalers and farmers create relational capital that prevents new entrants from securing reliable supplies. Downstream market requirements for consistent quality present additional barriers, as newcomers often lack the infrastructure and capital to meet these standards. Finally, substantial price volatility across regional markets compounds these entry challenges by increasing operational risks for potential market entrants.

An 85.82% Minimum Efficiency Scale (MES) in East Payakumbuh Subdistrict's curly red chili (*Capsicum annum L.*) market indicates substantial barriers to new market entry, enabling only a limited number of established firms to operate profitably. This finding aligns with Surbakti et al. (2022), who documented that North Sumatra's red chili market exhibits high concentration levels due to dominant traders, resulting in asymmetric price transmission between producers and consumers.

Herbers et al. (2022) identify that entry barriers in Java's chili markets extend beyond capital requirements to include restricted distribution network access and specialized auction mechanisms. Their research further notes that even farmer-managed auctions often exclude smallholders and local traders due to stringent quality standards and price volatility risks.

Setiawan et al. (2021) further identify that substantial transaction costs and working capital requirements in Indonesia's horticultural supply chains reinforce market concentration among established actors. Consequently, the high MES value in East Payakumbuh's curly red chili market reflects this national pattern, demonstrating how oligopolistic structures restrict farmer access to alternative channels while creating insurmountable entry barriers for new traders lacking capital and institutional support.

This study employed qualitative descriptive methods to analyze market conduct within the curly red chili supply chain in East Payakumbuh Subdistrict. The examination focused on three strategic aspects of market behavior: pricing mechanisms, transaction patterns between supply chain actors, and inter-firm coordination strategies.

Table 4. Characteristics of the Curly Red Chili (*Capsicum annum L.*) Market Conduct in East Payakumbuh Subdistrict

No	Marketing Institutions	Market Conduct Indicators			
		Purchasing and Sales Practices		Pricing Systems	Cooperation between Institutions
1	Farmer	- Sales to Wholesalers: Farmers exhibit highly constrained choice, resulting from limited market access and a dependency on wholesalers who control the market through their capacity to purchase and store large volumes of produce. - Sales to the Agribusiness Sub-Terminal (STA): This channel offers a form of risk mitigation. The STA provides a guaranteed offtake mechanism, purchasing curly red chili even during price collapses to prevent catastrophic farmer losses. Additionally, it functions as an institutional support system by providing access to input financing and operating a profit-sharing model that redistributes a portion of the terminal's earnings to farmers.		Prices are determined by wholesalers	Sales and purchase partnerships
2	Agribusiness Sub-Terminal (STA)	Unrestricted Market Access		Determined by agribusiness sub-terminals	Sales and purchase partnerships
3	Wholesalers	Unrestricted Market Access		Determined by wholesalers	Sales and purchase partnerships
4	Distributors	Unrestricted Market Access		Determined by the market or information from fellow wholesalers	Sales, purchase, and subscription partnerships
5	Retailers	Unrestricted Market Access		Determined by wholesalers	Sales and purchase partnerships

Source: Processed Primary Data (2025)

As detailed in Table 4, farmers selling to wholesalers operate with constrained autonomy due to limited market access and price information. Wholesalers possess superior storage capacity and distribution networks, enabling them to dominate price-setting mechanisms. Consequently, farmers function primarily as price-takers within this marketing channel. Furthermore, pricing occurs predominantly through unilateral decisions by wholesalers or the Agribusiness Sub-Terminal, with minimal farmer participation in negotiation processes. These transaction practices reinforce non-competitive market structures and systematically erode farmer bargaining power.

The analysis of market conduct for curly red chili (*Capsicum annuum* L.) in East Payakumbuh Subdistrict reveals constrained decision-making autonomy among farmers. Those supplying wholesalers face restricted market access and must accept buyer-determined prices, thereby relegating them to price-taker status with eroded bargaining power. This dynamic reflects the typical conduct within an oligopsony market structure, where buyer concentration creates asymmetric power dynamics that enable wholesale buyers to dominate price formation.

Research by Hasanah and Hayati (2024) on medicinal chili commodities identified oligopsonistic market structures where dominant traders control price formation, eliminating farmer bargaining leverage. Similarly, Simamora (2024) documented how Berastagi tomato farmers remain locked in dependent relationships with traders through long-term cooperative arrangements that dictate marketing terms and prices. This pattern of constrained market conduct in East Payakumbuh's curly red chili (*Capsicum annuum* L.) market demonstrates how oligopsonistic structures create inequitable market power distribution. Addressing these structural imbalances requires strategic interventions including developing robust farmer collectives, implementing real-time market information systems, and establishing alternative distribution channels through direct retail partnerships or dedicated farmer markets.

As presented in Table 4, the market conduct for curly red chili (*Capsicum annuum* L.) in East Payakumbuh Subdistrict is characterized by constrained farmer autonomy, buyer-dominated price formation, and cooperative relationships that foster dependency. These findings align with Rachman et al. (2021) research on Central Java chili markets, where information asymmetry created by dominant traders similarly reduces farmers to price-taker status without meaningful price negotiation autonomy.

Rachman et al. (2021) identified how information asymmetry and trader dominance in Central Java's chili markets systematically erode farmer positioning. Their work demonstrates that unequal information access places farmers at a systematic disadvantage in price negotiations. Furthermore, Syaukat et al. (2020) characterize the patron-client relationships prevalent in Indonesia's horticultural supply chains as creating structural dependency, where capital access through long-term trader relationships ultimately compromises farmer autonomy.

Hapsari and Suryani (2022) documented that market conduct within Yogyakarta's red chili sector is predominantly shaped by asymmetric price information and constrained distribution channels. These conditions enable wholesalers to exert pricing authority, thereby reducing farmers to price-taker status. Consequently, this study's findings substantiate that the market conduct observed in East Payakumbuh's curly red chili supply chain aligns with established patterns of oligopsonistic horticultural markets across Indonesia.

Syaukat et al. (2020) further establish that oligopsonistic structures in Indonesia's horticultural supply chains foster patron-client relationships through interlinked transactions. These arrangements create structural dependencies where capital advances or input provision from traders, while providing immediate support, systematically undermine farmers' price negotiation leverage within long-term trading relationships.

These findings align with Hapsari and Suryani's (2022) research on Yogyakarta's red chili market, where asymmetric price information and constrained distribution channels similarly enable wholesalers to exert pricing authority. The market conduct observed in East Payakumbuh's curly red chili sector thus exemplifies the characteristic oligopsonistic patterns prevalent across Indonesian horticultural production centers.

To answer the research objective regarding chili market performance in Payahkumbuh Subdistrict, the following formula was used:

- 1) The marketing margin serves as a key metric for assessing supply chain efficiency in red chili markets, representing the price differential between producer and consumer levels (Anindita, 2024).

Table 5. Marketing Margin in the Curly Red Chili (*Capsicum annuum* L.) Marketing Channel in East Payakumbuh Subdistrict

Description	Marketing Channels			
	I	Percentage (%)	II	Percentage (%)
Farmer				
Selling Price	45,000	77.58	47,000	81.03
Marketing Costs	-			
Wholesalers				
Marketing Costs	1,000	37.03	-	-
Purchase Price	45,000		-	-
Selling Price	49,000		-	-

Description	Marketing Channels			
	I	Percentage (%)	II	Percentage (%)
Profit	3,000	29.12	-	-
Marketing Margin	4,000	30.76	-	-
Distributors				
Marketing Costs	900	33.33	900	52.94
Purchase Price	49,000		47,000	
Selling Price	53,000		53,000	
Profit	3,100	30.09	5,100	54.83
Marketing Margin	4,000	30.76	6,000	54.54
Retailers				
Marketing Costs	800	29.62	800	47.05
Purchase Price	53,000		53,000	
Selling Price	58,000		58,000	
Profit	4,200	40.77	4,200	45.65
Retailers Margin	5,000	38.46	5,000	45.45
Consumer	58,000		58,000	
Total Marketing Costs	2,700		1,700	
Total Profit	10,300	100	9,300	100
Total Marketing Margin	13,000	100	11,000	100

Source: Processed Primary Data (2025)

An efficient marketing channel maximizes producer prices while minimizing consumer prices through optimized marketing costs. Achmad and Sinaga (2024) further substantiate that shortened marketing channels reduce distribution expenses, thereby enhancing farmer income through improved marketing efficiency.

As presented in Table 5, marketing margins for curly red chili (*Capsicum annuum* L.) in East Payakumbuh Subdistrict vary significantly between distribution channels. Channel I yielded a marketing margin of IDR 13,000/kg with associated costs of IDR 2,700 and profits of IDR 10,300, while Channel II generated a lower margin of IDR 11,000/kg through reduced costs of IDR 1,700 and profits of IDR 9,300. These differential margins demonstrate how supply chain length directly influences cost structures and profit distribution among marketing institutions. This empirical evidence substantiates Achmad & Sinaga's (2024) theoretical framework positing that shortened marketing channels enhance distribution system efficiency.

Table 5 demonstrates a pronounced divergence in marketing margins between distribution channels I and II. Channel I generates a higher absolute margin of IDR 13,000, while Channel II achieves greater efficiency with a margin of IDR 11,000. This differential aligns with Saptana et al. (2020), who establish that prolonged distribution chains accumulate intermediary layers that elevate marketing costs and inflate per-level margins, thereby compromising overall market efficiency. The streamlined structure of Channel II, involving fewer actors, effectively reduces distribution expenses and constrains intermediary margins, consequently enhancing farmer welfare.

These findings corroborate Saptana et al. (2020), who identified extended supply chains and intermediary dominance as key drivers of elevated marketing margins in Central Java's cayenne pepper market, recommending institutional strengthening to enhance farmer bargaining power. Conversely, Anindita and Kurniawan (2021) demonstrated that shortened marketing channels through farmer cooperatives in East Java increased producer price share by 15% compared to traditional trader-dominated channels. Further supporting this efficiency paradigm, Hadi and Rachman (2022) established that high marketing margins in South Sumatra's chili markets disproportionately benefit wholesalers and retailers while providing minimal farmer returns. Their research highlights innovative distribution channels, particularly agribusiness e-commerce, as effective mechanisms for reducing marketing costs by approximately 12% while improving equity in profit distribution.

- 2) Farmer's share measures the proportion of the final consumer price that accrues to producers, serving as a key metric for assessing marketing efficiency in agricultural supply chains. This indicator quantifies the price transmission equity between farmgate and retail levels (Sinaga et al., 2014).

Table 6. Farmer's Share in the Curly Red Chili (*Capsicum annuum* L.) Marketing Channel in East Payakumbuh Subdistrict, Payakumbuh City

Marketing Channel	Price at farmer level (IDR/kg)	Price at consumer level (IDR/kg)	Farmer's Share (%)
Channel I	45,000	58,000	77.5
Channel II	47,000	58,000	81.03

Source: Processed Primary Data (2025)

Table 6 presents the farmer's share for curly red chili (*Capsicum annuum* L.) in East Payakumbuh Subdistrict, indicating the proportion of consumer prices retained by producers. Channel II attains a higher farmer's share of 81.03% compared to 77.5% in Channel I. This differential translates to IDR 47,000 versus IDR 45,000 respectively from a uniform consumer price of IDR 58,000. The enhanced farmer's share in Channel II demonstrates superior marketing efficiency through its streamlined supply chain structure, where reduced intermediary layers yield greater price realization for farmers while constraining cumulative marketing margins.

The superior farmer's share in Channel II (81.03%) compared to Channel I (77.5%) demonstrates enhanced price transmission efficiency. This differential arises from Channel II's streamlined structure, which utilizes fewer intermediaries to constrain cumulative marketing margins, thereby allocating a larger proportion of the consumer price to producers. Consequently, Channel II establishes a more efficient and remunerative marketing system for farmers.

These findings validate Marhawati et al.'s (2021) position that farmer's share serves as a fundamental metric for assessing marketing system efficiency. An elevated farmer's share is inversely related to the cumulative margins captured by intermediaries, indicating superior operational efficiency within the distribution channel. In this context, Channel II demonstrates enhanced economic viability for farmers by allocating a greater proportion of the final product value to producers.

These findings corroborate Sahara and Supriatna's (2020) West Java study, which established an inverse relationship between supply chain length and producer revenue share in red chili marketing. The researchers demonstrate that elongated distribution channels elevate operational costs and expand marketing margins, consequently diminishing the proportion of consumer prices captured by farmers.

Syahza et al. (2020) research on Riau's cayenne pepper market further substantiates the strong positive correlation between farmer's share and marketing efficiency. In their analysis, streamlined marketing channels with minimal intermediaries attained farmer's share levels exceeding 80%, whereas channels with multiple intermediary layers diminished this value below 70% due to cumulative margin extraction.

Nurasa and Oktaviani (2021) identify farmer's share as a crucial welfare metric for horticultural producers, establishing a 50% benchmark for supply chain efficiency. Values exceeding 50% represent moderate efficiency, while shares below this threshold indicate a disadvantaged position for farmers, making them susceptible to inequitable value distribution within marketing channels.

CONCLUSION

The curly red chili (*Capsicum annuum* L.) market in East Payakumbuh Subdistrict exhibits a tight oligopsony structure characterized by high concentration ratios and substantial entry barriers. This market configuration undermines farmer bargaining power, allowing wholesalers to dictate both pricing and distribution terms. Regarding market performance, Channel II demonstrates superior efficiency through constrained marketing margins and an 81.03% farmer's share. These findings indicate that streamlined marketing channels significantly enhance farmer income and contribute substantially to producer welfare.

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