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ANALYSIS OF FARMER SHARE AND RED ONION PRICE FORMATION IN JATIROGO DISTRICT TUBAN REGENCY

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Abstract

Shallots (Allium ascalonicum L.) are an important horticultural commodity in Indonesia, yet their high price volatility often causes disparities between farm-gate and retail prices. This condition indicates inefficiencies in the marketing system, long distribution chains, and weak bargaining power of farmers. This study examines the structure of shallot marketing channels, the distribution of marketing margins and farmers' share, and the factors influencing shallot price formation at the retail level. The research aims to analyze marketing channel patterns, measure marketing margins and farmers' share, and identify the main determinants of retail shallot prices in Jatirogo District, Tuban Regency, East Java. A mixed-method approach was applied, combining descriptive qualitative analysis with quantitative analysis using Partial Least Squares (PLS). Primary data were collected from 68 shallot retailers through interviews and structured questionnaires, supported by secondary data from official institutions and relevant literature. The results reveal three marketing channels with different efficiency levels. The farmer–consumer channel is the most efficient, with zero marketing margin and a farmers' share of 100%, but it is limited in market reach. The farmer–collector–retailer channel generates a marketing margin of IDR 12,000/kg with a farmers' share of 62%, while the farmer–collector–wholesaler–retailer channel records the highest margin of IDR 15,000/kg and the lowest farmers' share at 57%. Furthermore, transportation costs, supply–demand imbalance, and marketing channel length significantly increase retail prices, while local production volume and substitute goods reduce prices. These findings highlight the importance of improving logistics efficiency and shortening marketing channels to enhance price stability and farmers' income.

Keywords: Shallot, Marketing Channels, Marketing Margin, Price Formation.

INTRODUCTION

The agricultural sector is one of the main pillars of the Indonesian economy, playing a strategic role in supporting food security, providing employment, and improving the welfare of rural communities. Among horticultural commodities, shallots (Allium ascalonicum L.) have high economic and strategic value due to their high consumption levels and relatively stable demand throughout the year. The commodity is also known for its high price volatility, meaning that fluctuations in shallot prices often have a direct impact on farmers' incomes and consumer purchasing power. Shallot prices in Indonesia experience high volatility due to imbalances in supply and demand across time and regions, leading to price fluctuations, uncertainty in farmers' incomes, and potential declines in consumers' purchasing power, with seasonal production being one of the main contributing factors.

Table 1.
National Shallot Production

Year	National Shallot Production (Ton)
2023	1.985.233
2022	1.982.360
2021	2.004.590
2020	1.815.445
2019	1.580.247

Source: BPS, 2024.

Data from the Central Statistics Agency shows that national shallot production has tended to increase over the past five years, with the highest production in 2021 at 2,004,590 tons. However, this increase in production has not been accompanied by improvements in the marketing system. The price gap between producers and consumers still exists, indicating inefficient and asymmetric price transmission in the marketing chain. This situation means that farmers do not receive a proportional benefit from price increases at the retail level, while consumers continue to bear high prices when prices at the farmer level decline.

East Java Province is one of the main centers of national shallot production, contributing significantly to Indonesia's total production. Tuban Regency, particularly Jatirogo District, is a potential area for shallot commodity development with an increasing production trend. However, the reality on the ground shows that increased production is not directly proportional to price stability and increased income. The length of the marketing chain, the dominance of middlemen, and farmers' limited access to market information have resulted in weak bargaining power for farmers and high marketing margins enjoyed by distributors.

The large price disparity between the farmer level and the retail level reflects structural problems in the shallot trading system. In addition to being influenced by the marketing channel structure, the formation of shallot prices at the retail level is also influenced by various factors, including supply volume, harvest season, production and distribution costs, market demand, and the existence of substitute commodities. Therefore, a comprehensive study is needed on the characteristics of traders, marketing channel patterns, marketing margins, farmers' share, and factors that influence the formation of shallot prices at the retail level.

REVIEW OF LITERATURE

Price Formation Theory

Price formation theory explains that agricultural commodity prices, including shallots, are determined by the interaction of supply and demand, which is influenced by seasonal patterns, weather conditions, and government policies (Firdaus et al., 2020). Rahayu et al. (2019) further emphasize that price formation is affected by spatial and temporal dynamics across regions as well as price expectations. In addition, supply chain structure plays a crucial role, as longer distribution chains tend to widen the price gap between farm-gate and retail levels (Susilowati, 2021).

Marketing Margin

Marketing margin theory explains the price difference between producers and final consumers, reflecting costs and profits along the distribution chain. The marketing margin is defined as the difference between the price paid by consumers and the price received by farmers, which can be measured in absolute or relative terms to assess marketing efficiency (Saefuddin and Hanafiah, 1986). According to Soekartawi (1995), a low marketing margin indicates an efficient marketing system that allows farmers to capture greater value. Conversely, high marketing margins suggest inefficiencies, particularly in long and complex distribution structures, which may contribute to higher food prices at the consumer level (Prastowo et al., 2008).

Marketing Channel

Marketing channel theory explains the process through which products move from producers to consumers via marketing intermediaries with different roles and functions. Marketing channels are defined as organizational structures consisting of economic actors involved in delivering goods and services from producers to final consumers (Kotler and Keller, 2009). In agricultural systems, marketing channels may be short or long depending on the number of intermediaries involved, with longer channels generally associated with higher marketing margins and lower distribution efficiency (Hanafiah and Saefuddin, 2006).

Farmer's Share

Farmers' share is an important indicator for assessing marketing efficiency and the fairness of value-added distribution within agricultural supply chains. It is defined as the percentage of the retail price received by farmers from the final price paid by consumers. A higher farmers' share indicates that farmers capture a larger proportion of the economic benefits, reflecting a more efficient and farmer-oriented marketing system. Conversely, a low farmers' share suggests the dominance of intermediaries in price formation, where most value added is absorbed at downstream levels (Hanafiah and Saefuddin, 2006; Soekartawi, 2005). Inefficient distribution systems not only reduce farmers' share but may also contribute to food price inflation due to large price disparities between producer and consumer levels (Prastowo et al., 2008).

RESEARCH METHOD

Research Location and Time

This study is a field study with a descriptive-qualitative and quantitative approach that aims to analyze the formation of shallot prices at the retail level. The study was conducted in Jatirogo District, Tuban Regency, East Java, which was purposively selected because it is an agricultural area, a center of shallot production, and has a dynamic

distribution that is influenced by its position on the Pantura route. The data used in this study consisted of primary and secondary data. Primary data was obtained through interviews, questionnaires filled out by shallot retailers, and field documentation. Meanwhile, secondary data were sourced from relevant agencies and official publications, such as the Central Statistics Agency (BPS), the Agricultural Extension Center, the Tuban Regency Food Security and Agriculture Agency, and relevant scientific literature.

Population and Sampling

The research population consists of all shallot retailers in Jatirogo Subdistrict, spread across 18 villages. Given that the exact population size is unknown, respondents were determined using accidental sampling of retailers who had been actively selling shallots in the last six months. The sample size was set at 68 respondents based on the Lemeshow (1991) formula with a 90% confidence level and a 10% margin of error. Data analysis was conducted qualitatively to describe the characteristics of respondents and marketing channels and quantitatively using multiple linear regression to analyze the effect of transportation costs, retribution costs, packaging, supply and demand differences, local production, substitute goods prices, and consumer purchasing power on the retail price of shallots.

RESULTS AND DISCUSSION

Marketing Margin Analysis

Marketing margin is a crucial indicator in analyzing the performance of agricultural commodity marketing chains because it shows the price difference between producers and end consumers. Marketing margins reflect the distribution of costs and return among actors along the agricultural value chain and are widely used to assess market efficiency (Indrajaya et al., 2021). The marketing margin is influenced by the length of the marketing channel, transportation costs, and product handling and storage activities. Higher marketing margins are generally associated with longer supply chains and higher marketing costs (Kai, Baruwadi, and Tolinggi, 2022). Therefore, analyzing shallot marketing margins is necessary to evaluate the efficiency of marketing channels and their impact on farmer income.

Table 2.
First Channel Marketing Margin

Institution	Purchase Price (Rp/Kg)	Selling Price (Rp/Kg)	Margin (Rp/Kg)	Marketing Costs (Rp/Kg)	Net Income (Rp/Kg)
Farmer	0	28.000	0	1.000	27.000
Consumer	28.000	0	0	0	0
Total			0	1.000	27.000

Source : Primary Data, 2025.

In the first marketing channel, there is no marketing margin due to the absence of intermediaries. The price received by farmers is the same as the price served to consumers, namely IDR 28,000/kg. The entire sales value is received by farmers after deducting marketing costs in the form of packaging of IDR 1,000/kg, resulting in net income of IDR 27,000/kg. This channel is the most efficient from the farmer's perspective, as the added value is entirely retained by the producer. However, this channel's limitation lies in its narrow market reach, making it less able to absorb large production volumes, especially during peak harvest times.

Table 3.
Second Channel Marketing Margin

Institution	Purchase Price (Rp/Kg)	Selling Price (Rp/Kg)	Margin (Rp/Kg)	Marketing Costs (Rp/Kg)	Net Income (Rp/Kg)
Farmer	0	20.000	-	-	-
Collector	20.000	26.000	6.000	2.500	3.500
Retailer	26.000	32.000	6.000	3.000	3.000
Consumer	32.000	-	-	-	-
Total			12.000	5.500	6.500

Source : Primary Data, 2025.

The second marketing channel generates a margin of Rp12,000/kg, the difference between the farm-gate price of Rp20,000/kg and the consumer price of Rp32,000/kg. This margin consists of marketing costs of Rp5,500/kg and a net profit of Rp6,500/kg for intermediaries. The presence of collectors and retailers expands distribution reach and ensures the uptake of the harvest, even though the price received by farmers is lower than through direct channels. The resulting margin reflects compensation for the distribution and marketing functions performed by intermediaries.

Table 4.
Third Channel Marketing Margin

Institution	Purchase Price (Rp/Kg)	Selling Price (Rp/Kg)	Margin (Rp/Kg)	Marketing Costs (Rp/Kg)	Net Income (Rp/Kg)
Farmer	-	20.000	-	-	-
Collector	20.000	24.000	4.000	2.500	1.500
Wholesaler	24.000	30.000	6.000	4.000	2.000
Retailer	30.000	35.000	5.000	3.000	2.000
Consumer	35.000	-	-	-	-
Total			15.000	10.000	5.000

Source : Primary Data, 2025.

The third marketing channel has the highest marketing margin, at IDR 15,000/kg, with a farmgate price of IDR 20,000/kg and a consumer price of IDR 35,000/kg. This margin consists of a marketing cost of IDR 10,000/kg and a net profit of IDR 5,000/kg. The length of the distribution chain increases costs and prices at the consumer level. Although the price received by farmers is relatively low, the presence of wholesalers plays a crucial role in expanding distribution and maintaining the continuity of shallot supply, especially in larger marketing areas far from production centers.

Farmershare Analysis

Farmer's share is the percentage of the price received by farmers compared to the price paid by end consumers and is used to assess the fairness and efficiency of agricultural commodity marketing systems. Farmer's share is an important indicator for evaluating how benefits are distributed along agricultural marketing channels (Apurwanti, Rahayu, and Irianto, 2019). A high farmer's share value indicates that farmers receive a larger share of the price, while a low value indicates the dominance of intermediaries in the marketing chain.

Lower farmer's share is commonly associated with longer marketing channels and higher marketing margins (Sanakh, Nampa, and Surayasa, 2021). Therefore, farmer's share analysis is important for assessing the bargaining position of shallot farmers in the marketing system.

Table 5.
First Channel Farmershare

Marketing agency	Component	Value (Rp/Kg)	Percentage of P*k* (%)
Farmer (P*f*)	Selling Price	28.000	100
	Marketing Cots		
	a. Transportation	0	
	b. Retribution	0	
	c. Packaging	1.000	4
	Total	1.000	4
	Net Income	27.000	96
Consumer (P*k*)	Purchase Price	28.000	100

Source: Primary Data, 2025.

In the first marketing channel, the price received by farmers is equal to the price paid by consumers, amounting to IDR 28,000 per kg. As a result, the marketing margin is zero, and the farmers' share reaches 100%. This condition indicates that the entire transaction value is received directly by farmers without the involvement of intermediaries. The only marketing cost incurred by farmers is packaging, amounting to IDR 1,000 per kg (4% of the selling price), while transportation and retribution costs are not borne by farmers because transactions are conducted directly at the production site or through buyer pick-up. Consequently, farmers' net income reaches IDR 27,000 per kg, or 96% of the selling price. The high farmers' share reflects a highly efficient marketing channel due to minimal distribution costs. However, this channel is limited by its narrow market reach, resulting in relatively small sales volumes and serving mainly local markets.

Table 6.
Second Channel Farmershare

Marketing agency	Component	Value (Rp/Kg)	Percentage of Pk (%)
Farmer (P*f*)	Selling Price	20.000	62
Collector	Purchase Price	20.000	62
	Marketing Cost		
	a. Transportation	1.500	5
	b. Retribution	-	-
	c. Packaging	1.000	3
	Total	2.500	8
	Net Income	3.500	11
	Selling Price	26.000	80
Retailer	Purchase Price	26.000	80
	Marketing Cost		
	a. Transportation	2.000	6
	b. Retribution	500	1
	c. Packaging	500	1

	Total	3.000	9
	Net Income	3.000	9
	Selling Price	32.000	100
Consumer (P*k*)	Purchase Price	32.000	100

Source: Primary Data, 2025.

In the second marketing channel, the farm-gate price of shallots is IDR 20,000 per kg, while the consumer price reaches IDR 32,000 per kg, resulting in a farmers' share of 62%. This value is lower than that of the first channel due to marketing margins distributed among intermediaries. Collectors and retailers receive shares of 19% and 18% of the consumer price, respectively. Marketing costs, including transportation, packaging, and storage, further reduce the price received by farmers. Although intermediaries enhance market reach and sales volume, this system leads to a lower income share for farmers and reflects an imbalance in the distribution of transaction value.

Table 7.
Third Channel Farmershare

Marketing agency	Component	Value (Rp/Kg)	Percentage of Pk (%)
Farmer (P*f*)	Purchase Price	20.000	57
Collector	Purchase Price	20.000	57
	Marketing Cost		
	a. Transportation	1.500	4
	b. Retribution	-	-
	c. Packaging	1.000	3
	Total	2.500	7
	Net Income	1.500	4
	Selling Price	24.000	69
Wholesaler	Purchase Price	24.000	69
	Marketing Cost		
	a. Transportation	2.500	7
	b. Retribution	1.000	3
	c. Packaging	500	1
	Total	4.000	11
	Net Income	2.000	6
	Selling Price	30.000	86
Retailer	Purchase Price	30.000	86
	Marketing Cost		
	a. Transportation	2.000	6
	b. Retribution	500	1
	c. Packaging	500	1
	Total	3.000	9
	Net Income	2.000	6
	Selling Price	35.000	100

Consumer (P*k*)	Purchase Price	35.000	100

Source: Primary Data, 2025.

In the third marketing channel, the price received by farmers is IDR 20,000 per kg, while the consumer price reaches IDR 35,000 per kg, resulting in a farmers' share of 57%. This value is lower than that of the second channel due to the longer distribution chain. Collectors receive 11% of the consumer price, wholesalers 17%, and retailers 15%. The decline in farmers' share is driven by additional marketing costs, including long-distance transportation, quality sorting, and large-scale storage, mainly incurred at the wholesale level. This condition indicates that longer marketing channels reduce the proportion of income received by farmers, while wholesalers play a dominant role in price determination due to their position as major supply absorbers.

Analysis of Factors Influencing the Formation of Red Onion Prices at the Retail Level

Convergent validity testing was conducted based on loading factor and average variance extracted (AVE) values. An indicator is considered valid if it has a loading factor value of ≥ 0.708 with a P-value < 0.05, indicating its significance in reflecting the latent construct. Furthermore, an AVE value > 0.50 indicates that the construct is able to explain more than half of the variance of its constituent indicators. The results of the loading factor and P-value tests for each indicator are presented in the following table.

Table 8.
Loading Factor

Research Variable		Indicator	Loading Factor	Term	Conclusion
X1	Distribution	X1.1	0.942	*Loading Factor* > 0,708	Valid
		X1.2	0.847		Valid
X2	Retribution	X2.1	0.952		Valid
		X2.2	0.922		Valid
X3	Packaging Costs	X3.1	0.956		Valid
		X3.2	0.923		Valid
X4	Consumer Purchasing Power	X4.1	0.842		Valid
		X4.2	0.935		Valid
X5	Market Deman	X5.1	0.932		Valid
		X5.2	0.963		Valid
X6	Production	X6.1	0.953		Valid
		X6.2	0.935		Valid
X7	Substitute Goods	X7.1	0.918		Valid
		X7.2	0.833		Valid

Source : Primary Data, 2025.

The price-forming factor indicators (X) were selected based on theory and empirical findings of the horticultural commodity market in Indonesia. Distribution and market levies influence marketing costs, which directly impact the price of shallots at the consumer level (BPS, 2022). Convergent validity assessment shows that all indicators used to measure the determinants of shallot price formation are valid, as each loading factor exceeds the recommended threshold of 0.708. The distribution construct (X1) is represented by indicators

X1.1 (0.942) and X1.2 (0.847). The retribution construct (X2) is reflected by X2.1 (0.952) and X2.2 (0.922). Packaging costs (X3) demonstrate strong indicator validity through X3.1 (0.956) and X3.2 (0.923). Consumer purchasing power (X4) is adequately measured by X4.1 (0.842) and X4.2 (0.935). Market demand (X5) presents the highest loading values, with X5.1 (0.932) and X5.2 (0.963), indicating excellent measurement quality. The production construct (X6) is supported by X6.1 (0.953) and X6.2 (0.935). Substitute goods (X7) meet the validity criterion through X7.1 (0.918) and X7.2 (0.833). The results confirm that all indicators are valid and can be retained for subsequent reliability testing and structural model evaluation. Production was chosen because the level of supply significantly determines the movement of shallot prices nationally, while the availability of substitute goods influences demand elasticity and price formation (Varian, 2019).

Table 9.
Average Variance Extracted (AVE)

Research Variable	AVE	Term	Information
X1 (Distribution)	0.803	AVE > 0,50	Valid
X2 (Retribution)	0.878		Valid
X3 (Packaging Costs)	0.883		Valid
X4 (Consumer Purchasing Power)	0.792		Valid
X5 (Market Demand)	0.898		Valid
X6 (Production)	0.892		Valid
X7 (Substitute Goods)	0.768		Valid

Source: Primary Data, 2025.

Based on Table 4.14, the Average Variance Extracted (AVE) results show that all constructs exceed the minimum threshold of 0.50, thereby meeting the convergent validity criterion. The AVE values range from 0.768 (substitute goods) to 0.898 (market demand), indicating that each latent variable explains a substantial proportion of variance in its indicators. These findings support the loading factor results and confirm that all constructs in the PLS measurement model are valid and suitable for further analysis.

Table 10.
Discriminant Validity

Variable	X1	X2	X3	X4	X5	X6	X7	Y
X1								
X2	0.857							
X3	0.879	0.893						
X4	0.810	0.832	0.884					
X5	0.346	0.556	0.463	0.897				
X6	0.470	0.476	0.514	0.737	0.652			
X7	0.760	0.683	0.668	0.804	0.643	0.883		
Y	0.336	0.422	0.419	0.552	0.589	0.871	0.730	

Source: Primary Data, 2025.

Based on Table 4.15, the Heterotrait–Monotrait Ratio (HTMT) results indicate that all construct relationships in the model are below the recommended threshold of 0.90, thereby satisfying the discriminant validity criterion. The HTMT values between the independent

variables and shallot price (Y) range from 0.336 to 0.871, with the highest value observed between production (X6) and shallot price (Y) at 0.871, which remains within the acceptable limit. These findings confirm that each construct is empirically distinct and that no measurement overlap occurs among variables. Therefore, the measurement model meets the discriminant validity requirement and is suitable for subsequent inner model analysis.

Table 11.
Reliability

Research variables	*Cronbach's Alpha*	*Composite Reliability*	Condition	Conclusion
X1 (Distribution)	0.765	0.880	*Loading Factor* > 0,7	Reliable
X2 (Retribution)	0.863	0.900		Reliable
X3 (Packaging Costs)	0.870	0.916		Reliable
X4 (Consumer Purchasing Power)	0.747	0.841		Reliable
X5 (Market Deman)	0.889	0.950		Reliable
X6 (Production)	0.879	0.895		Reliable
X7 (Substitute Goods)	0.705	0.758		Reliable

Source: Primary Data, 2025.

Based on Table 4.16, the reliability test results indicate that all constructs meet the minimum threshold of 0.70 for both Cronbach's Alpha and Composite Reliability, confirming satisfactory internal consistency. Distribution (X1) records a Cronbach's Alpha of 0.765 and a Composite Reliability of 0.880. Retribution (X2) shows values of 0.863 and 0.900, while packaging costs (X3) record 0.870 and 0.916, indicating strong reliability. Consumer purchasing power (X4) demonstrates acceptable reliability with values of 0.747 and 0.841. Market demand (X5) presents the highest reliability, with Cronbach's Alpha of 0.889 and a Composite Reliability of 0.950. Production (X6) also shows high reliability with values of 0.879 and 0.895. Substitute goods (X7) meet the reliability criterion with a Cronbach's Alpha of 0.705 and a Composite Reliability of 0.758. These findings confirm that the outer model fulfills the reliability requirement and is suitable for subsequent inner model testing.

Table 12.
R-*Square*

Research Variable	R-Square
Price Forming Factors (Y)	0.705

Source: Primary Data, 2025.

Based on Table 4.17, the R-square value for the Shallot Price variable (Y) is 0.705, indicating that the Price-Forming Factors (Y) explain 70.5% of the variation in shallot prices, while the remaining 29.5% is influenced by factors outside the research model. According to the classification proposed by Chin (1998), this R-square value falls into the high category. These results suggest that price-forming factors make a reasonably significant contribution to explaining variations in shallot prices, although other external factors also play an important role in market price formation.

Table 13.
Hypothesis

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P-values
X1.1. -> Y	-0.097	-0.064	0.144	0.674	0.500
X.1.2 -> Y	0.044	0.049	0.169	0.262	0.793
X1.3 -> Y	0.106	0.084	0.117	0.908	0.364
X.1.4 -> Y	-0.219	-0.197	0.128	1.718	0.086
X.1.5 -> Y	0.229	0.194	0.224	1.022	0.307
X.1.6 -> Y	0.719	0.738	0.157	4.587	0.000
X.1.7 -> Y	0.102	0.090	0.089	1.144	0.253

Source: Primary Data, 2025.

H1: Effect of transportation costs on shallot prices

The test results indicate that distribution (X1) does not significantly affect shallot price formation in Jatirogo Subdistrict, Tuban Regency, as the p-value exceeds 0.05. The small path coefficient suggests a weak relationship. This finding implies that the local distribution system is relatively stable, supported by short distribution channels and the proximity of production areas to local markets, which prevents distribution costs from becoming a major price determinant. Transportation costs are frequently transmitted directly to consumers and represent a major component of agricultural marketing costs (Rapsomanikis, 2015).

H2: Effect of supply–demand gap on shallot prices

Retribution (X2) does not have a significant effect on shallot price formation, as indicated by a p-value above 0.05. The weak path coefficient shows that retribution contributes minimally to price variation. This result suggests that shallot prices are mainly influenced by general market mechanisms such as production and demand conditions rather than retribution-related practices. Price increases occur when demand exceeds supply due to market disequilibrium mechanisms (Nicholson & Snyder, 2012). Market prices adjust upward until equilibrium between supply and demand is restored (Pindyck & Rubinfeld, 2018).

H3: Effect of local production volume on shallot prices

Packaging costs (X3) do not significantly influence shallot price formation because the p-value exceeds 0.05. The low-path coefficient indicates a limited contribution to price changes. This condition reflects that packaging practices in the study area are simple and low-cost, resulting in minimal additional cost pressure on market prices. An increase in local production expands supply and exerts downward pressure on prices, particularly during peak harvest periods (Mankiw, 2021). Horticultural markets often experience price declines when supply increases sharply in the short run (Tomek & Kaiser, 2014).

H4: Effect of substitute goods on shallot prices

Consumer purchasing power (X4) does not significantly affect shallot price formation, as shown by a p-value above 0.05 and a weak path coefficient. This finding indicates that shallots are a basic household commodity with relatively inelastic demand, meaning consumers continue purchasing despite changes in income or price levels. The availability of substitute products reduces consumer demand for the original commodity and leads to lower prices (Varian, 2019).

H5: Effect of marketing channel length on retail prices

Market demand (X5) does not significantly affect shallot price formation because the p-value is greater than 0.05. Although the path coefficient is positive, it is not statistically strong. This result suggests that demand in the study area tends to remain stable, causing price fluctuations to be more strongly driven by supply-side factors, particularly production. Longer marketing channels increase retail prices because additional intermediaries raise cumulative transaction costs and marketing margins within the agricultural distribution system (Saptana, Ariningsih, & Ilham, 2020).

H6: Effect of packaging costs, retribution fees, and distribution disruptions

Production (X6) has a positive and significant effect on shallot price formation, as the p-value is below 0.05 and the path coefficient is high. This finding confirms that production is the primary determinant of shallot prices in Jatirogo. Changes in output due to planting seasons, weather conditions, and harvest yields directly affect market supply, thereby influencing price movements. Packaging costs and local retribution fees play a relatively minor role in shallot price formation compared to transportation costs and market structure factors in Indonesian horticultural markets (Putri, Rachman, & Suhartini, 2023).

CONCLUSION

Shallot marketing in Jatirogo Subdistrict, Tuban Regency, is dominated by male traders of productive age with secondary education. Most respondents are retailers (86.77%) located in Sadang and Karangtengah and have operated for more than five years. The marketing system remains traditional and local, consisting of three channels: direct (farmers–consumers), medium (farmers–collectors–retailers), and long (involving wholesalers). The medium channel is most widely used due to its practicality, although it weakens farmers' bargaining position. Marketing efficiency can be improved through stronger farmer institutions and shorter distribution chains.

The marketing margin and farmer's share analysis shows that the direct channel is the most efficient, with zero margin and a 100% farmer's share, but it is limited to local markets. The medium channel generates a margin of IDR 12,000/kg with a farmer's share of 62%, while the long channel produces the highest margin of IDR 15,000/kg with the lowest farmer's share of 57%. Longer marketing channels increase margins and reduce the share received by farmers. Efficiency improvements require shortening the distribution chain and strengthening farmers' bargaining power.

The PLS results confirm that all constructs are valid and reliable, indicating that the measurement model is adequate. The R-square value of 0.705 shows that the price-forming factors explain 70.5% of retail price variation. Transportation costs, supply–demand gaps, production volume, substitute goods, and marketing channel length significantly affect shallot prices. Transportation costs, supply–demand gaps, and channel length have positive effects, while production and substitute goods have negative effects. Packaging costs, market retribution fees, and distribution disruptions are not significant determinants.

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