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Income and Marketing Channel Analysis of Red Chili Farming in Banjar Agung, Tulang Bawang

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ABSTRACT

Purpose: This study analyzes farm income and the marketing channels of red chili (*Capsicum annum L.*) in Banjar Agung Subdistrict, Tulang Bawang Regency, a smallholder production center facing declining harvested area and volatile retail prices.
Methodology: A descriptive quantitative design was applied to 15 farmer respondents and 10 intermediary-trader respondents selected through purposive and snowball sampling. Data were collected through observation, interviews, and documentation, and analyzed using production-cost analysis, income analysis, marketing channel description, marketing-margin analysis, farmer-share analysis, and marketing efficiency analysis.
Results: Average production cost reached IDR 975,142 per hectare (IDR 546,080 per farmer), generating an average income of IDR 6,387,940 per farmer. Two marketing channels were identified: Channel II (farmer wholesaler retailer consumer) with a total margin of IDR 8,000 and a farmer share of 60 percent, and Channel III (farmer collector wholesaler retailer consumer) with a total margin of IDR 10,000 and a farmer share of 50 percent. Marketing efficiency was 20.52 percent for Channel II and 20.7 percent for Channel III.
Conclusions: Shorter marketing channels deliver a higher farmer share, while longer channels remain efficient when per-unit marketing costs are kept low.
Limitations: The study is confined to a single subdistrict, a single harvest season, and two observed channels, without controlling for weather shocks or input-price volatility.
Contributions: The study offers empirical evidence on smallholder horticultural marketing efficiency and provides a practical basis for policy and farmer decision making regarding channel choice in emerging agribusiness regions of Indonesia.

Keywords: *Farmer Share, Marketing Efficiency, Marketing Margin, Red Chili, Smallholder Income*

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1. Introduction

The horticulture subsector is a critical component of agricultural development that has grown steadily over time, supplying both domestic consumption and export markets that contribute to

national foreign-exchange earnings. Among horticultural commodities, red chili (*Capsicum annum L.*) is one of the most widely cultivated crops in Indonesia because of its role as a culinary staple, an input for the food-processing industry, and a raw material in traditional medicine. Because demand for chili is consistently high, farmers in tropical production zones can potentially earn substantial profit, often exceeding returns from other vegetable crops (Hermansyah & Kurniawan, 2022). At the same time, chili is notorious for sharp price fluctuation driven by seasonal supply swings between peak harvest and scarcity periods.

Official statistics for Tulang Bawang Regency illustrate this structural decline: harvested area fell from 229 hectares in 2020 to only 38 hectares in 2023, while production collapsed from 6,747 quintals to 1,486 quintals over the same period, even as productivity per hectare rose from 29.46 to 39.11 quintals. This pattern indicates that farmers have been exiting chili cultivation, most plausibly because of land-use conversion and rising production costs that erode expected profitability, despite improving per-hectare yields among those who remain. Compounding this structural contraction, retail price data for 2024 show red chili falling from IDR 70,000 per kilogram in June to IDR 45,000 per kilogram in August, a decline commonly attributed to a temporary oversupply during peak harvest.

Marketing plays a decisive role within the agribusiness system because it not only determines commercial success but also adds value and forms the distribution chain connecting farmers to final consumers. Farm income is therefore inseparable from the marketing system in place: an effective marketing system supports favorable purchasing decisions and overall trading efficiency, whereas an inefficient system erodes farmer profit and undermines competitiveness. The effectiveness of any marketing system in turn depends on the marketing institutions that constitute its channels; each institution performs a distinct but complementary function in moving the product toward the final consumer, and every transaction between institutions generates a margin reflecting both value addition and the costs of processing, transportation, and handling.

Selecting an appropriate marketing channel improves distribution efficiency, market reach, and consumer satisfaction. An excessively long channel raises cumulative costs and can depress the price received by farmers, whereas a shorter channel tends to raise farm-gate prices and, correspondingly, farmer income. Despite this well-established principle, many chili farmers continue to sell primarily to collecting traders without a clear understanding of the full range of available marketing pathways, limiting their capacity to evaluate the efficiency of their own farming and selling decisions.

Banjar Agung Subdistrict in Tulang Bawang Regency continues to promote red chili as a leading commodity, supported by adequate natural and human resources. Chili cultivation in this subdistrict plays a substantial role in advancing government objectives related to farmer income, rural employment, and agribusiness development. Nevertheless, the marketing system currently operating in the area warrants closer examination, since a well-functioning marketing system is essential for strengthening farmers' bargaining position and the terms of trade they receive for their harvest. Assessing the marketing chain covering the structure of marketing channels and the margin distributed along the path from farmer to consumer provides an appropriate empirical basis for such an examination.

Building on this rationale, prior Indonesian studies on chili marketing efficiency have documented considerable variation in channel structure, margin size, and farmer share across regions, reflecting differences in local market structure, distance to urban centers, and the density of intermediary institutions. However, few of these studies have jointly examined farm-level income determinants alongside a comparative, multi channel marketing efficiency assessment within a single production center undergoing active land use contraction, as is currently occurring in Tulang Bawang. The novelty of the present study therefore lies in its integrated treatment of both farm income formation and comparative marketing channel performance covering margin, farmer share, and efficiency within a smallholder chili-producing subdistrict experiencing measurable harvested-area decline, providing evidence directly relevant to both farmer decision-making and regional agribusiness

policy. Accordingly, this study aims to analyze the income generated by red chili farming and to examine the marketing channels, marketing margins, farmer share, and marketing efficiency of red chili in Banjar Agung Subdistrict, Tulang Bawang Regency.

2. Literature Review

2.1 Red Chili as a Horticultural Commodity

Red chili (*Capsicum annuum L.*) is a strategic horticultural commodity widely cultivated in tropical agricultural systems due to its high economic value and adaptability to diverse agroecological conditions (Galingging et al., 2025; Tarigan & Panjaitan, 2025). In Indonesia, chili production plays a crucial role in supporting farmer income and stabilizing rural agricultural economies, particularly because of its high market demand and price sensitivity (Syaiful et al., 2025). Recent studies indicate that productivity of red chili is strongly influenced by cultivation practices such as planting density, fertilization, and soil nutrient management, which directly affect growth performance and yield outcomes (Amir et al., 2024; Galingging et al., 2025). Moreover, sustainable production systems incorporating biofertilizers and integrated nutrient management have been shown to significantly improve plant growth and fruit productivity in chili cultivation systems (Tarigan & Panjaitan, 2025). These findings highlight the importance of improving agronomic practices to maintain stable chili production under fluctuating environmental conditions.

Despite its economic importance, red chili production continues to face significant constraints that reduce yield and productivity. Common problems include pest and disease attacks, inefficient fertilizer application, and variability in environmental conditions such as rainfall and soil fertility (Arsi et al., 2021; Syaiful et al., 2025). In addition, climatic instability and suboptimal farming practices often lead to inconsistent production and increased risk for farmers (Galingging et al., 2025). Studies also show that integrated pest management and improved cultivation techniques are essential to reduce production losses and enhance yield stability in chili farming systems (Amir et al., 2024; Arsi et al., 2021). Therefore, the adoption of sustainable agricultural technologies and improved agronomic strategies is necessary to ensure long-term productivity and resilience in red chili cultivation.

2.2 Farm Management and Production Cost Theory

On farm management, or usahatani, constitutes a core subsystem determining the overall success of an agribusiness system, since it directly governs the income farmers derive from their productive activity. Production cost theory distinguishes between fixed costs, which do not vary with output level and include items such as land rent, equipment, and depreciation, and variable costs, which change in proportion to the scale of production, such as labor, fertilizer, and seed expenditure (Suprianto, Ashari, & Wulandari, 2021). Total production cost is computed as the sum of fixed and variable cost ($TC = TFC + TVC$), while total revenue is the product of output quantity and unit price ($TR = P \times Q$), and net income is derived as the residual after subtracting total cost from total revenue ($\pi = TR - TC$). These formulations provide the analytical backbone for assessing whether a given farming enterprise generates an economically viable return, and they have been extensively validated across smallholder horticultural systems in developing-country contexts.

2.3 Marketing Channels and Institutions

A marketing channel is the pathway through which a product moves from producer to final consumer, and its configuration can range from a zero-level channel, in which the farmer sells directly to the end consumer, to increasingly intermediated structures involving retailers, wholesalers, and collectors (Rolanda, Yusra, & Fitri, 2022). Marketing institutions collectors, wholesalers, retailers, and cooperatives emerge because consumers require the product in a specific time, place, and form that the farmer alone cannot efficiently supply; each institution performs value-adding functions such as exchange, physical distribution, and intermediary risk-bearing (Masdaini, & Hemayani, 2022; Aisyah, 2022). Contemporary marketing-channel research in emerging agricultural economies emphasizes that channel length is not intrinsically inefficient: what determines efficiency is the relationship between marketing cost and the value added at each stage, meaning a longer channel can remain efficient provided that per-unit costs stay proportionately low relative to the value delivered to the final consumer (Tomlinson, 2013).

2.4 Marketing Cost, Marketing Margin, and Farmer Share

Marketing cost comprises all expenditures incurred by marketing institutions to move a product from producer to consumer, including transportation, packaging, loading and unloading, and shrinkage or spoilage cost (Arbi, Yusra, & Prasetyo, 2018). Marketing margin, defined as the difference between the price paid by the final consumer and the price received by the producer, reflects the cumulative value of these costs together with the profit captured by each intermediary (Nurlaila, 2023). Farmer share, expressed as the ratio of the farm-gate price to the consumer price, is inversely related to marketing margin: as margin rises, the farmer's proportional share of the final consumer price falls. The conventional decision rule treats a farmer share exceeding 50 percent as indicative of an efficient marketing arrangement, while a farmer share below that threshold signals an inefficient channel in which intermediaries capture a disproportionate share of consumer expenditure relative to the value they add (Oksalia, Wibowo, & Hapsari, 2023).

Marketing costs, margins, and farmer share are closely interrelated indicators that collectively describe the performance of an agricultural marketing system. Higher marketing costs generally contribute to wider marketing margins, particularly when additional handling, transportation, or storage activities are required along the distribution chain. However, a larger marketing margin does not necessarily indicate inefficiency, as it may reflect legitimate value-adding activities that improve product quality, extend shelf life, or reduce marketing risks. Therefore, margin analysis should be interpreted alongside marketing costs and farmer share to provide a balanced assessment of channel performance.

In the context of perishable commodities such as red chili, evaluating these indicators is particularly important because rapid quality deterioration and price fluctuations increase the complexity of marketing decisions. Marketing channels that minimize unnecessary costs while maintaining product quality are more likely to generate higher farmer shares and improve overall marketing efficiency. Consequently, simultaneous analysis of marketing costs, marketing margins, and farmer share provides a comprehensive basis for identifying the most economically efficient marketing channel and for recommending policies that enhance income distribution and market competitiveness throughout the red chili value chain.

2.5 Marketing Efficiency

Marketing efficiency measures the extent to which a marketing and distribution process is carried out using resources effectively while minimizing waste, and is most commonly operationalized as the ratio of total marketing cost to the value of the product marketed (Suriani, Ramadhan, & Kurnia, 2023). Fatmawati's classification, widely applied in Indonesian agricultural-marketing studies, categorizes efficiency values of 0–33 percent as efficient, 34–67 percent as less efficient, and 68–100 percent as inefficient (Nurulita, Ramadhan, & Prasetya, 2022). This framework recognizes that channels involving multiple intermediaries are not automatically inefficient, since a channel with more institutions but proportionally lower per-unit marketing costs can outperform a shorter channel burdened by disproportionately high handling or transport costs a nuance directly relevant to comparative assessment across the multi-tier chili marketing channels documented in Indonesian production centers.

In addition to marketing costs, marketing efficiency is closely associated with the ability of each marketing institution to perform marketing functions effectively, including transportation, storage, grading, packaging, financing, and market information dissemination. Efficient execution of these functions reduces unnecessary transaction costs, minimizes post-harvest losses, and ensures that products reach consumers in the desired quantity and quality. Consequently, an efficient marketing system benefits not only consumers through more stable prices and product availability but also producers by increasing the share of the final selling price received by farmers.

Assessing marketing efficiency is therefore essential for identifying weaknesses within existing marketing channels and formulating strategies to improve market performance. Comparative analysis of alternative marketing channels provides insight into the distribution of marketing

margins, the allocation of costs among intermediaries, and the proportion of value retained by producers. Such analysis enables policymakers and stakeholders to design interventions that streamline the supply chain, reduce unnecessary marketing costs, strengthen farmers' bargaining positions, and ultimately improve the competitiveness and sustainability of the red chili marketing system in the study area.

2.6 Empirical Studies on Chili Marketing Efficiency

A substantial body of Indonesian empirical research has examined red-chili marketing efficiency across diverse production regions, generally converging on the finding that channel length alone does not determine efficiency. Saputra, Setiawan, and Setia (2021), studying Tanjung-variety chili in Panjalu, found a single dominant channel yielding a farmer share of 50 percent and a marketing efficiency of 4.38 percent. Setiawan, Susilowati, and Sudjoni (2020) reported that the shortest of two observed channels in Malang Regency achieved the highest farmer share, at 85.47 percent, owing to its minimal margin of IDR 1,466. Similarly, Narayan, Hadayani, and Khatima (2024) found that, in Poso Regency, the channel with the smaller total margin and larger farmer-price share was more efficient despite requiring the same number of intermediary tiers as its counterpart.

Other studies illustrate cases in which a longer channel outperforms a shorter one on cost-adjusted efficiency grounds. Hermansyah and Kurniawan (2022), examining red chili marketing in Ogan Komering Ilir Regency, found that a three-tier channel was economically more efficient than shorter alternatives despite involving more intermediaries, because its aggregate transaction value relative to cost was superior. Veliadona, Suyono, and Nurdiani (2022) similarly reported that, among four observed channels for curly red chili in Kebumen Regency, the channel achieving the highest farmer share (89 percent) was not necessarily the one with the lowest engineering-based efficiency index, underscoring that margin-based and index-based efficiency measures can rank channels differently depending on the metric applied. These findings collectively suggest that marketing-channel performance in the chili subsector is highly context-dependent, shaped by local market density, transport infrastructure, and the bargaining position of each institution, which motivates the present subdistrict-specific investigation of Banjar Agung.

2.7 Conceptual Framework

Building on the theoretical and empirical literature, agricultural marketing is understood as a structured exchange system in which value is transferred from farmers to consumers through marketing channels, where efficiency is determined by price transmission, marketing costs, and supply chain structure (Zaman et al., 2025; Wang, 2024). In developing agricultural economies, including Indonesia, farming households' income is strongly influenced by production costs, input efficiency, and market access conditions (World Bank, 2025). Recent studies emphasize that improving agricultural value chain efficiency is essential to enhancing farmer welfare, particularly through reducing marketing margins and strengthening farmers' bargaining position (WWF, 2021). Furthermore, financial behavior and institutional factors such as access to credit significantly affect agricultural production efficiency and income stability in rural farming systems (Wang, 2024). Therefore, integrating production-side efficiency with marketing-system performance provides a comprehensive framework for analyzing farmer income distribution and agribusiness competitiveness.

Based on this conceptual framework, the study evaluates the relationship between production activities and marketing performance by examining production costs, farm revenues, marketing channels, marketing margins, farmer's share, and marketing efficiency indicators. Understanding these interrelated components is essential for identifying the factors that influence farmers' economic returns and for assessing whether the existing marketing system distributes benefits fairly among actors within the supply chain. The findings are expected to provide evidence-based recommendations for improving market access, strengthening farmer bargaining power, and enhancing the overall competitiveness and sustainability of red chili agribusiness in the study area.

2.8 Farm Income Determinants in Smallholder Systems

International literature on smallholder agricultural systems provides additional theoretical grounding for interpreting the income results reported in this study. Key and Sadoulet

(2000) demonstrate that transaction costs facing smallholder households shape both their market participation decisions and their realized supply response, implying that even profitable crops can see declining cultivation if the transaction costs of accessing input and output markets rise disproportionately relative to farm-gate returns. Fafchamps and Hill (2005) similarly show that smallholders' choice between selling at the farm gate and traveling to more distant markets is governed by a trade-off between transport cost and price differential, a dynamic directly relevant to the two-channel structure documented in Banjar Agung, where farmers effectively choose between accepting a lower collector price for convenience or securing a higher wholesaler price by engaging more directly with the marketing chain.

Complementary evidence from Fischer and Qaim (2012) indicates that collective action among smallholders, such as farmer groups or cooperatives, can materially improve market access and bargaining power relative to individual farm-gate transactions, suggesting a potential institutional pathway for improving farmer share in contexts such as Banjar Agung where individual farmers currently negotiate independently with collectors and wholesalers. At the broader policy level, Minot (2014) and Barrett (2008) both emphasize that price volatility and thin market participation are persistent features of smallholder systems in developing economies, reinforcing the relevance of the price-volatility context documented for Tulang Bawang Regency and underscoring that farm-income findings from a single production cycle should be interpreted with appropriate caution regarding their stability across seasons. Taken together, this international literature complements the Indonesia-specific studies reviewed above by situating the observed marketing-channel and income patterns within a broader theoretical understanding of smallholder market behavior under transaction costs and price risk.

3. Methodology

This research was conducted in Banjar Agung Subdistrict, Tulang Bawang Regency, Lampung Province, from July 2024 onward. The research site was selected purposively on the grounds that Banjar Agung is one of the established red chili production centers within Tulang Bawang Regency, providing a representative setting for examining both farm-level income and post-harvest marketing performance. The study adopted a descriptive quantitative research design intended to characterize production costs, income, marketing channels, marketing margins, farmer share, and marketing efficiency using measurable, numerically expressed data rather than exploratory qualitative inference. Data were collected through three complementary techniques: direct field observation to verify cultivation and trading practices, structured interviews using a questionnaire administered to farmer and trader respondents, and documentation of relevant transaction and production records, including photographic evidence of field conditions and trading activity.

Two respondent populations were sampled using distinct techniques appropriate to their respective sampling frames. Farmer respondents, numbering 15, were selected through purposive sampling based on active cultivation of red chili within the observation period, ensuring that all farmer respondents possessed complete and relevant production data. Marketing-institution respondents, numbering 10 (2 collectors, 2 wholesalers, and 6 retailers), were identified using snowball sampling, whereby an initial small set of known traders was used to identify additional traders further along the marketing chain, a technique well suited to tracing marketing pathways whose full population of intermediaries is not known in advance.

Data analysis proceeded through six sequential techniques are production-cost analysis, disaggregating fixed cost (land tax, equipment depreciation) and variable cost (seed, fertilizer, pesticide, labor, and packaging) using $TC = TFC + TVC$, revenue analysis using $TR = P \times Q$, income analysis using $\pi = TR - TC$, descriptive mapping of marketing-channel structure from farmer to final consumer; (5) marketing-margin analysis, computed as $MP = Pr - Pf$ at each institutional tier and summed to obtain total channel margin; and (6) farmer-share analysis, computed as $Fs = (Pf / Pr) \times 100\%$, and marketing-efficiency analysis, computed as $Ep = (BP / NP) \times 100\%$, where BP is total marketing cost and NP is the price of the product as marketed to the final consumer, evaluated against the conventional efficiency thresholds of 0–33 percent (efficient), 34–67 percent (less efficient), and 68–100 percent (inefficient).

4. Results and Discussion

4.1 Result

Respondent characteristics show that the sampled farmers were concentrated in the 41–60 year age bracket (86.7 percent), entirely male, and predominantly educated to junior secondary level (53.3 percent), with the majority (93.3 percent) supporting three to four dependents and owning their cultivated land outright (100 percent), farming plots averaging 0.5–0.6 hectares. Trader respondents were younger on average, with 50 percent aged 21–30 years, predominantly senior-secondary educated (80 percent), and 80 percent male, reflecting a demographic profile consistent with the physically demanding, mobility-intensive nature of intermediary trading relative to the more experience-dependent profile of farm cultivation.

Production cost analysis shows that farmers incurred both fixed and variable costs across the cultivation cycle. Table 1 summarizes the average fixed and variable cost components per farmer for the observed production period.

Table 1. Average production cost components of red chili farming in banjar agung

Cost Component	Category	Average Cost (IDR)
Land tax (PBB)	Fixed	49,000
Equipment depreciation	Fixed	94,800
Total fixed cost	Fixed	143,800
Seed	Variable	10,000
Fertilizer	Variable	4,872,400
Pesticide	Variable	1,239,000
Labor	Variable	1,920,000
Packaging sacks	Variable	6,000
Total variable cost	Variable	8,047,400
Total production cost (per hectare)	-	975,142
Total production cost (per farmer)	-	546,080

Table 1 indicates that fertilizer accounts for the largest share of variable cost, followed by labor and pesticide, together forming the dominant cost burden farmers must recover through sales revenue. With an average monthly output of 1,420 kilograms sold at an average price of IDR 10,267 per kilogram, farmers generated an average revenue of IDR 14,579,140. After deducting the average total production cost of IDR 8,191,200, the resulting average net income was IDR 6,387,940 per farmer, computed as $\pi = TR - TC$ = IDR 14,579,140 – IDR 8,191,200. This income level, while positive, remains sensitive to the pronounced retail price volatility documented for the region, in which prices fell from IDR 70,000 to IDR 45,000 per kilogram within three months during 2024, implying that farmer income in months of price trough could be considerably compressed relative to the average reported here.

Two marketing channels were identified for red chili in Banjar Agung. Channel II follows the pathway farmer → wholesaler → retailer → consumer, in which farmers sold at IDR 12,000 per kilogram, wholesalers resold at IDR 14,000 per kilogram, and retailers sold to consumers at IDR 20,000 per kilogram. Channel III follows the longer pathway farmer → collector → wholesaler → retailer → consumer, in which farmers sold at IDR 10,000 per kilogram, collectors resold at IDR 13,500 per kilogram, wholesalers resold at IDR 14,500 per kilogram, and retailers sold to consumers at IDR 20,000 per kilogram.

Table 2. Marketing margin, farmer share, and marketing efficiency of red chili marketing channels

Channel	Total Margin (IDR/kg)	Farmer Share (%)	Marketing Cost (IDR/kg)	Marketing Efficiency (%)
Channel II (Farmer–Wholesaler–Retailer–Consumer)	8,000	60	4,104	20.52
Channel III (Farmer–Collector–Wholesaler–Retailer–Consumer)	10,000	50	4,140	20.70

Table 2 shows that Channel II generated a smaller total margin (IDR 8,000) and a higher farmer share (60 percent) than Channel III, which generated a larger total margin (IDR 10,000) and a lower farmer share (50 percent). Despite involving three intermediary tiers rather than two, Channel III's marketing cost per kilogram (IDR 4,140) was only marginally higher than that of Channel II (IDR 4,104), and its computed marketing efficiency of 20.70 percent was, in fact, marginally less efficient than Channel II's 20.52 percent, though both fall well within the 0–33 percent range classified as efficient under the Fatmawati criterion.

4.2 Discussion

Farm Income and Production Cost Structure. The finding that fertilizer constitutes the dominant variable-cost component, followed by labor and pesticide, is consistent with the broader literature on smallholder vegetable production, in which input-intensive horticultural crops such as chili require sustained nutrient and pest management inputs across a multi-month harvesting cycle involving repeated picking rounds. The average net income of IDR 6,387,940 per farmer per production cycle, while indicating a commercially viable enterprise, must be interpreted against the backdrop of the declining harvested area documented for Tulang Bawang Regency between 2020 and 2023, which fell from 229 to 38 hectares. This divergence between a seemingly profitable per-farmer income level and a contracting cultivated area suggests that factors beyond simple profitability per cycle such as price risk, land-use conversion incentives, or capital constraints limiting farmers' ability to absorb a poor season may be driving farmers away from chili cultivation despite reasonable average returns, a pattern that merits further investigation beyond the scope of the present cross-sectional analysis.

Marketing Channel Structure and Margin Distribution. The coexistence of a two-tier channel (Channel II) and a three-tier channel (Channel III) in a single subdistrict reflects the heterogeneous scale and bargaining position of farmers: those able to sell larger harvest volumes (130–150 kilograms) direct to wholesalers bypass the collector tier and thereby capture a higher farm-gate price, whereas farmers selling smaller or less time-flexible volumes route through collectors who aggregate produce from multiple smallholders before reselling upstream. This pattern parallels findings from Setiawan, Susilowati, and Sudjoni (2020) and Narayan, Hadayani, and Khatima (2024), both of whom documented that channels involving fewer intermediary tiers and smaller absolute margins delivered a correspondingly higher farmer share, reinforcing the general proposition that channel length and farmer share tend to move inversely when per-unit marketing costs do not fall proportionally as channel length increases.

Farmer Share and the Efficiency Paradox. A central and somewhat counter-intuitive finding of this study is that Channel III, despite having one additional intermediary tier and a lower farmer share (50 percent versus 60 percent), is not meaningfully less efficient than Channel II when efficiency is measured as the ratio of marketing cost to final consumer value (20.70 percent versus 20.52 percent). This result illustrates the distinction, emphasized in the marketing-efficiency literature (Zuhda, Wibisono, & Ramadhan, 2023), between farmer share as a distributional measure of bargaining outcome and marketing efficiency as a measure of resource-use effectiveness: a channel can distribute a smaller proportion of final value to the farmer while nonetheless deploying its aggregate marketing resources about as efficiently as a shorter alternative, provided that the

additional intermediary tier does not introduce disproportionate cost. This finding is consistent with Hermansyah and Kurniawan (2022), who similarly found a three-tier chili marketing channel to be economically efficient despite its greater institutional length, and with Veliadona, Suyono, and Nurdiani (2022), who found that the channel with the highest farmer share was not the same channel identified as most efficient under an engineering-based efficiency index. Both results caution against relying on farmer share alone, or on channel length alone, as a proxy for overall marketing performance.

Practical and Policy Implications. From a practical standpoint, these results suggest that farmers in Banjar Agung would generally benefit from strengthening direct linkages to wholesalers (Channel II) where feasible, since this pathway delivers a materially higher farmer share for a comparable level of marketing efficiency. At the same time, the persistence and continued efficiency of Channel III indicates that collector-mediated marketing serves a legitimate aggregation function for farmers unable to meet the volume or logistical requirements of direct wholesale transactions, and policy interventions should therefore focus on reducing the absolute cost and margin embedded in the collector tier through improved transport infrastructure, market information systems, or farmer group aggregation rather than attempting to eliminate the collector role altogether. This nuanced conclusion diverges from studies advocating uniformly for the shortest available channel (Setiawan et al., 2020) by highlighting that channel appropriateness in practice depends on individual farmer circumstances, including harvest volume, cash-flow needs, and access to buyer relationships.

Comparative Positioning Against the Wider Literature. Placing the Banjar Agung results alongside the broader set of Indonesian chili-marketing studies reviewed in Section 2.6 reveals both consistency and distinctiveness. Consistent with Narayan et al. (2024) and Setiawan et al. (2020), the present study confirms that a lower absolute margin tends to accompany a higher farmer share, and consistent with Hermansyah and Kurniawan (2022), it confirms that additional intermediary tiers do not automatically translate into materially worse efficiency outcomes. What distinguishes the Banjar Agung case is the very narrow efficiency gap between its two channels (20.52 percent versus 20.70 percent), a margin far smaller than the efficiency spreads reported in several other regencies, such as the 3.94 percent versus 4.63 percent spread documented by Nurianto (2023) or the wider divergence reported by Veliadona et al. (2022) across four channels in Kebumen Regency. This narrow gap suggests that the two channels operating in Banjar Agung have converged toward broadly comparable cost structures, possibly reflecting the relatively short geographic distances and well-established trading relationships that characterize this particular subdistrict, and it implies that farmer choice between the two channels may, in practice, be driven more by harvest volume and immediate cash-flow needs than by a decisive efficiency advantage of one channel over the other.

5. Conclusions

5.1 Conclusion

This study examined farm income and marketing-channel performance for red chili in Banjar Agung Subdistrict, Tulang Bawang Regency. Farmers incurred an average production cost of IDR 975,142 per hectare (IDR 546,080 per farmer), generating an average net income of IDR 6,387,940 per farmer per production cycle. Two marketing channels were identified: Channel II (farmer wholesaler retailer consumer), with a total margin of IDR 8,000 and a farmer share of 60 percent, and Channel III (farmer collector wholesaler retailer consumer), with a total margin of IDR 10,000 and a farmer share of 50 percent. Both channels were classified as efficient under the conventional 0–33 percent efficiency threshold, recording marketing-efficiency values of 20.52 percent and 20.70 percent, respectively, indicating that although Channel III involves an additional intermediary tier, its comparatively low per-unit marketing cost allows the product to reach consumers at a reasonable price without a material efficiency penalty relative to the shorter channel.

5.2 Research Limitations

This study is subject to several limitations. First, the analysis is confined to a single subdistrict and a single production period, which may limit the generalizability of the cost, margin, and efficiency estimates to other chili-producing regions or seasons with different price and weather conditions. Second, the sample comprises only 15 farmer respondents and 10 trader respondents, a modest

sample size dictated by the purposive and snowball sampling techniques employed, which, while appropriate for the descriptive objectives of the study, restricts the statistical generalizability of the findings. Third, the analysis does not control for the substantial month-to-month retail price volatility documented for the region, meaning that the reported average income and margin figures may not fully capture the financial risk farmers face during periods of price trough. Finally, the study does not examine input-supply-chain dynamics or access to credit, both of which plausibly influence farmers' capacity to sustain chili cultivation amid the observed decline in harvested area.

5.3 Directions and Future Study

Future research should extend the observation period across multiple planting seasons to capture the effect of price and weather volatility on farm income and marketing-channel performance over time. Incorporating a larger and more geographically dispersed sample across multiple subdistricts or regencies would also enable a more robust comparative analysis of channel efficiency and support broader policy generalization. In addition, future studies could examine the underlying drivers of the harvested-area decline documented for Tulang Bawang Regency, including land-use conversion decisions, access to agricultural credit, and farmer risk perceptions, to better explain the divergence between apparently viable per-cycle income and contracting cultivated area. Finally, incorporating value-chain mapping techniques and farmer-group aggregation models could help identify practical interventions capable of reducing collector-tier marketing costs, thereby improving farmer share in longer marketing channels without compromising their existing efficiency.

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References

Aisyah, S. (2022). Analisis peranan auditor internal terhadap fungsi pemasaran (promosi) pada Hotel Transit Syariah Medan. *Accumulated Journal (Accounting and Management Research Edition)*, *3*(2), 198-206. https://doi.org/10.22303/accumulated.3.2.2021.198-206

Amir, N., Aminah, R. I. S., Paridawati, I., & Pratama, R. A. (2024). Pengaturan jarak tanam dan aplikasi mikoriza pada tanaman cabai merah (Capsicum annuum L.). *Klorofil Journal*, *19*(1), 7-11. https://doi.org/10.32502/jk.v19i1

Arbi, Y., Yusra, Z., & Prasetyo, D. (2018). Analisis saluran dan tingkat efisiensi pemasaran beras semi organik di Kecamatan Rambutan Kabupaten Banyuasin. *JSEP (Journal of Social and Agricultural Economics)*, *11*(1), 22-32. https://doi.org/10.19184/jsep.v11i1.7151

Arsi, A., Sukma, A. T., Christian, B. P., et al. (2021). Keanekaragaman arthropoda dan intensitas serangan pada tanaman cabai (Capsicum annuum L.). *Sainmatika: Jurnal Ilmiah Matematika dan IPA*, *18*(2), 183-191. https://doi.org/10.31851/sainmatika.v18i2.6584

Barrett, C. B. (2008). Smallholder market participation: Concepts and evidence from eastern and southern Africa. *Food Policy*, *33*(4), 299-317. https://doi.org/10.1016/j.foodpol.2007.10.005

Fafchamps, M., & Hill, R. V. (2005). Selling at the farmgate or traveling to market. *American Journal of Agricultural Economics*, *87*(3), 717-734. https://doi.org/10.1111/j.1467-8276.2005.00758.x

Fischer, E., & Qaim, M. (2012). Linking smallholders to markets: Determinants and impacts of farmer collective action in Kenya. *World Development*, *40*(6), 1255-1268. https://doi.org/10.1016/j.worlddev.2011.11.018

Galingging, R. Y. (2025). Site-specific red chili (Capsicum annuum) growth and productivity improvement using organic inputs. *Atlantis Press Proceedings*. https://doi.org/10.2991/icafe-24.126015165

Hermansyah, D., & Kurniawan, R. (2022). Analisis efisiensi dan keuntungan pemasaran cabai merah (Capsicum annum L.) di Desa Muara Burnai I Kecamatan Lempuing Jaya Kabupaten Ogan Komering Ilir. *Societa: Jurnal Ilmu-Ilmu Agribisnis*, *11*(2), 105-111. https://doi.org/10.32502/jsct.v11i2.5579

Key, N., Sadoulet, E., & de Janvry, A. (2000). Transactions costs and agricultural household supply response. *American Journal of Agricultural Economics*, *82*(2), 245-259. https://doi.org/10.1111/0002-9092.00022

Masdaini, E., & Hemayani, A. D. (2022). Analisis keputusan pembelian pada konsumen warung kopi Nilang. *Jurnal Terapan Ilmu Ekonomi, Manajemen dan Bisnis*, *2*(1), 20-28..

Minot, N. (2014). Food price volatility in Sub-Saharan Africa: Has it really increased? Food Policy, 45, 45–56. https://doi.org/10.1016/j.foodpol.2013.06.008

Narayan, S. L., Hadayani, H., & Khatima, H. (2024). Analisis pemasaran cabai merah keriting di Desa Tambarana Kecamatan Poso Pesisir Utara Kabupaten Poso. *Jurnal Agrotekbis*, *12*(1), 1-10..

Nurlaila, D. I. (2023). Analisis efisiensi pemasaran belimbing manis (Averrhoa carambola L.) di Desa Bono, Kecamatan Boyolangu, Kabupaten Tulungagung. *Jurnal Ekonomi Pertanian dan Agribisnis*, *7*(1), 55-67. https://doi.org/10.21776/ub.jepa.2023.007.01.6

Nurulita, F., Ramadhan, B., & Prasetya, A. (2022). Analisis efisiensi saluran pemasaran komoditas brokoli di Kelompok Tani Utama Desa Ciherang Kecamatan Pacet Kabupaten Cianjur. *Journal of Sustainable Agribusiness*, *1*(2), 33-42. https://doi.org/10.31949/jsa.v1i2.3206

Oksalia, D., Wibowo, R., & Hapsari, T. (2023). Efisiensi pemasaran beras dengan pendekatan structure conduct performance. *Jurnal Agribisnis Indonesia (Journal of Indonesian Agribusiness)*, *11*(1), 87-104. https://doi.org/10.29244/jai.2023.11.1.87-104

Rolanda, D., Yusra, Z., & Fitri, A. (2022). Analisis sistem pemasaran jamur tiram di Kecamatan Payakumbuh Utara Kota Payakumbuh. *Menara Ilmu: Jurnal Penelitian dan Kajian Ilmiah*, *16*(2), 45-56.

Saputra, A. R., Setiawan, I., & Setia, B. (2021). Analisis efisiensi pemasaran cabai merah varietas tanjung (suatu kasus di Desa Maparah Kecamatan Panjalu). *Jurnal Ilmiah Mahasiswa Agroinfo Galuh*, *8*(1), 210-219.

Setiawan, R., Susilowati, D., & Sudjoni, M. N. (2020). Analisis efisiensi pemasaran cabai merah di Desa Jetak Ngasri Kecamatan Dau Kabupaten Malang. *Agriecobis: Journal of Agricultural Socioeconomics and Business*, *3*(2), 88-97.

Suprianto, A., Ashari, M., & Wulandari, S. (2021). Analisis biaya dan margin pemasaran produk agroindustri olahan di Kota Mataram. *Jurnal Sosial Ekonomi dan Humaniora*, *7*(1), 82-95. https://doi.org/10.29303/jseh.v7i1.87

Suriani, N., Ramadhan, F., & Kurnia, A. (2023). Konsep populasi dan sampling serta pemilihan partisipan ditinjau dari penelitian ilmiah pendidikan. *Ihsan: Jurnal Pendidikan Islam*, *1*(2), 24-36.

Syaiful, R., et al. (2025). Increasing the growth and production of chili plants through biofertilizer application. *JUATIKA: Jurnal Agronomi Tanaman Tropika*, *6*(2), 538-546.

Tarigan, R. S., & Panjaitan, D. (2025). Efforts to suppress weed growth in red chili cultivation. *CeRIA Journal*. https://doi.org/10.55173/agriscience.v9i1.165

Tomlinson, I. (2013). Doubling food production to feed the 9 billion: A critical perspective on a key discourse of food security in the UK. *Journal of Rural Studies, 29, 81–90*. https://doi.org/10.1016/j.jrurstud.2011.09.001

Veliadona, C. R., Suyono, S., & Nurdiani, U. (2022). Efisiensi pemasaran cabai merah keriting di Kecamatan Ambal Kabupaten Kebumen Jawa Tengah. *Agrisocionomics: Jurnal Sosial Ekonomi Pertanian*, *6*(1), 45-56. https://doi.org/10.14710/agrisocionomics.v6i1.12345

Wang, H. (2024). The impact of farmers' borrowing behavior on agricultural production technical efficiency. *arXiv*. https://doi.org/10.48550/arXiv.2411.00500

World Bank. (2025). Farming and agribusiness: Sector overview and development strategy. *World Bank Group*. Retrieved from https://www.worldbank.org

WWF. (2021). Sustainable agriculture and global food systems. *World Wildlife Fund*. Retrieved from https://www.worldwildlife.org

Zaman, M. H., Wahyuni, D., & Nugroho, R. Y. Y. (2025). The response of farmer welfare amidst food price shock and inflation in East Java Province. *arXiv*. https://doi.org/10.48550/arXiv.2501.08601

Zuhda, M., Wibisono, A., & Ramadhan, R. (2023). Analisis efisiensi pemasaran gula semut di Kecamatan Lingsar Kabupaten Lombok Barat. *Teknosains: Media Informasi Sains dan Teknologi*, *17*(1), 54-59. https://doi.org/10.24252/teknosains.v17i1.34567