



Marketing Efficiency Analysis of Cabbage (*Brassica oleracea*) in Debowae Village, Waelata District, Buru Regency

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ABSTRACT

This study aims to analyze marketing channels, marketing margins, farmer's share, and marketing efficiency of cabbage (*Brassica oleracea*) in Debowae Village, Waelata District, Buru Regency. The research location was determined purposively, as Debowae Village is one of the main cabbage production centers in Buru Regency. A descriptive quantitative approach was applied, using a census method with 15 cabbage farmers, 4 collector traders, and 3 retail traders as respondents ($n = 22$). Primary data were collected through observation, structured interviews, and questionnaires; secondary data were sourced from relevant government institutions. Data were analyzed using marketing margin, farmer's share, and marketing efficiency formulas. The results revealed three marketing channels: Channel I (Farmer $\rightarrow$ Retail Trader $\rightarrow$ Consumer), Channel II (Farmer $\rightarrow$ Village Collector $\rightarrow$ Retail Trader $\rightarrow$ Consumer), and Channel III (Farmer $\rightarrow$ Village Collector $\rightarrow$ City Collector $\rightarrow$ Retail Trader $\rightarrow$ Consumer). Total marketing margins were Rp15,000/kg, Rp25,000/kg, and Rp30,000/kg for Channels I, II, and III, respectively. Farmer's share values were 40%, 28.57%, and 25%, respectively, while all three channels were classified as operationally efficient ($EP < 50\%$). Channel I yielded the highest farmer's share, making it the most economically beneficial channel for farmers. Strengthening market access and reducing dependence on intermediaries are recommended to improve farmers' bargaining power and welfare in Debowae Village

INTRODUCTION

Indonesia is an agrarian country with extensive agricultural land reaching approximately 7,463,948 hectares (BPS, 2025), and the majority of its population is engaged in the agricultural sector. The growing demand for agricultural products has led many farmers to cultivate horticultural commodities, particularly vegetables, due to their high nutritional value and strong market demand. Among these, cabbage has attracted significant attention, with retail prices reaching up to Rp30,000 per kilogram at traditional markets.

Cabbage (*Brassica oleracea* var. *capitata*) belongs to the family Cruciferae (Brassicaceae) and is one of the most economically important horticultural commodities in Indonesia. Cabbage thrives in cool highland regions with optimal temperatures of 15–20°C and has a relatively short harvest cycle of 70–90 days, enabling year-round production (Setyawan & Harmini, 2020). Its high nutritional content—comprising water (90 ml), protein (3 g), carbohydrates (5 g), calcium (30 mg), iron (1 mg), and various vitamins per 100 g—makes it popular among all segments of society (Anwar et al., 2007).

Maluku Province has developed cabbage production in its highland areas, with Buru Regency emerging as a key production center. Based on BPS Maluku (2023) data, total provincial cabbage production reached 3,892 tonnes in 2023, with Buru Regency contributing 590 tonnes. Debowae Village, Waelata District, stands out as a primary production hub with a harvest area of 35 hectares, average productivity of 18 tonnes per hectare, and an estimated annual output of 630 tonnes (BPS Kecamatan Waelata, 2023).

Despite this substantial production potential, farmers in Debowae face persistent marketing challenges. Farmer groups lack the institutional capacity to function as effective marketing bodies, and individual farmers have limited access to accurate market price information, weakening their bargaining position. Consequently, farmers rely heavily on marketing intermediaries to distribute their produce. The presence of multiple intermediaries generates price differences between producer and consumer levels, driven by cumulative marketing costs and profit margins at each stage of the supply chain (Lukas, 2011).

Marketing efficiency is a critical indicator of agribusiness performance, reflecting the extent to which a marketing system equitably distributes economic benefits among all supply chain actors—especially farmers as primary producers. Efficient marketing channels minimize transaction costs, reduce price distortions, and enhance farmer welfare. However, the degree of marketing efficiency in Debowae Village has not been systematically evaluated, leaving a knowledge gap that this study seeks to address.

Several prior studies have examined cabbage marketing efficiency in various Indonesian regions. Latifa, Tanjung, and Sari (2020) found that shorter channels yielded higher farmer's share in Kerinci Regency, Jambi. Chaerani and Utama (2023) demonstrated that farmer's share declines progressively as more intermediaries are involved in Solok Regency, West Sumatra. Aji, Subantoro, and Nurjayanti (2015) similarly identified that a two-level marketing system in Batang Regency, Central Java, produced the highest efficiency with a farmer's

share of 20.90%. These findings underscore the importance of understanding local marketing structures to design targeted interventions.

This study therefore aims to: (1) identify the marketing channel patterns for cabbage in Debowae Village, Waelata District, Buru Regency; and (2) analyze the marketing margins, farmer's share, and marketing efficiency of each channel. The findings are expected to provide empirical evidence for policy recommendations aimed at strengthening the market position of smallholder cabbage farmers in eastern Indonesia.

LITERATURE REVIEW

General Description of Research Location

Debowae Village is situated in Waelata District, Buru Regency, Maluku Province. According to village administration data (2022), the village has a total population of 2,226 individuals—1,172 males (52.64%) and 1,054 females (47.36%)—distributed across 16 neighborhood units (RT). The largest RT by population is RT 06, with 280 residents (12.58%), while RT 14 and RT 16 are the smallest, each comprising 41 residents (1.84%).

The occupational structure of Debowae Village reveals that casual labor (serabutan) is the most common livelihood, accounting for 35.34% of the working population, followed by farming at 33.19% (602 persons). This indicates that agriculture remains a foundational economic activity in the village. In terms of education, 43.80% of residents completed elementary school (SD) and 30.50% completed senior high school (SMA), with only 4.88% holding a diploma or university degree. This relatively low educational attainment has implications for farmers' access to market information and their capacity to negotiate prices effectively.

Respondent Characteristics

Table 1 summarizes the sociodemographic profile of the 15 cabbage farmer respondents. The majority (73.34%) were aged 36–50 years, indicating a predominantly middle-aged, productive workforce with accumulated farming experience. Educational attainment was predominantly at the elementary (SD) and junior high school (SMP) levels (40% each), with only 20% having completed senior high school (SMA). No respondent held a diploma or university degree.

With respect to farming experience, 66.67% of respondents had cultivated cabbage for 4–5 years, suggesting a moderately experienced farmer population with practical knowledge of local cultivation and marketing practices. The majority (60%) had 4–5 household dependents, indicating moderate family economic pressure that may influence their marketing decisions and risk tolerance.

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Characteristic	Category	n (persons)	Percentage (%)
Age (years)	≤ 35	2	13.33
	36–50	11	73.34
	> 50	2	13.33

Education Level	Elementary (SD)	6	40.00
	Junior High (SMP)	6	40.00
	Senior High (SMA)	3	20.00
Farming Experience	≤ 3 years	3	20.00
	4–5 years	10	66.67
	≥ 6 years	2	13.33
Family Dependents	≤ 3 persons	3	20.00
	4–5 persons	9	60.00
	≥ 6 persons	3	20.00

Source: Primary Data Processed, 2025

The 4 collector trader respondents were all in the 36–50 year age group (100%), all of whom were at the senior high school (SMA) education level, reflecting a relatively higher capacity for trade management compared to the farmer group. The 3 retail trader respondents were all elementary school graduates, consistent with the broader pattern of limited formal education among marketing actors in the village.

Cabbage Marketing Channels in Debowae Village

Based on field observations and structured interviews, three distinct cabbage marketing channel patterns were identified in Debowae Village. The key marketing actors are: cabbage farmers (producers), village collector traders (pengumpul desa), city collector traders (pengumpul kota), retail traders (pengecer), and end consumers. Cabbage distribution in this village is primarily local, with only Channel III extending to Ambon City, and no inter-island export activity was recorded.

Channel I: Farmer → Retail Trader → End Consumer. Retail traders travel directly to the farm to purchase harvested cabbage at a farm-gate price of Rp10,000/kg. They then transport and sell to end consumers at Rp25,000/kg, primarily within Debowae Village and surrounding areas. This channel has the fewest intermediaries, resulting in the lowest total marketing margin.

Channel II: Farmer → Village Collector → Retail Trader → End Consumer. Village collectors purchase cabbage from farmers at Rp10,000/kg, aggregate the produce, and sell to retail traders at Rp25,000/kg. Retail traders subsequently sell to consumers at Rp35,000/kg in the Waelata market area, as well as in Namlea and Namrole cities.

Channel III: Farmer → Village Collector → City Collector → Retail Trader → End Consumer. This is the longest and most complex channel. Village collectors buy from farmers at Rp10,000/kg and ship to Ambon, where city collectors at Mardika Market purchase at Rp25,000/kg. City collectors then sell to retail traders at Rp35,000/kg, who in turn sell to end consumers at Rp40,000/kg.

These findings align with Kotler and Keller (2013), who define marketing channels as interdependent organizations involved in the process of making products available for consumption. The progression from Channel I to Channel III reflects increasing geographic reach and market scale, but at the cost of diminishing farmer's share – consistent with Soekartawi (1993), who posited that

longer distribution chains tend to enlarge intermediary margins while reducing farmer income proportions.

Marketing Margin Analysis

Marketing margin represents the price spread between consumer-level and farm-gate prices, encompassing the costs and profits of all intermediary institutions. Table 2 presents a detailed breakdown of margins, marketing costs, and profits for each channel.

Table 2. Marketing Margin, Cost, and Profit Structure of Cabbage Marketing Channels in Debowae Village, 2025

Channel	Marketing Institution	Margin (Rp/kg)	Marketing Cost (Rp/kg)	Profit (Rp/kg)
I	Cabbage Farmer	-	73.33	9,926.67
	Retail Trader	15,000	499.99	14,500.01
Total		15,000	573.32	24,426.68
II	Cabbage Farmer	-	73.33	9,926.67
	Village Collector	15,000	416.65	14,583.35
	Retail Trader	10,000	249.99	9,750.01
Total		25,000	739.97	34,260.03
III	Cabbage Farmer	-	73.33	9,926.67
	Village Collector	15,000	416.65	14,583.35
	City Collector	10,000	183.33	9,816.67
	Retail Trader	5,000	200.00	4,800.00
Total		30,000	873.31	39,126.69

Source: Primary Data Processed, 2025

As shown in Table 2, marketing costs increase progressively with channel length, rising from Rp573.32/kg in Channel I to Rp739.97/kg in Channel II and Rp873.31/kg in Channel III. This is attributable to the accumulation of handling, loading, transportation, and unloading costs at each additional marketing level. The dominant marketing cost components are transportation (angkutan) and loading/unloading (bongkar), which constitute the largest proportions of total marketing costs across all channels.

Similarly, total channel profit increases with channel length—from Rp24,426.68/kg in Channel I to Rp39,126.69/kg in Channel III—as the price mark-up grows with each additional intermediary. However, the distribution of profit is skewed toward intermediaries in the longer channels, with farmers receiving a fixed farm-gate price of Rp10,000/kg regardless of the channel used. This reinforces the structural asymmetry commonly observed in agricultural commodity markets, where intermediaries capture the majority of value-added along the supply chain (Matin et al., 2014).

Farmer's Share Analysis

Farmer's share (Fs) measures the proportion of the final consumer price received by the farmer. Table 3 presents a comparative summary of consumer

price, total margin, farmer's share, and marketing efficiency across the three channels.

Table 3. Comparison of Price, Margin, Farmer's Share, and Marketing Efficiency Across Cabbage Marketing Channels in Debowae Village, 2025

Channel	Consumer Price (Rp/kg)	Total Margin (Rp/kg)	Farmer's Share (%)	Marketing Efficiency (%)
I	25,000	15,000	40.00	2.29
II	35,000	25,000	28.57	2.11
III	40,000	30,000	25.00	2.18

Source: Primary Data Processed, 2025

Table 3 demonstrates a clear inverse relationship between channel length and farmer's share. In Channel I, farmers receive 40% of the consumer price (Rp10,000 of Rp25,000/kg), which is the highest among the three channels. In Channel II, farmer's share declines to 28.57% (Rp10,000 of Rp35,000/kg), and in Channel III it falls further to 25.00% (Rp10,000 of Rp40,000/kg). This pattern is consistent with the findings of Chaerani and Utama (2023) and Latifa, Tanjung, and Sari (2020), who documented that each additional marketing intermediary reduces the proportion of consumer price flowing back to the farmer.

The consistently low farm-gate price of Rp10,000/kg across all channels, irrespective of the final consumer price (ranging from Rp25,000 to Rp40,000/kg), points to a structural disadvantage for farmers stemming from weak bargaining power and limited market information. This finding corroborates Anindita (2004), who argued that direct buyer-seller interaction, as occurs in Channel I, tends to produce more equitable price outcomes than multi-layered intermediary systems. To improve farmer's share, institutional interventions such as cooperative marketing, collective bargaining, or market information systems are warranted.

Marketing Efficiency Analysis

Marketing efficiency (Eps) was calculated as the ratio of the total marketing cost of the final intermediary institution to its selling price. The results show that all three channels are operationally efficient, with Eps values well below the 50% threshold: Channel I at 2.29%, Channel II at 2.11%, and Channel III at 2.18% (Table 3).

According to Roesmawati (2011), a marketing system with Eps of 0–33% is classified as efficient, 34–67% as moderately inefficient, and 68–100% as inefficient. All three channels in Debowae Village fall solidly within the efficient category, indicating that marketing costs are well managed relative to selling prices across the supply chain. Channel II exhibits the lowest Eps (2.11%), making it the most operationally efficient channel, which may reflect economies of scale in aggregated transportation by village collectors.

However, operational efficiency alone does not capture the equity dimension of marketing performance. While all channels are operationally efficient, Channel I is clearly superior from the farmer's welfare perspective, offering the highest farmer's share (40%) and the most direct linkage between production and consumption. This duality—where Channel II is most operationally efficient but Channel I is most equitable for farmers—highlights the multidimensional nature of marketing efficiency assessment and the importance of incorporating farmer's share as a complementary indicator (Abdulai et al., 2017).

These results suggest that policy and development interventions should prioritize strengthening Channel I-type direct marketing arrangements, such as community market development, farmer market days, and farmer-to-restaurant or farmer-to-institution direct supply programs. Parallel efforts to improve price transparency and reduce information asymmetry between farmers and collectors would also contribute to more equitable outcomes across all channels.

METHODOLOGY

This study was conducted in Debowae Village, Waelata District, Buru Regency, Maluku Province, from April to June 2025. The research site was selected purposively (purposive sampling) based on the criterion that Debowae Village is a recognized cabbage production center in Buru Regency with active marketing activity across multiple channels.

A descriptive quantitative research design was employed. Because the total population of active cabbage farmers in Debowae Village was only 15 individuals, a census approach was used, whereby all members of the farmer population were included as respondents. Marketing institution respondents (4 village collector traders and 3 retail traders) were identified through snowball tracing from the farmers, resulting in a total sample of 22 respondents.

Primary data were collected through: (1) structured field observation of marketing activities and actor interactions; (2) in-depth interviews using a pre-tested questionnaire covering farmer and trader characteristics, production volumes, purchase and sale prices at each marketing level, and itemized marketing costs; and (3) documentation. Secondary data were sourced from BPS Maluku Province (2023), BPS Kecamatan Waelata (2023), and the Debowae Village Administration (2022).

Data analysis was carried out using three quantitative methods:

- a. **Marketing Margin (MP).** The marketing margin represents the price difference between the consumer level and the producer level, calculated as:

$$MP = Pr - Pf$$

where Pr = consumer-level price (Rp/kg) and Pf = farm-gate price (Rp/kg). The margin share of each institution is expressed as a percentage of the consumer price (Suprianto et al., 2021).

- b. Farmer's Share (Fs).** Farmer's share measures the proportion of the final consumer price received by the farmer (Asmarantaka, 2012):

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

A higher farmer's share indicates more equitable income distribution within the marketing chain.

- c. Marketing Efficiency (Eps).** Marketing efficiency is computed as the ratio of total marketing cost to the selling price at the final institution in the channel (Widodo, Rahmawati, & Hidayat, 2023):

$$Eps = (B / Hb) \times 100\%$$

where *B* = total marketing cost (Rp/kg) and *Hb* = selling price at final marketing institution (Rp/kg). Decision criterion: **Eps < 50% = efficient;** **Eps > 50% = inefficient** (Roesmawati, 2011).

RESULT AND DISCUSSION

Debowae Village is situated in Waelata District, Buru Regency, Maluku Province. According to village administration data (2022), the village has a total population of 2,226 individuals—1,172 males (52.64%) and 1,054 females (47.36%)—distributed across 16 neighborhood units (RT). The largest RT by population is RT 06, with 280 residents (12.58%), while RT 14 and RT 16 are the smallest, each comprising 41 residents (1.84%).

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CONCLUSION AND RECOMMENDATION

This study identified three cabbage marketing channels in Debowae Village, Waelata District, Buru Regency: (1) Farmer → Retail Trader → Consumer; (2) Farmer → Village Collector → Retail Trader → Consumer; and (3) Farmer → Village Collector → City Collector → Retail Trader → Consumer. The farm-gate price was uniformly Rp10,000/kg across all channels, while consumer prices ranged from Rp25,000/kg (Channel I) to Rp40,000/kg (Channel III), resulting in total marketing margins of Rp15,000/kg, Rp25,000/kg, and Rp30,000/kg, respectively.

Farmer's share was highest in Channel I (40.00%), declining to 28.57% in Channel II and 25.00% in Channel III, confirming that channel length is inversely related to farmer welfare. All three channels were classified as operationally efficient (Eps < 50%), with values of 2.29%, 2.11%, and 2.18% for Channels I, II, and

III, respectively. Channel I is recommended as the most beneficial for farmer welfare, while Channel II offers the greatest operational efficiency.

Policy recommendations include: (1) strengthening farmer group institutions to enable collective bargaining and collective marketing; (2) developing local market infrastructure to support direct farmer-to-consumer sales; (3) establishing agricultural market information systems to reduce price information asymmetry; and (4) providing extension services on post-harvest handling and marketing management to improve competitiveness at higher-value channels.

SUGGESTION

This study is subject to several limitations. The sample was confined to 15 farmers and a small number of traders in a single village, and data were collected during a single agricultural season, which may not capture seasonal price fluctuations. Future research should: (1) employ a longitudinal design to capture price dynamics across seasons; (2) extend the study to multiple villages or districts to enable comparative analysis; (3) incorporate value chain analysis to assess value-added activities at each marketing stage; and (4) investigate the potential of digital marketing platforms and e-commerce in improving market access for smallholder cabbage farmers in eastern Indonesia.

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This section gave you the opportunities to present gratitude to your colleagues who provide suggestions for your papers. You can also convey your appreciation to the financial grants you are accepting, making this paper.

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