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The Rice Marketing System in Tidal Farming: A Case Study of Banyuasin Regency

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ABSTRACT

Rice is a commodity that frequently has issues with its marketing strategy. The challenge with rice marketing in tidal areas is the lengthy marketing chain, which makes it inefficient. This study intended to (1) describe the rice marketing system, (2) identify the elements that farmers and marketing institutions evaluate when selecting transaction partners, and (3) determine the efficiency of rice marketing channels. The research was carried out in Banyu Urip Village, Lago District, Banyuasin Regency, using a survey with sampling approach. The analysis method was descriptive, with a focus on marketing efficiency, margins, and farmer shares. The results demonstrate that the rice marketing channels in the rice producing areas during the ebb and flow were separated into three channels: (a) Channel I = Farmers → Collectors → Wholesalers → Retailers → Consumers; (b) Channel II = Farmers → Collectors → Wholesalers → Consumers, and (3) Channel III: Farmers → Collectors → Retailers → Consumers. Farmers and marketing institutions evaluated the following factors when selecting trade partners: (a) Farmers are bound by debt, price, and emotional relationships; (b) Collectors are concerned about grain prices and quality. (c) Wholesalers: rice price and quality, as well as customer ties, (d) Retailers: rice price and quality, payment procedures, and customer ties. All marketing channels are effective, but the most efficient is Channel III (Farmers → Collectors → Retailers → Consumers).

Keywords: farming, marketing system, rice, tidal

INTRODUCTION

Rice is a staple food for most of the global population, including Indonesia. Rice demand in Indonesia is considerable and increasing year after year. According to data from the Central Statistics Agency (2023), rice consumption in Indonesia in 2021 was 31.36 million t, rising by 184,500 t or 0.59% in 2022 to 31.54 million t. On the other hand, the area of rice fields has increased by 40,870 ha or 0.39% from 2021, when it was 10.41 million ha. Production increased by 333,680 t, or 0.61%, to 54.75 million t of dry-miiled rice from 54.42 million t in 2021. Figure 1 depicts an overview of Indonesia's rice harvest area and production in 2022. South Sumatra is one of Indonesia's rice cultivation centers. According to data from the South Sumatra Statistics Agency (2023), rice production in 2022 reached 1.46 million t, with rice fields scattered over practically every district/city in South Sumatra.

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According to Table 1, Banyuasin Regency is the hub of rice agriculture in South Sumatra, accounting for 509,511 ha, or 34.76% of the overall rice cultivated area of 1,465,754 ha. Rice agriculture is prevalent across practically all Banyuasin Regency's subdistricts, including Tanjung Lago Subdistrict, is one of the rice-producing centers in the regency, with a harvest area of 15,864.40 ha and an output of 81,894.40 t (Table 2). The production of rice fields in this subdistrict was 5.16 t/ha. This productivity exceeded the average for Banyuasin Regency, which was only 4.35 t/ha.

Banyuasin Regency, notably Tanjung Lago Subdistrict, while being a rice production development center, sometimes encounters farmer-level rice or rice pricing concerns. A classic issue is the substantial price difference between rice growers and consumers. Price discrepancies are determined not just by supply and demand, but also by the commodity's inefficient marketing structure. The marketing system, which includes several marketing institutions, frequently results in considerable pricing disparities between producers and end customers.

Rice price differences result from non-competitive market competition among marketing institutions, as well as asymmetric price transmission between marketing institutions. Non-competitive behavior of intermediaries, particularly in concentrated marketplaces, is one source of asymmetric price

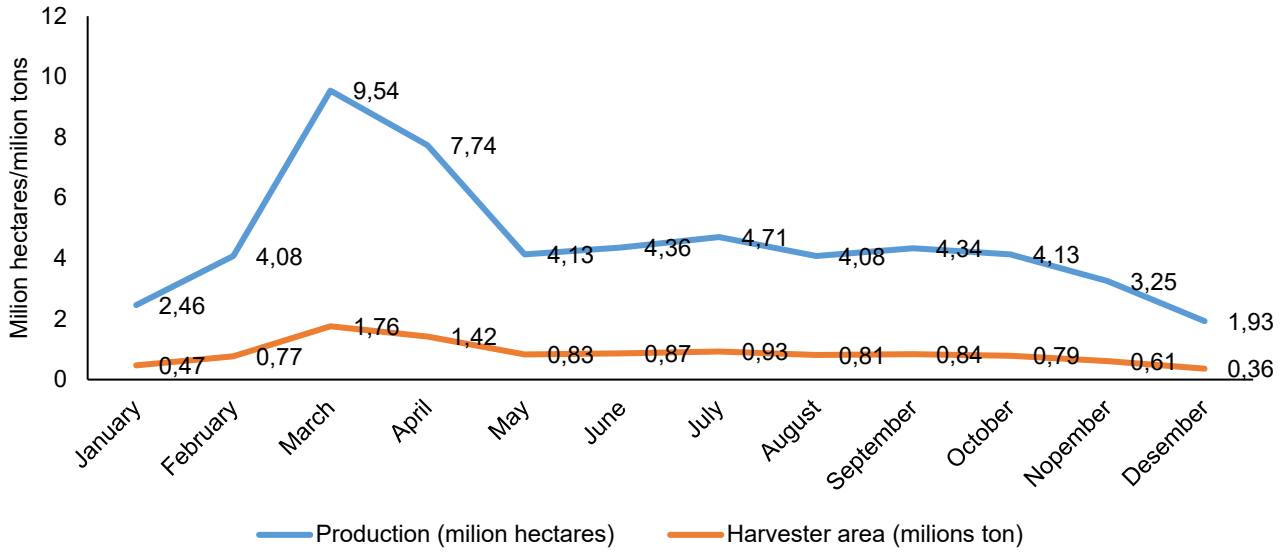

Figure 1 Rice harvest area and production in Indonesia during 2022.

Table 1 Rice production in South Sumatra Province by District/City

District/City	Production (t)		
	2019	2020	2021
Ogan Komering Ulu	10.135	9.350	6.900
Ogan Komering Ilir	276.853	300.055	267.583
Muara Enim	47.490	29.631	27.010
Lahat	41.778	40.150	37.902
Musi Rawas	59.136	70.803	68.926
Musi Banyuasin	78.063	89.703	85.680
Banyuasin	517.507	523.969	509.511
Ogan Komering Ulu Selatan	21.377	22.000	25.643
Ogan Komering Ulu Timur	328.690	361.990	330.177
Ogan Ilir	41.046	46.888	44.135
Empat Lawang	31.947	34.695	25.927
Penukal Abab Lematang Ilir	9.838	8.904	9.638
Musi Rawas Utara	3.711	7.384	7.162
Palembang	7.245	8.172	5.916
Prabumulih	82	82	82
Pagar Alam	7.276	8.455	8.381
Lubuk Linggau	5.142	4.875	5.180
South Sumatera	1.487.312	1.567.102	1.46.754

Source: South Sumatra BPS (2023).

transmission between vertically connected markets (within a single marketing chain) (Noviyanti *et al*. 2020). When there are many small intermediaries between the producer and retail levels, the asymmetry between producer and consumer prices is higher than usual. Asymmetric price transmission implies that consumers might not gain from producer price decreases, and producers may not benefit from retail price rises (Vavra and Goodwin 2005). Non-competitive behavior results from each marketing institution's aim to maximize revenues. Every business actor in the rice industry shares the same goal: to maximize profits. Thus, this has the potential to lead to conflicts of interest, as each business actor seeks to sell as much as they can at the greatest feasible price (Jamaludin *et al*. 2021). These issues frequently impede the effectiveness of the rice distribution system. The number of institutions participating in the process of delivering products from farmers to end consumers has a significant impact on the distribution system's efficiency. Martodireso (2002) defined an efficient marketing process as one that delivers items from producers to consumers at the lowest feasible cost. Efficiency will be realized if marketing institutions perform their functions effectively. Marketing institutions play a vital role in connecting producers and customers. According to Laksana (2008), marketing organizations played an important role in the distribution of products to

Table 2 Harvested area and rice production in paddy fields by subdistrict in Banyuasin Regency, South Sumatera Province

	Harvested area (ha)		Production (t)	
	2016	2017	2016	2017
Rantau Bayur	24.390	18.125,80	52.463	92.545,60
Betung	326	136,60	1.820	711,70
Suak Tapeh	1.543	1.029,10	6.533	5.343,30
Pulau Rimau	28.314	24.539,10	150.566	124.897,30
Tungkal Ilir	7.358	7.166,20	33.521	36.487,90
Banyuasin III	1.829	1.829,90	9.320.000	9.310,50
Sembawa	1.382	725,90	7.428	3.776,90
Talang Kelapa	1.487	1.521,60	8.576	7.794,20
Tanjung Lago	17.144	15.867,70	101.653	81.897,70
Banyuasin I	4.364	5.051,60	12.029	25.761,50
Air Kumbang	2.973	2.722,30	13.923	14.168,00
Rambutan	8.187	7.769,10	7.532	38.258,20
Muara Padang	14.069	13.583,40	85.500	69.826,70
Muara Sugihan	41.663	39.104,70	239.571	199.676,70
Makarti Jaya	23.195	13.303,40	98.506	68.710,20
Air Saleh	32.624	29.504,90	188.517	151.199,50
Banyuasin II	16.599	14.780,20	90.578	75.146,40
Muara Telang	40.946	41.678,90	256.902	21.111,00
Sumber Marga Telang	16.360	16.840,30	87.737	85.601,70
Kabupaten Banyuasin	284.753	–	1.443.355	1.302.229,70

customers. Farmers start the marketing process, which then moves on to collectors, merchants, wholesalers, and small traders before ending with customers.

Marketing institutions perform a variety of marketing functions. Marketing functions are classified into nine types: planning, purchasing, sales, shipping, storage, standards and grading, financing, communication, and risk mitigation. The presence of these distinct marketing roles determines distribution costs, which, in turn, influences the efficiency of the commodity's distribution system. The rice distribution system in Banyuasin District, which connects producers to end users, includes several marketing entities. The multiple linkages in the distribution system from farmers to end consumers result in large price discrepancies between what farmers receive and what end customers pay. Rice farmers, as producers, prefer to sell their grain to marketing institutions rather than process it themselves into rice, which fetches a higher price. The more institutions participating in rice distribution, the wider the distribution margin.

The engagement of distribution institutions in delivering rice from producers to consumers is heavily determined by the transaction partners chosen by farmers and marketing organizations. Farmers and marketing organizations' decisions to choose transaction partners are influenced by a variety of economic and social factors. Based on these considerations, we were interested in exploring the distribution system in tidal rice farming in Banyu Urip Village, Tanjung Lago District, Banyuasin Regency. The purpose of this study was to describe the rice distribution system in terms of channels and marketing function implementation by marketing institutions; identify the factors considered by farmers and marketing institutions when selecting transaction partners for both rice and paddy purchases and sales; and determine the efficiency of rice distribution channels in terms of marketing efficiency, marketing margins, and farmers' share.

METHODS

Research Site and Time

This study was carried out in Banyu Urip Village, Tanjung Lago Subdistrict, Banyuasin Regency, from January to March 2024. The site was chosen on purpose because it was one of the rice production centers.

Procedure

The study's population included farmers and marketing organizations participating in rice trade activities in Banyu Urip Village. The research technique was a survey of farmers and marketing institutions participating in rice trade operations in the village.

Sampling

The method employed was snowball sampling, with respondents drawn from the population of farmers and traders involved in the process. The sample was collected from rice growers, as well as retail dealers that sell rice directly to consumers in Palembang's villages, subdistricts, and the city. Farmers from rural areas were chosen as producers, with marketing institutions ranging from collectors in rural areas to wholesalers at the subdistrict and regency levels, and retailing at traditional marketplaces and rice stores. The

sample size for this study includes 15 farmers, 3 collectors, 3 wholesalers, and 4 retailers.

Data Collecting

Data was gathered through direct interviews with farmers and institutions involved in rice trade activities in the village. The research instrument utilized was a questionnaire with a list of questions about respondent identity, criteria considered by farmers when selecting transaction partners, purchase prices, sales prices, and marketing costs, marketing function implementation, and other primary data sources.

The data included both primary and secondary information. Primary data were gathered through direct interviews with farmers and institutions involved in rice marketing operations in the village. Secondary data was gathered from organizations linked to this study, such as the village and Subdistrict Government Offices, the Agriculture Ministry, the Central Statistics Agency, and other institutions that provided data to support this study.

Data Analysis

To address the first and second issues, namely rice distribution channels, factors influencing farmers and marketing institutions in selecting transaction partners, and the role of institutions in the distribution system, a descriptive method was employed, which entails clearly, accurately, and systematically explaining an issue based on facts observed in the field. To handle the third issue, which was assessing marketing efficiency by calculating marketing efficiency values, marketing margins, and farmers' shares, a mathematical study was performed using the following formulas.

1. Marketing Margin

Marketing margin analysis is a methodology for analyzing many indicators that may be used to determine the performance of the marketing channel. The following formula was used to calculate the overall marketing margin (MT) and the margin for each specific institution:

$$MT = Pr - Pf$$

$$Mi = Pji - Pbi$$

$$\% MT = MT/Pr \times 100\%$$

where
MT = Total marketing margin (IDR/kg).
Pr = Price at consumer level (IDR/kg)
Pf = Price at farmer level (IDR/kg)
Mi = Marketing margin at marketing level *i*, where *i* = 1, 2, … *n*
Pji = Sales price of marketing institution *i*
Pbi = Purchase price of marketing institution *i*

2. Marketing Cost Profit Ratio

According to Oksalia (2023), the following formula could be used to calculate the profit and cost ratios at each rice marketing institution in Banyuasin Regency:

$$\text{Profit and cost ratio} = \pi i/ci$$

where
π = Marketing institution profit
c = Marketing costs

Indicator:
– If π/c is higher than zero (π/c > 0), then the business is efficient, and
– if π/c is less than zero (π/c < 0), then the business is inefficient.

3. Farmer's share

According to Asmarantaka (2014), the farmer's share is the ratio of the farmer's price to the consumer price. Therefore, the farmer's share is the portion of the value paid by the final consumer that the farmer receives in the form of a percentage. The farmer's share was calculated as follows:

$$FS = Pf/Pr \times 100\%$$

where
Pf = Farmer's price (IDR/kg)
Pr = Consumer price (IDR/kg)

4. Marketing Efficiency

An efficient marketing system is one with low marketing margins, a large farmer share, and a high profit-to-cost ratio (Limbong and Sitorus 1987). Efficiency was measured by the farmer share and the marketing cost-to-selling price ratio:

$$EP = C/Pr \times 100\%$$

where:
EP = Marketing efficiency (%)
C = Total marketing costs (IDR/kg)
Pr = Consumer price (IDR/kg)

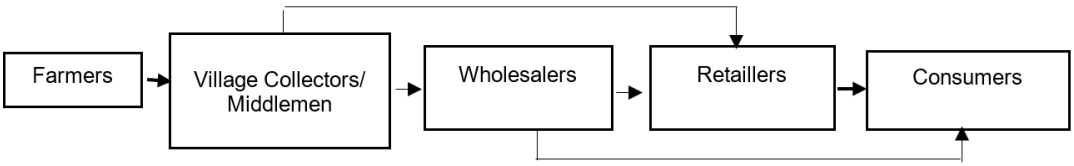

Figure 2 Rice distribution system in Banyu Urip Village, Tanjung Lago District, Banyuasin Regency, South Sumatera Province.

The criteria for decision-making were:
EP 0–50% = Efficient channel
EP more than 50% = Inefficient channel

RESULTS AND DISCUSSION

Rice Distribution System

A distribution system is a network of links between distribution agents designed to transfer commodities and services efficiently from producers to consumers. The participants in distribution activities are interconnected marketing institutions that play a role in distributing goods and services from producers to customers. Collectors, wholesalers, and retailers are the institutions involved in the rice distribution chain that begins with rice planting in the tidal area of Tanjung Lago Village. The distribution pattern illustrated in the commodity's distribution channels demonstrates the rice distribution system. According to the research findings, the distribution system consists of four distribution routes (Figure 2).

Farmers began the distribution process by selling paddy to local collectors/middlemen who own rice mills, then subsequently processed the commcould odity through drying, milling, and packing. The processed rice was subsequently distributed to wholesalers. Wholesalers bought the rice directly to the place where the middlemen sell rice to complete transactions for rice sales in 50 kg bundles. In this sales process, retailers transfered rice to wholesalers, or wholesalers collected rice directly from middlemen. The rice purchased by the wholesalers was then re-processed, primarily to remove husks and paddy. The purpose of this cleaning technique was to produce perfectly clean rice, appealing consumers and ensuring a high selling price. The cleaned rice was then sold to retailers, who distribute it to end users such as households and restaurants/eateries.

Collectors offered rice to both wholesalers and retailers, albeit in lower quantities. Retailers purchased rice from collectors and then sold it to end users, such as homes and restaurant/eatery owners. According to this distribution system, the rice distribution channels in Banyu Urip Village were separated into four channels, which were:

a. Channel I = Farmers → Collecting Traders → Wholesalers → Retailers → Consumers
b. Channel II = Farmers → Wholesalers → Large Traders → Consumers
c. Channel III = Farmers → Wholesalers → Retailers → Consumers.

Channel I was the channel with the longest distribution chain in the process of delivering rice from producers (farmers) to end users (households or restaurants/eateries). Channel I included three institutions: collectors, wholesalers, and retailers. The distribution process in this channel began with farmers selling paddy to village wholesalers in the village, then sold the rice to district wholesalers, who then sold the rice to wholesalers in Palembang, and then sold to agents/kiosks in Palembang or elsewhere. The agents/kiosks then sold to merchants, who in turn sold to consumers, including both houses and restaurants/eateries. In Channel II, village collectors, or middlemen/rice mill owners, sold rice directly to wholesalers, then sold it to customers, including households and restaurant/eatery owners. The rice distribution system in Channel III involved numerous marketing institutions, including collectors and sellers. Collectors, such as intermediaries or mill owners, sold rice to merchants, who in turn sold it to consumers in Palembang City's traditional markets or restaurants/eateries.

The variety of rice distribution routes in Banyuasin District reflects many marketing institutions involved in the process of getting rice from producers to consumers. This is consistent with Rachmadhan's (2024) findings, which distinguishes three supply chain components: producers (farmers), wholesalers, and retailers, each performing a specific function. The rice supply chain begins in rural areas, where most rice farmers live, and ends at distribution facilities run by wholesalers. The rice is then delivered to merchants, who sell it directly to customers. Wholesalers operate as mediators in this supply chain, ensuring that rice is distributed smoothly from farmers to markets. Wholesalers collect harvests from various places, keep stock, and distribute them to shops in major cities and surrounding areas on Java Island.

The large number of marketing organizations involved creates various tiers of institutions, ranging from collectors to retailers. Every marketing institution has a role in the rice distribution process. The large variety of marketing institutions gives farmers or marketing institutions the freedom to choose transaction partners, resulting in diversified distribution networks. Dako *et al.*'s (2023) study in Bongoime Village, Tilongkabula District, Bone Balongo Regency, found that the parties participating in the rice supply chain are farmers, rice mills, wholesalers, retailers, BUMDes Swadaya, and consumers as the final connection. Each of these organizations fulfills marketing functions. Marketing entities in the rice distribution chain, including collectors, wholesalers, and retailers, have performed marketing functions such as trade, physical, and support.

All marketing agencies in Channels I, II, and III undertook trade functions, such as purchasing and selling (Table 3). During the purchase and selling process, marketing agencies typically negotiated prices. All marketing agencies performed the physical function of transportation. Collectors' transportation activities included transporting grain from farmers' farms to collector/middleman-owned rice processing

Table 3 Implementation of marketing functions by rice marketing institutions in Banyu Urip Village, Tanjung Lago District, Banyuasin Regency. South Sumatera Province

Channel and marketing agencies	Marketing functions								
	Exchange		Physical				Support		
	Selling	Buying	Shipping	Processing	Storing	Sortation	Cost	Risk	Market information
Channel I									
Village collectors	v	v	v	v	v	–	v	v	v
Wholesalers	v	v	v	v	v	–	v	v	v
Retaillers	v	v	v	–	–	–	v	v	v
Channel II									
Village collectors	v	v	v	v	v	–	v	v	v
Wholesalers	v	v	v	v	v	–	v	v	v
Channel III									
Village Collectors	v	v	v	v	v	–	v	v	v
Retaillers	v	v	v	–	–	–	v	v	v

Remarks: v = performed and – = not performed.

warehouses. Collectors/middlemen frequently handled transportation while selling rice to rice traders.

Collectors and distributors carried out processing activities. Collectors did process tasks such as paddy rice drying and milling, as well as rice packaging. Wholesalers' processing activities included the cleaning of husks and paddy rice. All traders execute another physical function: storing. Collectors stored newly purchased paddy from farmers or rice collected throughout the production process. Wholesalers and retailers' storage functions included pre-sale storage from wholesalers to retailers or consumers, as well as from retailers to consumers.

All marketing institutions performed support activities across all channels, including finance, risk assumption, and market information. All marketing institutions' financing functions included supplying funds such as purchasing, processing, shipping, and storage, among others. Marketing institutions' risk-bearing job is to bear the costs incurred during marketing activities, such as degradation in rice quality and quantity caused by pests such as rats, insects, other pests, price drops, or other hazards.

All marketing institutions executed a market information function in which they seek information about rice price movements to set pricing for rice purchases and sales. All institutions provided the exchange function, including buying and selling. The exchange function is the primary activity in the marketing process because it involves the movement of goods from farmers to marketing institutions or from one marketing institution to another, starting with purchasing and ending with selling. According to Parisai (2009), the functions of purchasing and selling involved the exchange of items from the sellers to the customers. Buyers perform the purchasing job by selecting the sort of items to be acquired, the desired quality, the appropriate quantity, and the adequate supply. Meanwhile, the sales function, which is widely regarded as the most comprehensive marketing function, comprises actions such as personal selling and advertising to find markets and drive demand.

All marketing institutions also performed supporting functions such as finance, risk assumption, and market intelligence. The finance function happened because, prior to the transfer of products from one institution to another, there was an initial purchase and sales transaction that requires funding. Each marketing institution bears the risk costs associated with errors in processing, transit, or storage. Such hazards include insufficient drying, which results in low-quality rice (many broken grains), resulting in lower selling prices, deterioration of paddy or rice quality during storage, and the danger of reduced quantity and quality. These institutions also provide market information. In the marketing process, all institutions seek market knowledge before determining whether to buy or sell items. Marketing institutions require pricing, demand, and sales potential data, as well as other market information such as competitive circumstances.

Marketing institutions undertook physical services such as transportation, processing, and sorting. Collectors and wholesalers were responsible for all supporting functions (shipping, processing, and sorting), whereas retailers solely handled shipping. All marketing institutions engaged in transportation activities, moving goods from the farmers to the end consumers.

Factors Considered by Farmers and Marketing Institutions in Selecting Transaction Partners

According to the findings of the identification, various factors impact farmers and marketing institutions when selecting transaction partners, including the presence of debt relationships, price concerns, and familial connections. According to Table 4, farmers' considerations while selling grain to traders, both village collectors and large traders, included the existence of debt obligations to traders, particularly collectors who served as middlemen. These middlemen gave farmers loans in exchange for the opportunity to buy rice from them at lower-than-market prices.

Table 4 Considerations of farmers and marketing institutions in selecting marketing partners for paddy purchases and rice sales in the rice trade in Banyu Urip Village, Tanjung Lago District, Banyuasin Regency, South Sumatera Province

Farmer and marketing institutions	Considerations	Number (people)	Percentage (%)
Farmer			
a. Selling	The existence of a bond in the form of loans to traders	10	66.7
	Price Considerations	4	26.7
	Other considerations (emotional attachments as customers)	1	6.6
	Amount	15	100.0
Village collector			
a. Purchasing	Price considerations based on the quality of rice	3	100
	Amount	3	100
b. Selling	Purchase price by wholesalers, agents/stalls/retailers	3	100
	Amount	3	100
Wholesaler			
a. Purchasing	Price considerations based on the quality of rice	3	100
	Amount	3	100
b. Selling	Purchase price by retailer's binding as customers	2	66.7
	The bond as a customer	1	33.3
	Amount	3	100
Retaiiler			
a. Purchasing	Price considerations based on the quality of rice	3	66.7
	Payment system	1	33.3
	Amount	4	100.0
b. Selling	Harga pembelian oleh konsumen	3	66.7
	The bond as a customer	1	33.3
	Amount		100

Middlemen were inextricably linked to agricultural activities in rural areas. Middlemen are those who buy crops from farmers. Their involvement extended beyond simply becoming buyers. They also served as important sources of capital for farmers. Farmers became dependent on middlemen due to their different duties. This dependency stemed from social relationships founded on solidarity and mutual gain, making it difficult for farmers to break away. Furthermore, middlemen played an important role in building networks with a variety of stakeholders, including farmers and traders. This dependence was also characterized by farmers' restricted access to information, which makes it difficult for them to obtain higher selling prices (Megasari 2019).

When selling rice to traders, farmers must consider other factors, such as pricing. Out of 15 farmers, four responded that price was their top factor when selling rice. These farmers were often not limited by middlemen, allowing them to sell rice to anyone willing to pay a higher price. Another factor to consider was the existence of emotional ties, particularly if the farmer and trader had a family relationship, which may make the farmer feel "uncomfortable" selling to other traders, especially if this relationship has been established for a long time, even if there is no loan agreement between the farmer and the trader.

Collectors considered the price of paddy based on its quality when purchasing it from farmers; they will purchase rice from farmers who offer low-cost yet high-quality rice. Collectors' efforts to purchase rice at a low price include "binding" farmers with loans. These loans will allow farmers to sell their rice at a lesser price. Collectors' motivations for selling rice are mainly price related. Collectors sold their rice to merchants who were thought to be able to buy at higher prices, therefore it is not surprising that collectors frequently sell their rice to retailers who offer higher prices, even though their purchases are not as substantial as those of large traders.

The primary concern for large traders when choosing collectors for rice purchases was price based on rice quality. Large traders only purchased high-quality rice at a reasonable price or profit margin. Another consideration for large traders when selling rice to stores was the relationship with their clients. Not all the three large merchants believed pricing to be the most important factor in selling in large numbers; they also consider potential clients, specifically retailers who buy rice from them on a regular basis. These retailers had customers such as restaurants and others, so even if their profits are reduced, they continue to sell rice to retain strong relationships and ensure the longevity of their firm. Price was a significant aspect in marketing organizations' decision-making processes, especially wholesalers, as pricing was the major concern for both large-scale and retail merchants when determining with whom to trade.

Retailers considered price when obtaining rice, whether from collectors or large traders. Three out of four retailers (75%) believed pricing to be the most important factor when obtaining rice from traders.

Retailers in this category always look for rice vendors who provide lower costs for rice of comparable quality to other traders. The payment system, notably the credit system, also influenced shops' purchases of rice. Some retailers took the rice they planned to sell first, and payment was made after it is successfully sold to customers. When selling rice, retailers considered three factors: three individuals (75%) emphasized pricing, and one individual (25%) prioritized consumers. Retailers considered price when purchasing rice, whether from collectors or large traders. Three out of four retailers (75%) said that pricing was the most significant consideration when purchasing rice from merchants. Retailers in this category always look for rice suppliers who offer lower prices for rice of equivalent quality than other traders. The payment system, particularly the credit system, influenced store sales of rice. Some shopkeepers took the rice they intend to sell first, and payment was made once it has been successfully sold to clients. When selling rice, shops considered three factors: three (75%) prioritized pricing, and one (25%) focused on customers.

Price was a key aspect influencing marketing institutions' decisions, whether they were collectors or traders, as pricing was the primary concern for both wholesalers and retailers when picking with whom to do business. Price was the most important aspect because it dictated the amount of profit they will make. In the purchase phase, a trader selected a partner who offered lower pricing for high-quality items; however, in the sales process, a trader selected a marketing institution partner who could offer higher prices while remaining more profitable for them. The decision of marketing institutions, namely traders who used price as the foundation for decision-making, was highly sensible, because the major purpose of marketing institutions, whether they were wholesalers, retailers, or collectors, was to make a profit.

Price is one of the aspects that influence a consumer's purchasing choice. Consumers will select a product that fits their budget. Companies must consider this because, in price competition, competitors may offer lower prices while maintaining the same quality or higher prices. As a result, pricing has a substantial impact on a company's ability to sell its products. Tjiptono (2008) described that price was the sole component of the marketing mix that generates income or revenue for a business. Price is an essential component in purchase decisions (Atiah and Ariyanto 2025), Consumers seek high-quality products at an affordable price. Price has a significant imp act on purchasing decisions, as proven by the findings of Kamila *et al.* (2019), that price is the most important factor influencing customers' views about purchasing organic and non-organic rice. Gender, age, income, number of family members, non-organic rice availability, and non-organic rice pricing all have a substantial impact on rice purchasing decisions.

Farmers and marketing institutions have a mutually beneficial relationship, with the common goal of profit. This relationship is defined by mutual dependence between sellers and buyers within a specific scope, allowing sellers to negotiate relationships with buyers on a more equal footing, with two-way information flow regarding market conditions, technology, product specifications, and manufacturing processes (Asmarantaka 2017). This relationship necessitates trust, which is established through economic and social connections, proximity, kinship, ethnicity, and mutual attraction.

Costs, Margins, and Profits of Marketing Institutions

Marketing efficiency will be heavily influenced by the number of institutions participating in the distribution process. The number of marketing institutions determines the quantity of distribution costs. Distribution expenses dictate the total margin, which in turn affects distribution efficiency. Marketing institutions incur expenditures such as processing, packaging, transportation, labor, and depreciation.

Collectors' processing costs included the costs of drying and milling grain to produce rice (Table 5).

Table 5 Marketing costs in the rice distribution channel in Banyu Urip Village, Tanjung Lago District, Banyuasin Regency, South Sumatera Province

Channel dan Marketing Institutions	Marketing cost (IDR/kg)					
	Processing	Packing	Shipping	Labor	Depreciation	Amount
Channel I						
Village collectors	216.67	72.90	63.49	500	42.02	895.08
Wholesalers	20	88	40	233	5.11	386.11
Retaillers			80			80
Total	236.67	160.90	183.49	733	47.13	1361.1
Channel II						
Village collectors	250	69.10	40	500	58.98	918.08
Wholesalers	20	88	40	233	5.11	386.11
Total	270	157.10	80	733	64.09	1304.1
Channel III						
Village collectors	244.12	65.02	47.06	500	55.35	911.55
Retaillers			80			80
Total	244.12	65.02	127.06	500	55.35	991.55

Collectors bought grain from farmers, dried it, and milled it to make rice. Wholesalers' processing costs included the cost of utilizing fans to remove contaminants from rice. The largest processing costs were seen in Channel II: higher processing expenses due to higher drying costs than the other channels. The increased drying costs in this channel were related to large dealers' demands that collectors produce high-quality rice, which would be sold directly to consumers. Properly dried paddies have a low moisture level, and high-quality rice is produced from it.

Packaging costs included the cost of acquiring bags and the thread used to stitch them. Large collectors had the highest packaging expenses, with an average of IDR 80/kg. Large traders faced significant packing expenses since the rice was supplied directly to merchants or consumers, requiring high-quality bags. Based on the expenses incurred on each channel.

Shipping or transportation costs included the expenditures incurred by collectors, large traders, and retailers when moving rice. Collectors incurred transportation fees while transferring paddies from farming regions to storage facilities. Channel I collectors paid the greatest shipping expenses compared to other routes, at IDR 63.49/kg, while Channel II costs IDR 40/kg and Channel III costs IDR 47.06/kg. Channel I collectors had higher transportation costs since they often buy paddy directly from farmers' fields to compete with Channel II and III collectors for paddy supplies. Wholesalers paid transportation charges to move rice from collectors' warehouses/factories to their own storage facilities. Large traders in Channels I and 2 faced similar shipping expenses, averaging IDR 40/kg. Retail merchants faced higher transportation costs than other marketing institutions. Retail dealers incurred an average cost of IDR 80/kg in Channels I, II, and III. Retailers suffered higher transportation costs since the distance to carry rice is greater than that of other marketing institutions. Retailers from outside the district, such as Palembang City, must purchased directly from large traders or collectors to receive rice at a lesser price than if they bought directly from Palembang City traders, but with the risk of incurring higher transportation costs.

Marketing institutions incurred labor costs in the form of payments to employees/workers who assist with the implementation of marketing operations, such as wages for drying, processing, shipping, packing, and other tasks. Collectors and wholesalers were the marketing institutions that pay for labor. Collecting merchants had higher costs than wholesalers, averaging IDR 500/kg, but wholesalers only average IDR 233/kg. Collectors had greater labor expenses because they performed more processing activities such as drying, milling, and packaging.

Collectors and wholesalers also paid equipment depreciation costs, which marketing institutions bear. Collectors bear higher depreciation expenses since they have made considerable investments in rice milling machines, pickup trucks, rice scales, bag sewing machines, drying covers, and other equipment. Wholesalers had reduced depreciation costs since they did not undertake processing services in their distribution activities, resulting in lower investment costs than collectors. Based on the costs spent in each distribution channel, Channel I is more expensive than the others. Channel I has higher expenses since it has a longer distribution chain, resulting in higher distribution costs than the other channels. The number of institutions participating in Channel I resulted in higher distribution costs than other channels, namely

Table 6 Purchase price, selling price, margin, costs, and profits of rice marketing institutions in Banyu Urip Village, Tanjung Lago District, Banyuasin Regency, South Sumatera Province

Channel	Marketing institutions			Amount
	Village colector	Wholesaler	Retailler	
Channel I				
Purchase price (IDR/kg)	8.333	9.600	10.200	
Selling price (IDR/kg)	9.600	10.200	10.800	
Margin (IDR/kg)	1.267	600	600	2.467
Cost (IDR/kg)	895,08	386,11	80	1.361,19
Profit (IDR/kg)	371,92	213,89	520	1.105,81
Channel II				
Purchase price (IDR/kg)	8.600	9.800	–	
Selling price (IDR/kg)	9.800	10.700	–	
Margin (IDR/kg)	1.200	900	–	2.100
Cost (IDR/kg)	918,08	386,11	–	1.304,19
Profit (IDR/kg)	281,92	513,89	–	898
Channel III				
Purchase price (IDR/kg)	8.700	–	10.050	
Selling price (IDR/kg)	10.050	–	10.675	
Margin (IDR/kg)	1.350	–	625	1.975
Cost (IDR/kg)	911,55	–	80	991,55
Profit (IDR/kg)	438,45	–	545	983,45

IDR 1,440.76/kg, whereas Channels II and 3 cost just IDR 1,312.00/kg and IDR 1,077.00/kg. Channel I incurs more expenditure than Channels II and III due to the extensive distribution functions handled by marketing institutions.

Marketing institutions' costs have an impact on their margins and profits. Channel I's high number of marketing agencies involved in rice distribution leads to larger total earnings than the other channels, namely IDR 1,026.24/kg, compared to Channel II's IDR 788.00/kg and Channel III's IDR 898.00/kg. The vast number of marketing agencies involved, each profiting from the distribution process, results in a higher total profit in Channel I than in Channels II and III.

The average farmer-level purchase price of rice was IDR 8,700.00/kg in Channel III, as opposed to IDR 8,333.00/kg and IDR 8,600.00/kg in Channels I and II, respectively (Table 6). Rice prices in Channels I, II, and III were determined by converting paddy prices to rice prices. Most farmers sold their agricultural goods in the form of paddy, thus to compare pricing at the end consumer and farmer levels, paddy prices were converted to rice prices, assuming a rice yield of 60% from paddy. The price of paddy rice on Channel I was IDR 50 /kg, and after conversion, the rice price was IDR 8,333/kg. The selling price of farmers' paddy in Channel II was IDR 5,180 /kg, and after conversion, the rice price was IDR 8,600 /kg. and the selling price of farmers' paddy in Channel III is IDR 5,240/kg, and after conversion, the rice price was IDR 8,700 /kg.

Based on the comparison of paddy selling prices, the price received by farmers in Channel III was higher, with a paddy price of IDR 5,240/kg equivalent to a rice price of IDR 8,700/kg, while farmers in Channels I and II each, sold paddy at a lower price: the selling price of paddy for farmers in Channel I was only IDR 50/kg, equivalent to IDR 8,600/kg for rice, and the selling price of paddy for farmers in Channel II was only IDR 5,180/kg, equivalent to IDR 5,240/kg for rice. Farmers in Channel III sold paddy for a higher price since they do not owe money to collectors, who act as middlemen and mill owners. Farmers in this channel could sell their paddy to collectors who pay greater prices. Meanwhile, on Channel I, the purchase price was lower than in other channels since most farmers had a poor bargaining position and were forced to sell at cheaper prices due to frequent loans from village collectors. In terms of selling pricing, Channel I had the highest selling price at the retailer or end consumer level, at IDR 10,800.00/kg, which was higher than Channels II and III, at IDR 10,700.00/kg and IDR 10,675.00/kg, respectively. Channel I's high price is owing to its lengthier distribution chain, which results in a greater distribution margin than other channels.

Channel I had a distribution margin of IDR 2,467.00/kg, higher than Channel II at IDR 2,100/kg and Channel III at IDR 1,975.00/kg. Channel I's high distribution margin is attributable to its longer distribution chain, which involves more marketing institutions than other channels. According to Purwono *et al*. (2013), high distribution margins in a distribution channel will influence marketing institutions' interest in distributing rice through it. The high number of institutions involved in Channel I resulted in higher distribution expenses than other channels, totaling IDR 1,440.76/kg. This is more than Channel II (IDR 1,312.00/kg) and Channel III (IDR 1,077.00/kg). C hannel I has higher expenses than Channels II and III due to the multiple marketing services provided by marketing institutions, which raise costs in this channel. Channel I's high number of marketing institutions involved in rice distribution leads in larger total earnings than the others, namely IDR 1,026.24/kg, as opposed to Channel II's IDR 788.00/kg and Channel III's IDR 898.00/kg. The high number of marketing agencies involved, each profiting from the distribution process, results in a higher total profit in Channel I than on Channels II and III.

The rice distribution process from farmers to end users involves several marketing institutions inside the distribution system. The multiple linkages in the distribution chain from farmers to end consumers provide large price discrepancies between what farmers receive and what end customers pay. Paddy growers, as producers, prefer to sell their grain to marketing agencies rather than process it themselves into rice, which fetches a higher price. The more agencies participating in rice distribution, the greater the distribution margin (Purwono *et al.* 2013).

Marketing Efficiency

Marketing efficiency is described as a change activity that reduces input costs while maintaining consumer output of products and services. Trade expenses reflect the level of marketing efficiency that exists. Marketing margins, farmer share, and profit-to-cost ratio are all factors to consider when analyzing marketing efficiency. Marketing efficiency can also be measured by the distribution of margins among marketing channels (Saleh 2020).

Table 7 shows that the rice commodity marketing process is efficient across all channels. The marketing

Table 7 Margin, farmer's share, and rice marketing efficiency in Banyu Urip Village, Tanjung Lago District, Banyuasin Regency, South Sumatera Province

Channel	Margin (IDR/kg)	Farmer's share (%)	Marketing efficiency	Efficiency
Channel I	2,467	77	13.42	Efficient
Channel II	2,100	80	12.26	Efficient
Channel III	1,975	81	10.08	Efficient

process is considered efficient based on several factors, including the marketing efficiency value of less than 50%, the farmer share value of more than 50%, and the marketing margin value. Channel III's marketing process was more efficient than Channels I and II since it had a farmer's share value of more than 50% and the lowest marketing efficiency of 10.08%, whereas Channels I and II have marketing efficiency values of 13.42% and 12.26%, respectively. To determine the more efficient channel, compare the marketing efficiency (EP) numbers of each marketing channel. If the EP value of one marketing channel is less than the EP value of another, that marketing channel is said to be more efficient than the other marketing channels (Pranatagama 2015).

The low efficiency number reflects a lower ratio of marketing costs to the ultimate price of rice purchased by the end consumer. The marketing cost for Channel III was IDR 1,077/kg, while channel I was IDR 1,449.76/kg and channel II is IDR 1,312/kg. On the other hand, the final price in Channel III was lower than in other channels, at IDR 10,675/kg, whereas Channel I was IDR 10,800/kg and Channel II was IDR 10,700/kg. The low marketing costs, as well as the low ultimate consumer pricing, are attributed to a simpler marketing chain, with only two marketing organizations involved: collectors and retailers. The low number of marketing institutions involved, together with the low overall marketing costs, translates into low total marketing earnings, resulting in a low marketing margin in Channel III of only IDR 1,975/kg. Meanwhile, the margin value for Channel I was IDR 1,449.76/kg, while channel II was IDR 1,312/kg. The lower the margin value, the more efficient the marketing procedure for a commodity. The shorter supply chain of Channel III, together with the low margin value, keeps the price difference between the ultimate customer and the farmer as the producer minimal. This is evident from the farmer share's value, which is the ratio between the price at the farmer level and the ultimate consumer, which is lower than in other channels, at 81%, whereas Channel I is 77% and Channel II is 80%. The lower share value indicates that the percentage of the price received relative to the final consumer price was significantly greater at 81%, whereas Channel I was just 77% and Channel II was only 80%.

The disparity between the prices obtained by producers and the prices paid by consumers is produced by the high expenses of marketing activities up to the ultimate consumer, as well as a lack of market information required by marketing participants. Market information is stated to be readily available when the production market is tightly connected with the consumption market (Darusman and Hartoyo 2023).

CONCLUSION

The rice marketing system is represented by the channels and marketing functions carried out by the institutions involved in the commodity marketing process in rice growing in tidal zones. Rice marketing routes are grouped into three categories: a. Channel I = Farmers → Collectors → Wholesalers → Retailers → Consumers. Channel II: Farmers → Collectors → Wholesalers → Consumers. Channel III: Farmers → Collectors → Retailers → Consumers. The marketing institutions participating in rice marketing in Banyuasin Regency have executed marketing functions, with specifics for each marketing institution listed below: Collectors: exchange (buying and selling), physical (transportation, processing, storing), and supporting functions (finance, risk management, and market information). (b) Wholesalers: exchange function (buying and selling); physical function (shipping, processing, storing); and supporting function (finance, risk bearing, and market information). (c) Retailers: exchange function (buying and selling), physical function (shipping), and supporting function (finance, risk-taking, and market information).

Farmers and marketing organizations choose transaction partners based on the following factors: (a) Farmers' reasons for selling unhusked rice include debt, price, and emotional bonds. (b) Collectors' considerations while purchasing unhusked rice include pricing and rice quality. Considerations for marketing rice include price. (c) Wholesalers' factors for purchasing rice: price and quality. Considerations for selling rice include price and client loyalty. (d) Retailers' factors while acquiring rice: pricing, rice quality, and payment procedure. Considerations for selling rice include price and client loyalty. All marketing channels are effective, but Channel III is the most efficient (Farmers → Collectors → Retailers → Consumers).

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