***Original Research Article***

**ECONOMIC ANALYSIS OF MARKETING OF PADDY IN NORTHERN TAMIL NADU, INDIA**

**ABSTRACT**

**Aims** – This study aims to identify different marketing channels of paddy followed by farmers of Northern Tamil Nadu and analyze their cost and efficiency in marketing

**Study design** – Multi-stage random sampling method was used. to collect

**Place and Duration of Study:** Ranipet district, Tamil Nadu, India between December 2022 to February 2023

**Methodology:** Primary data from 120 farmers and 30 market intermediaries including wholesalers, processors and retailers were collected. Secondary data was collected from published government documents. Marketing margin and Modified marketing efficiency were calculated by the Acharya Approach

**Results** – Four different marketing channels were identified in which marketing through regulated market was found to be the most efficient channel as farmers received the highest net price for paddy. Farmers incurred more costs on labor and transportation among marketing costs. Unsatisfactory prices, lack of timely availability of credit, lack of storage and market information were found to be the constraints faced by farmers in marketing paddy

**Conclusion**: Improving the credit facilities available to farmers immediately after harvest will enable them to get better prices for their produce. Increasing awareness of marketing practices and farmers’ training programs will improve marketing efficiency.

**Keywords:** *Paddy marketing, marketing channel, price spread, marketing constraints.*

**JEL Code**: Q10, Q12, Q13

1. **INTRODUCTION**

Rice being the staple food of India is the backbone of the livelihood of millions of rural households and plays a significant role in the nation’s food security. The area under paddy cultivation has increased from 34.13 MHA in 1960-1961 to 46.83 MHA in 2021-2022 and total production has increased from 34.58 million tonnes to 103.29 million tonnes (GOI, 2022). However, a consistent and effective marketing strategy is essential for a sustainable food supply and increasing profits for the farmer.

Agricultural marketing plays an important role in stimulating production and consumption and accelerating economic development (Rao et.al., 2017). The most significant characteristic of a sound marketing system lies in the distribution channel which determines the paddy producer’s share and profit (William and Elizabeth, 1999). Using efficient marketing channels will decrease the distance between producer and consumer thereby increasing farmers’ standards of living (Rahman et al., 2005).

Parshuramkar *et al.,* (2014) studied the price spread in marketing of paddy in the Gondia district of Maharashtra and concluded that the producer’s share in the consumer's rupee was higher in channel 1(Producer to Consumer) and more profitable compared to another channel.

Korabandi *et al.,* (2016) identified two prominent channels of paddy in Nalgonda district such as private marketing channel (channel 1) and FCI procurement (channel 2). Farmers realized a better price when sold to FCI.

A study on the marketing of paddy in the Cuddalore district of Tamil Nadu found that 69.33 percent of sample farmers sold their produce through commission agents, 21 percent through regulated markets and the remaining 9.67 percent through village traders. Most of the farmers preferred commission agents as the intermediary because of the credit facilities offered by them when the farmers were in need (Ramesh*,* 2018).

Shrine *et al.,* (2020) studied the price spread in paddy in the Visakhapatnam district of Andhra Pradesh which showed that the producers receive 27% of the consumer price. A study on marketing channels in the Auraiya District of Uttar Pradesh identified that channel 2 (Producer to village trader to consumer) was more efficient (Singh *et al.,* 2021).

Tamil Nadu has 4.76% of India’s total paddy-cultivated area and contributed 6.19% of total production in 2021-2022 (GOI, 2022). There are 268 Regulated markets in Tamil Nadu, out of which 143 Regulated markets have paddy as their major commodity which is the main marketing channel for most of the farmers. Hence this study aims to identify the different marketing channels of paddy and their efficiency in Northern Tamil Nadu.

The specific objectives of the study are

o To trace out the different marketing channels of Paddy

o To identify the efficient marketing channel of Paddy

o To analyze the problems faced by farmers in marketing paddy

1. **METHODOLOGY**

**2.1 Study area and data**

Multi-stage stratified random sampling procedure was used. In Tamil Nadu, the Northern district of Ranipet was selected as the study area in the first stage as it has 44570 ha of cultivated area under paddy. In the next stage, Walaja block was selected from 7 blocks of the district and six villages from the block (Ammoor, Thagarakuppam, Bagaveli, Musiri, Poondi and Mottur) were selected in the third stage. A total of 120 farmer households comprising 20 farmers from each village was selected. About 30 market intermediaries including wholesalers, processors, village traders and retailers were selected in addition to estimating price spread. Necessary primary data was collected from the sample respondents through personal interview method with the help of a pretested and structured schedule during the months of December 2022 to February 2023.

**2.2 Marketing margin** **Analysis**

Marketing margin is the profit earned by various market functionaries in moving the produce from the point of production till it reaches the consumer. It was calculated based on the formula given by Acharya and Agarwal (2004).

The Absolute margin of ith middleman *(Ami)*

$$A\_{mi}=P\_{Ri}-(P\_{pi}+C\_{mi})$$

Percentage margin of *i* th middleman (*Pmi*)

$$P\_{mi}= \frac{P\_{Ri}-(P\_{pi}+C\_{mi})}{P\_{pi}}$$

Where $P\_{Ri}$= Total value of receipts per unit $P\_{pi}$= Purchase value of goods per unit

 $C\_{mi}$= Cost incurred on marketing per unit

**2.3 Price spread** **Analysis**

 In the marketing of agricultural commodities, the difference between the price paid by the consumer and the price received by the farmer is termed as farm retail price or price spread (Acharya and Agarwal, 2004).

$$Price Spread= \frac{Retail Price-Marketing Cost}{Retail Price}X 100$$

**2.4 Marketing Efficiency** **Analysis**

Modified marketing efficiency was calculated by the Acharya Approach (Acharya and Agarwal, 2004).

$$\frac{Farmers price}{Marketign cost+Marketign margin}$$

1. **RESULTS AND DISCUSSION**

The findings of the present study and pertinent discussion have been presented under the following headings.

**3.1 General characteristics of sample respondents**

**Table 1: General characteristics of sample respondents**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Particulars | Marginal farmers | Small farmers | Large farmers | Total  |
| Average Age (years) | 49.35 | 49.26 | 46.35 | 48.76 |
| Farming experience (years) | 22.82 | 21.00 | 20.17 | 21.4 |
| Average years of Education  | 8.92 | 8.85 | 8.94 | 8.90 |
| Average land holding (Hectares) | 1.68 | 3.71 | 6.94 | 3.44 |

Source: Farm household survey during December 2022-February 2023

From the above table the average age of farmers is similar wherein 58.88 percent of farmers are between 30-50 years of age. Middle aged farmers are found to be well aware of new farming and marketing technologies. About 31.86 percent of farmers have completed secondary schooling, only 5.49 percent are graduates and 13.18 percent farmers are illiterate. Education has an important role in farmers’ understanding of marketing practices and choosing an efficient marketing channel.

Higher experience in farming provides vast knowledge of cultivation practices. About 52.9 percent of farmers have 10-30 years of experience while 47 percent of farmers have 30-50 years of farming experience.

**3.2 Cost and returns of paddy cultivation**

The average cost of cultivation of paddy was estimated to be Rs. 48264.34 per acre. The rental value of land has the highest share in average fixed cost. Among variable costs, cost of chemical fertilizers constitutes the greatest share followed by human labor cost for crop production activities The benefit-cost ratio was greater than one i.e., 1.24 which depicts that paddy cultivation gives 1.24 Rs for every one-rupee investment. Thus, the enterprise is found to be profitable for the farmers.

**Table 2: Costs and returns of Paddy cultivation**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No** | **Particulars** | Cost (Rs/acre) | Share\* |
| 1 | Rental value | 14383.60 | 29.80 |
| 2 | Land revenue | 25.00 | 0.05 |
| 3 | Depreciation on fixed investment | 7490.09 | 15.52 |
| 4 | Interest on fixed capital | 8366.13 | 17.33 |
|  | **Total Fixed Cost** | 30264.80 | 62.71 |
| 5 | Saplings  | 1241.96 | 2.57 |
| 6 | Farmyard manure and green manure | 483.66 | 1.00 |
| 7 | Chemical fertilizers | 8479.38 | 17.57 |
| 8 | Human labor | 5848.37 | 12.12 |
| 9 | Machine labor | 550.33 | 1.14 |
| 10 | Plant protection chemicals | 218.30 | 0.45 |
| 11 | Interest on working capital  | 1177.54 | 2.44 |
|  | **Total variable cost** | 17999.54 | 37.29 |
|  | **Total cost of cultivation** | 48264.34 | 100.00 |
|  | Average yield (kg/acre) | 2810.72 |
|  | Price (Rs/kg) | 20.59 |
|  | Value of byproduct (straw) (Rs/acre) | 1960.91 |
|  | Gross returns (Rs/acre) | 59833.63 |
|  | Net returns (Rs/acre) | 11569.29 |
|  | BCR | 1.24 |
|  |  |  |

Source: Farm household survey during December 2022-February 2023

**3.3 Marketing channel**

Marketing channel refers to the chain of intermediaries through whom various products move from producer to consumer. It varies from commodity to commodity depending on the quantity to be moved, a form of consumer demand and regional specialization (Acharya and Agarwal, 2004). Four different marketing channels were identified in the study area in the marketing of paddy.

**Marketing Channel 1**

Farmer Regulated market Wholesaler Rice mill Wholesaler Retailer

After harvesting the produce, farmers sell the produce to wholesalers through regulated market where farmers get better prices for their produce. In a regulated market buying and selling is regulated by the state government with a market committee.

**Marketing Channel 2**

Farmer Wholesaler Rice mill Wholesaler Retailer Consumer

In this channel, the farmers sell their produce to wholesalers who send it to the rice mill. The wholesalers buy back the produce after deducting the processing cost and sell it to retailers.

 **Marketing Channel 3**

Farmer Commission agent Rice mill Wholesaler Retailer Consumer

Farmers sell their produce through commission agents in their village who charge a percentage of the total value as their commission. Farmers believe in them as they help provide hand loans.

**Marketing Channel 4**

Farmer Direct Procurement Centers (DPC) Rice mill PDS Shops Consumer

Farmers sell their produce at DPC as it offers higher rates when compared to traders who lower the prices by colluding with other traders. Paddy reaches consumers after processing through the Public Distribution System (PDS).

**3.4 Marketing margin and price spread**

The details of the marketing cost incurred, marketing margin earned, and price spread of different intermediaries are presented in Table 3. In channel 1, farmers sold the produce to wholesalers through a regulated market. The percentage of farmers’ share in the consumer rupee is found to be highest in channel 1 with 71.76 percentage.

In channel 2, the farmer sold their produce directly to wholesalers where the farmers’ share in the consumer rupee is comparatively lower than channel 1. The margin earned by wholesalers in this channel was higher than the previous channel with Rs.212.79 per bag.

In channel 3, farmers sold the produce through commission agents to either wholesalers or rice mills directly. As they have to pay commission charges the net price received is lowest at Rs.1287.04 per bag and the marketing cost is also higher at Rs.72.96 including the commission charges. As the number of intermediaries increased, farmers’ share in consumer price decreased. Similar results were presented by Kaur et al., (2013). The share of net marketing margin received by wholesalers is highest in this channel with 10.99 percent.

Farmers incurred less marketing cost of Rs.45.90/bag when sold to DPC in channel 4 and they received the net price of Rs.1304.10 per bag which is substantially lower than channels 1 and 2. Price spread and marketing efficiency were not calculated as tracing this channel up to the consumer level was difficult due to institutional constraints.

Farmers’ share is the highest in all the channels when compared to other intermediaries. The percentage of farmers’ share in the consumer rupee is the highest in channel 1 followed by channel 2.

**Table 3: Marketing margin and Price spread of Paddy**

Rs. /Bag

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Particulars | Channel 1 | Channel 2 | Channel 3 | Channel 4 |
| FARMER\* |  Value |  Share |  Value |  Share |  Value |  Share |  Value |
| Gross price received  | 1417.00 | 71.76 | 1371.00 | 69.54 | 1360.00 | 68.81 | 1350.00 |
| Marketing cost | 50.45 | 2.56 | 48.93 | 2.48 | 72.96 | 3.69 | 45.90 |
| Net price received | 1366.55 | 69.21 | 1322.07 | 67.06 | 1287.04 | 65.12 | 1304.10 |
| PADDY WHOLESALER\* |   |   |   |   |   |   |   |
| Price paid | 1417.00 | 71.76 | 1371.00 | 69.54 | 1360.00 | 68.81 |   |
| Marketing cost | 45.17 | 2.29 | 40.89 | 2.07 | 43.40 | 2.20 |   |
| Price received | 1628 | 82.45 | 1624.68 | 82.40 | 1620.65 | 82.00 |   |
| Gross Marketing margin  | 211.00 | 10.69 | 253.68 | 12.87 | 260.65 | 13.19 |   |
| Net marketing margin | 165.83 | 8.40 | 212.79 | 10.79 | 217.25 | 10.99 |   |
| RICE MILL\* |   |   |   |   |   |   |   |
| Price paid | 1628.00 | 82.45 | 1624.68 | 82.40 | 1620.65 | 82.00 |   |
| Processing and Marketing cost | 82.61 | 4.18 | 89.15 | 4.52 | 85.41 | 4.32 |   |
| Price received\*\* | 1789.58 | 90.63 | 1774.28 | 89.99 | 1781.84 | 90.16 |   |
| Gross Marketing margin  | 161.58 | 8.18 | 149.60 | 7.59 | 161.19 | 8.16 |   |
| Net marketing margin | 78.97 | 4.00 | 60.45 | 3.07 | 75.78 | 3.83 |   |
| RICE WHOLESALER\*\*\* |   |   |   |   |   |   |   |
| Price paid | 1789.58 | 90.63 | 1774.28 | 89.99 | 1781.84 | 90.16 |   |
| Marketing cost | 18.32 | 0.93 | 16.28 | 0.83 | 19.23 | 0.97 |   |
| Price received | 1894.17 | 95.93 | 1889.14 | 95.82 | 1891.24 | 95.69 |   |
| Gross Marketing margin  | 104.59 | 5.30 | 114.86 | 5.83 | 109.40 | 5.54 |   |
| Net marketing margin | 86.27 | 4.37 | 98.58 | 5.00 | 90.17 | 4.56 |   |
| RETAILER\*\*\* |   |   |   |   |   |   |   |
| Price paid | 1894.17 | 95.93 | 1889.14 | 95.82 | 1891.24 | 95.69 |   |
| Marketing cost | 14.27 | 0.72 | 16.44 | 0.83 | 13.69 | 0.69 |   |
| Selling price  | 1974.52 | 100.00 | 1971.58 | 100.00 | 1976.33 | 100.00 |   |
| Gross Marketing margin  | 80.35 | 4.07 | 82.44 | 4.18 | 85.09 | 4.31 |   |
| Net marketing margin | 66.08 | 3.35 | 66.00 | 3.35 | 71.40 | 3.61 |   |
| TOTAL MARKETING COST | 210.82 | 10.68 | 211.69 | 10.74 | 234.69 | 11.88 |  |
| CONSUMER\*\*\* | 1974.52 | 100.00 | 1971.58 | 100.00 | 1976.33 | 100.00 |   |

Source: Farm household survey during December 2022-February 2023

\*Rs. Per 60 kg of paddy \*\* 60 kg of paddy processed and converted into 39 kg of rice and repacked into 30 kg bags \*\*\*Rs. Per 30 kg of rice

**3.5 Marketing Cost**

Farmers spend on transport, packaging, and labor cost before selling which constitutes the total marketing cost incurred. Table 4 shows the marketing cost incurred by farmers in different marketing channels. It is found that the labor cost is higher when compared with other costs in all four channels.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S. No | Particulars | Marketing channel 1 | Marketing channel 2 | Marketing channel 3 | Marketing channel 4 |
| 1 | Transport cost | 16.26 | 15.5 | 13.40 | 13.2 |
| 2 | Packaging cost | 15.75 | 15.52 | 14.74 | 15.45 |
| 3 | Labor cost | 18.44 | 17.9 | 17.62 | 17.25 |
| 4 | Commission charges | - | - | 27.20 |  |
|  | Total marketing cost | 50.45 | 48.93 | 72.96 | 45.90 |

In Channel 3, farmers have to pay a commission charge of 2 percent of the sales value to the commission agent (Rs.27.20/bag) in addition to marketing cost which results in a lower net price received by the farmer.

**Table 4: Marketing cost incurred by farmers**

 Source: Farm household survey during December 2022-February 2023 (Rs/bag)

**3.6 Marketing Efficiency**

The marketing efficiency of different channels were estimated by Acharya’s Modified marketing efficiency approach and presented in Table 5. It is calculated based on the net price received by farmers and total marketing cost and marketing margin. The total marketing margin was highest in channel 3 followed by channel 2 and channel 1. The marketing efficiency was found to be the highest in channel followed by channel 2 and channel 3. Hence channel 1 i.e., farmers marketing through regulated market is deemed as the most efficient marketing channel in the study area. Kakati and Chakraborty (2017) reported similar results by using a Modified marketing efficiency approach.

**Table 5: Marketing efficiency of different channels**

|  |  |  |  |
| --- | --- | --- | --- |
| Particulars | Channel 1 | Channel 2 | Channel 3 |
| Consumer price | 1974.52 | 1971.58 | 1976.33 |
| Total marketing cost | 210.82 | 211.69 | 234.69 |
| Total marketing margin | 397.15 | 437.82 | 454.60  |
| Net price received by farmers | 1366.55 | 1322.07 | 1287.04 |
| Total marketing cost and marketing margin | 1577.37 | 1533.76 | 1521.73 |
| Marketing efficiency (%) | 86.63 | 86.20 | 84.58 |
| Rank | 1 | 2 | 3 |

Source: Farm household survey during December 2022-February 2023 (Rs. /bag)

**3.7 Problems Faced by Farmers in Marketing**

The majority of farmers reported not getting satisfactory prices for the produce as their problem. As the markets are located in urban areas, farmers try to sell their produce at farm gates to avoid transportation costs which results in commission agents quoting lower prices for the product (Parshuramkar et al., 2014, Kumar et al., 2017).

**Table 6: Constraints faced by farmers in marketing of paddy**

|  |  |  |
| --- | --- | --- |
| S. No | Constraints | Percentage (%) |
| 1 | Unsatisfactory price offered for the produce | 78.33 |
| 2 | Lack of adequate credit after harvesting | 75.56 |
| 3 | Lack of transportation facilities | 62.50 |
| 4 | Insufficient storage facilities | 49.16 |
| 5 | Lack of awareness of market prices | 26.67 |
| 6 | Insufficient knowledge of grading and standardization practices | 24.44 |

Source: Farm household survey during December 2022-February 2023

The second major problem is the non-availability of timely credit after harvesting to meet the requirements such as transport cost and labor cost. About 18.84 percent of farmers depend on money lenders and 45 percent of farmers depend on hand loans from friends and relatives to meet the marketing cost and family expenses before selling the produce. Farmers who sell their produce through regulated markets can store their paddy in the market’s rural godowns and can avail credit, if they are unable to get a better price for paddy. (Saravanakumar and Kiruthika, 2015; Sheila, 2016)

The next major problem is the high transportation cost incurred by farmers who are willing to sell their produce at markets for better prices (Hile et al., 2014; Joshi, 2004). Most of the farmers reported inadequate capacity of rural godowns and absence of government warehouses in their village which leads to immediate sales after harvest for lower prices to prevent post-harvest losses. (Sharma, 2016; Shelke et al., 2009)

About 26.67 percent of farmers have no awareness of accessing market information but 67.77 percent of farmers use the ‘Uzhavan’ mobile application to monitor daily prices in the market for their produce. Insufficient knowledge of grading and standardization practices leads to lower prices for the produce. Regulated markets have integrated paddy cleaning and packing machine which helps in removing immature seeds and dust and gives high grade paddy at free of cost to farmers but farmers are not willing to use as it reduces the total quantity of their produce even though high-quality product fetches higher price.

1. **CONCLUSION**

The study reveals that the cultivation of paddy is profitable in the study area. Farmers get better prices for paddy when sold through regulated markets hence this channel is found to be the most efficient one. Marketing costs incurred by farmers is higher when sold through commission agents while labor costs and transportation costs is higher among other marketing costs. The major constraints faced by farmers are unsatisfactory price offered, lack of adequate credit, transportation and storage facilities. Improving the credit facilities available to farmers immediately after harvest will enable them to get better prices for their produce. Farmers should be given more training on post-harvest management practices and awareness of market information.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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