MARKETING CHANNEL AND EFFICACY OF AMAN RICE IN SOME SELECTED AREAS OF CUMILLA DISTRICT

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CERTIFICATE

This is to certify that thesis entitled, "MARKETING CHANNEL AND EFFICACY OF AMAN RICE IN SOME SELECTED AREAS OF CUMILLA DISTRICT" submitted to the Faculty of Agribusiness Management, Sher-e-Bangla Agricultural University, Dhaka, in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE IN AGRICULTURAL STATISTICS, embodies the result of a piece of substantive research work carried out by ALIF ABDULLAH AL HADI bearing Registration No. 19-10325 under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that such help or source of information, as has been availed of during the course of this investigation has duly been acknowledged.

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Abstract

Aman rice is a popular variety of rice grown in Bangladesh, particularly in the Aman season (June-November). The marketing channel efficacy of Aman rice in Bangladesh is critical for the success of farmers, traders, and other stakeholders involved in the rice supply chain. The purpose of this thesis is to evaluate the effectiveness of different marketing channels used to distribute and promote Aman rice in selected areas of Cumilla districts.

Marketing channels for Aman rice include traditional channels such as wholesale markets, retailers, and local vendors. The study adopts a survey research design, where data collected from 135 respondents, comprising of farmers, wholesalers, retailers, and consumers in the study area.

This thesis examines the marketing channel efficacy of Aman rice in selected areas of Cumilla district, utilizing General Formulas of Gross Marketing Margin, Marketing Cost, Net Margin, and Shepherd's Formula for Efficacy Model. The research aims to identify the most effective marketing channels for Aman rice and recommend strategies for enhancing their effectiveness.

The results reveal that there are four marketing channels for Aman rice in the study area, namely, channel I (farmer to faria to consumer), channel II (farmer to bapari to consumer), channel III (farmer to aratder to consumer), and channel IV (farmer to miller to consumer). Using the composite index formula, the study finds that channel IV has the highest marketing effectiveness, followed by channel III, channel II, and channel I.

The findings of such research can provide insights into the most effective marketing channels for promoting and distributing Aman rice, as well as the potential for expanding market reach and increasing sales through innovative marketing strategies.

Keywords: Aman rice, marketing channels, efficacy, Cumilla districts, Bangladesh.

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ACRONYMS AND ABBREVIATIONS

DAE	Department of Agricultural Extension
HYVs	High Yield Varieties
BARI	Bangladesh Agricultural Research Institute
BBS	Bangladesh Bureau of Statistics
BKB	Bangladesh Krishi Bank
cm	Centimeter
CDP	Crop Diversification Programmers
DAM	Department of Agricultural Marketing
et al.	et alia (and others)
etc.	et cetera
gm	Gram
GOEP	Government of East Pakistan
ha	Hectare
i.e.	That is
Kg	Kilogram
m. tons	Metric Tons
MS	Master of Science
No.	Number
pp.	Pages
Tk.	Taka (Bangladeshi currency)
USDA	United States Department of Agriculture

Some Marketing Concepts

Market and Marketing: The word "market" can mean many different things. Market was described as a space for transaction by Abbott and Makeham (1979). Additionally, it refers to the locals who have the money and the need to purchase a good. As a result, there can be a "local," "domestic," and "global" market. Instead of a physical boundary fence, this type of market's boundaries is determined by how easily products and money can move without being hindered by political, administrative, or other political hurdles.

Because marketing typically consists of several interconnected structures along the production, distribution, and consuming units supporting the economic process, Mendoza (1995) also described marketing as a system. Casavant et al. (1999) defined marketing as all commercial operations that are carried out to steer the flow of products and services from the producer to the consumer or final user. Six steps are often used to categorize these tasks. These include manufacture, assembly, processing, distribution, wholesale, retail, and consumption.

Marketing Channels: The system of marketing institutions via which commodities or services are moved from the original producers to the ultimate users or consumers is referred to as the "channels of distribution" according to Giles (1973). Most of the time, a physical product transfer is required, although on occasion, a middle marketing organization may acquire title to commodities without ever touching them.

Marketing Efficacy: The transfer of goods from producers to consumers at the lowest cost possible while still delivering the service that consumers want and can afford is referred to as market efficacy. It is possible to assess a market's effectiveness (one method) by comparing the price and quality of the services offered through the existing channels. The going rate of interest should be reflected in the current price along with a profit margin that is just large enough to cover investment costs. In respect to price and customer demand, service quality shouldn't be either too high or too low. Examining the structure, conduct, and performance of marketing enterprises allows one to assess factors that affect efficacy (Abbott and Makeham, 1981).

The shepherd's formula is used to state the marketing efficacy model. 100% efficient market hypothesis is the highest level of efficacy. Over 100% is considered excess profit. The shepherd's formula is provided by (Oscar and Chukwuma, 2008).

$$E = \frac{V}{I} - 1 * 100$$

Where E = market efficiency,

V = Value of marketed Rice (value added or profit),

I = Total marketing cost.

Marketable Surplus: Marketable surplus, according to Atteri et al. (2003), is the remaining amount of agricultural produce that a farmer keeps after fulfilling his needs for family use, farm demands (seed and feed), kind payments, etc. It is widely acknowledged that growing the marketable surplus is essential to supplying the growing demand from the non-farming population for food, raw materials, and other agricultural products. If an economy's marketable surplus does not increase, it may likely operate as a basic constraint on the rate of development by lowering the supply of goods available for exports, industry, and urban consumption.

CHAPTER I

1.1 INTRODUCTION

Bangladesh's primary meal is rice, which is also a symbol of food security. Many people in Asia, Latin America, the Caribbean, and Africa rely heavily on rice for their sustenance. 95 percent of the world's production is produced in developing nations, with China and India alone accounting for close to half of it. When Bangladesh's population was about 70.88 million in 1971, the nation produced roughly 10.59 million tons of rice overall. To feed its 160 million citizens, the nation is currently producing roughly 36.6 million tons. This demonstrates that rice production increased considerably more quickly than the population. The adoption of contemporary Aman rice cultivars was largely responsible for this increase in rice production. The country produced 13.83 million tons of Aman rice between 2020 and 2021, exceeding the stated production goal, according to the Department of Agricultural Extension (DAE). 11.30 million tons of Aman rice were produced between 2019 and 2020, according to BBS. The production of hybrid rice and High Yielding Varieties (HYVs) was discovered to be better this year, according to DAE field level authorities. The maximum yield (6 t/ha) was produced by the recently launched super hybrid rice variety BRRI-49 in Bangladesh. The DAE has also predicted that crop cutting programs in the districts of Mymensingh and Jhinaidah will provide the maximum yields of BRRI-49 Aman rice.

Regrettably, 230 acres of agricultural land are being transferred daily to non-agricultural uses. Although the amount of arable land has decreased due to the rapid population growth, Bangladesh has continued to have an annual shortfall of roughly 1.5 million tons of food grains despite a tripling of rice output since the introduction of new varieties in the early 1970s. However, the nation produces about 35 million tons of rice annually, which is nearly enough to feed its population of over 160 million people. Seasonal variations affect Bangladesh's rice production. Currently, Boro from January to June, Aman from July to December, and Aush from March to July are the seasons with the largest harvests.

Due to the urbanization process, every city resident is dependent on their ability to purchase rice. Rice therefore moves from rural to urban regions. When compared to wealthy households, the poorest spend a far higher percentage of their income on rice. According to research, the bottom 55% of rural households spend 45% of their income on rice and wheat, compared to the worst 40% of urban households, who spend 25%. With a per capita consumption of just over 130 kilos of milled rice yearly, rice is among the top foods consumed worldwide. It averages 155 kg every year in Bangladesh. It provides 62 percent of the total protein intake and 74 percent of the total calories consumed by the average Bangladeshi. It's one of the highest ratios in the entire planet (Monthly Technology Today, May 2019, P.32).

Table 1.1 Production, area, and yield of Aman rice in Bangladesh.

Year	Production ('000' ton)	Area ('000'ha)	Yield (t/ha)
2007-08	11427.0	3651.89	3.13
2008-09	11620.5	3676.84	3.16
2009-10	12266.0	3771.34	3.25
2010-11	12422.2	3799.84	3.27
2011-12	12537.1	3823.5	3.28
2012-13	12937.1	3923.79	3.3
2013-14	13075.3	3936.81	3.32
2014-15	13165.0	3950.1	3.33
2015-16	13462.0	3957.85	3.4
2016-17	13609.0	4006.31	3.4
2017-18	14059.0	4116.6	3.42
2018-19	14654.0	4270	3.43
2019-20	15003.0	4310	3.48
2020-21	15737.0	4460	3.53

Source: BBS, Ag wing

Over time, there has been a rise in the availability of rice. The main factor behind the constant rise in rice supply is domestic production. The overall amount of rice produced in 2008-2009 was 293.18 lac tons, and the anticipated amount in 2009-2010 was 345.60 lac tons, of which Aus makes up 27.40 lac tons, Aman makes up 131.00 lac tons, and Boro makes up 187.20 lac tons.

The following statistics will aid in our comprehension of the area ('000' ha), tonnage ('000' tons) and yield (t/ha) of Aman rice. According to the figure, area Aman rice is essentially the same across years, while production and yield gradually rise over time.

However, because domestic production cannot satisfy the nation's whole demand, Bangladesh must import significant quantities of rice from abroad each year to feed its people. Imports of rice are influenced by the country's stockpiles, demand, and level of domestic production during a given year. After gaining its independence, Bangladesh's population continued to grow. As a result, a significant amount of food was imported from other nations because the country's food supply could not keep up with the population's rate of growth.

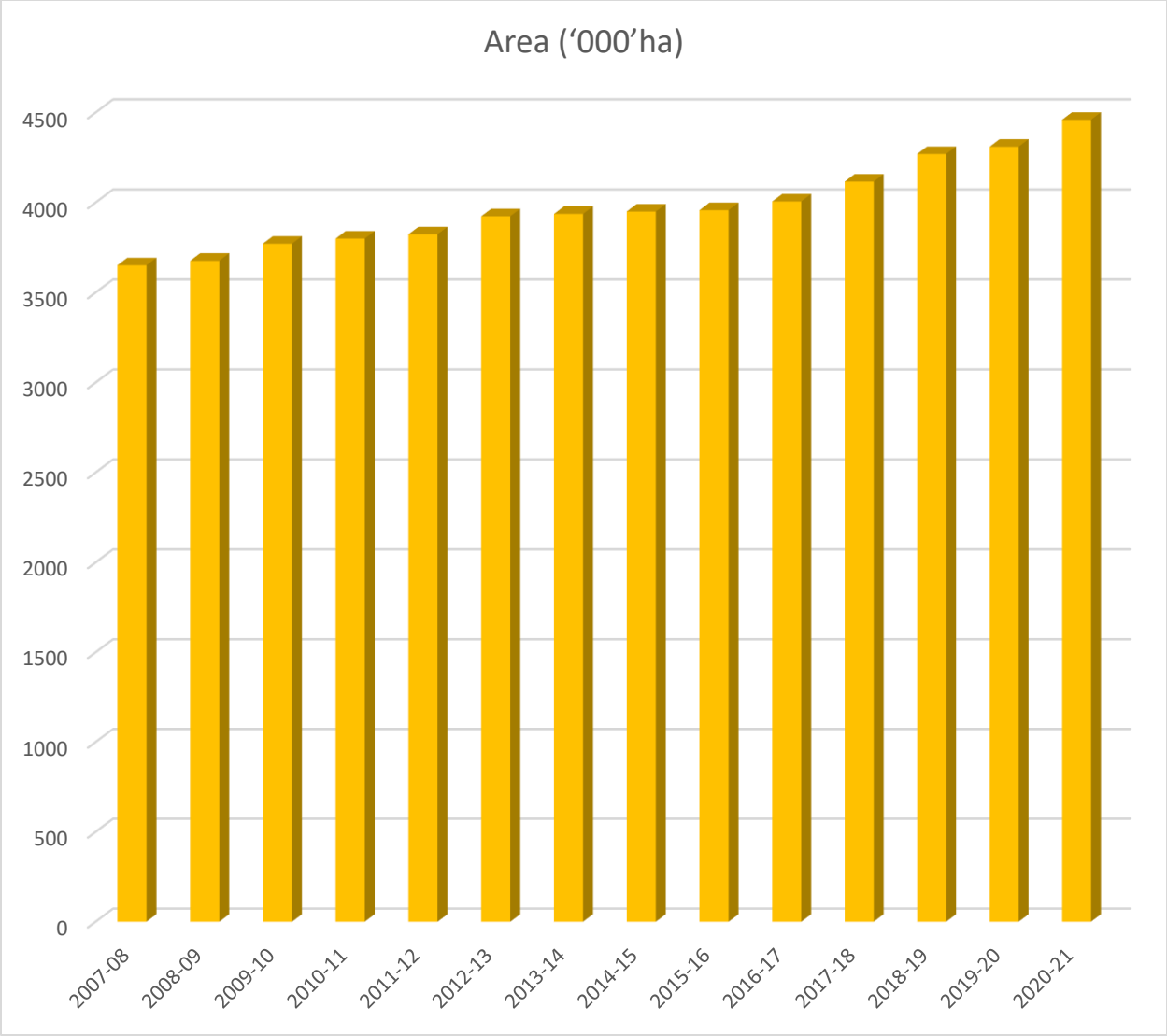

Figure 1.1: Area (‘000’ha) under Aman rice cultivation.

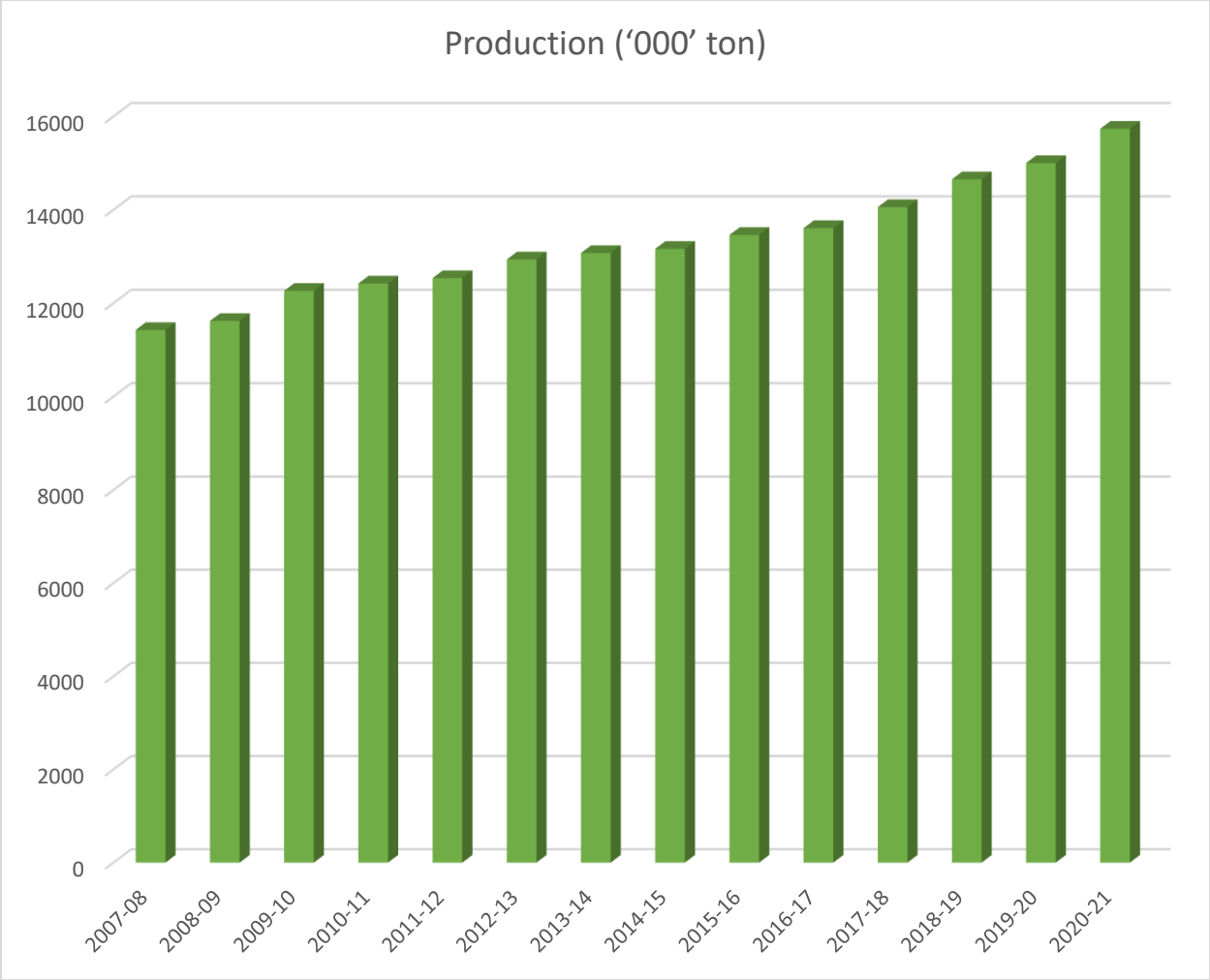

Figure 1.2: Production (‘000’ ton) of Aman rice over the years.

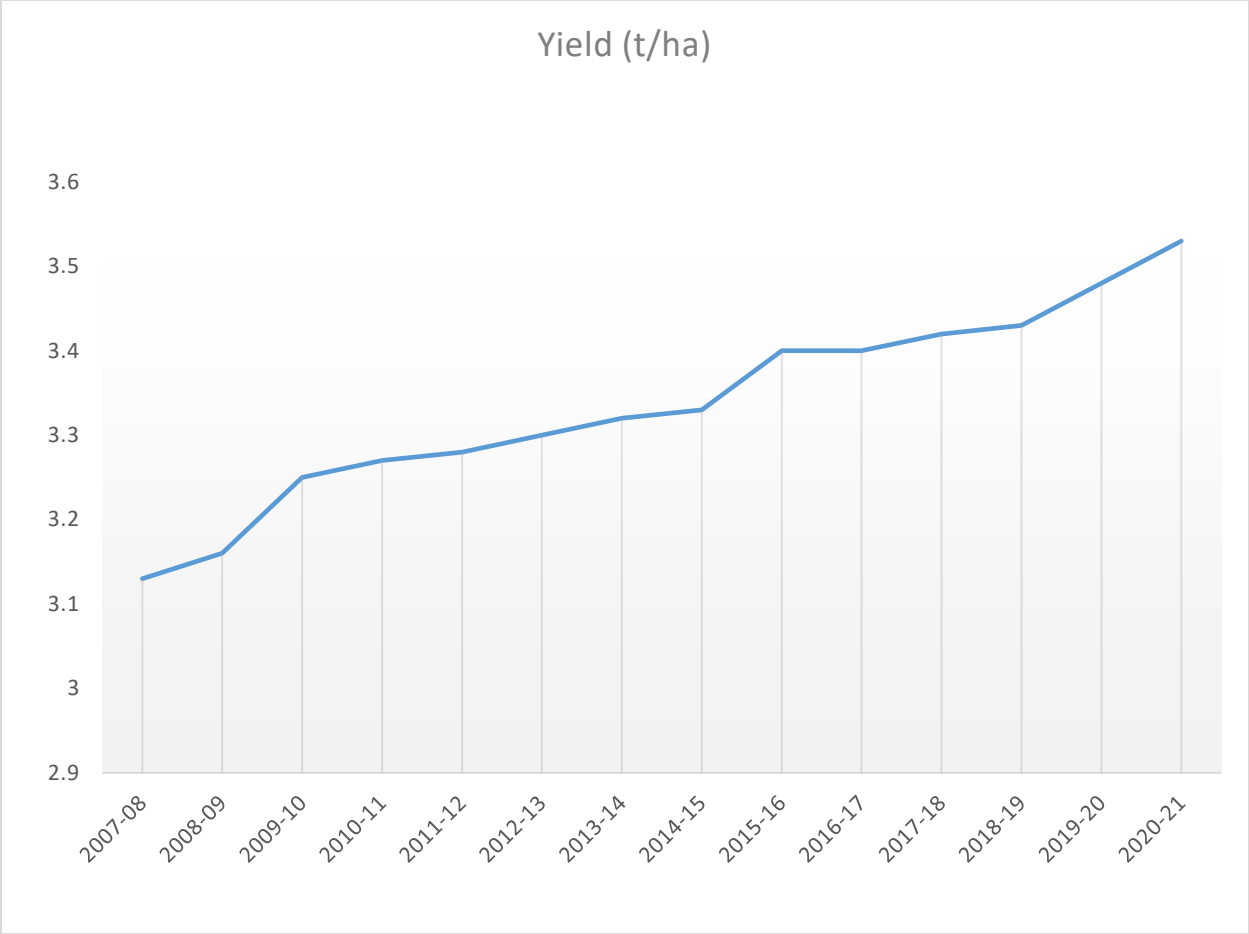

Figure 1.3: Yield (t/ha) of Aman rice over the year.

1.2 Justification of the Study

The most crucial step in the development process is marketing. This is understandable given that economic growth essentially entails larger-scale productive activities. However, we are unable to increase production until the commodities produced are completely sold out, and this depends on the ideal marketing circumstances (Prasad and Prasad, 1995). The income of farmers, processors, dealers, and consumers is all greatly impacted by the successful marketing of Aman rice. Farmers, consumers, traders, investors, and other people who require the information for their specific reasons may benefit from this information. Since the chosen areas are the nation's primary producer of Aman rice, it is crucial to have detailed knowledge of how the Aman rice market currently operates in order to evaluate its advantages and disadvantages and develop effective intervention strategies with the aid of government and non-governmental

organizations. Additionally, the findings would provide as a guide for scientists conducting comparable or related study in other regions of the nation.

In the past 15 years, development economists have increasingly acknowledged the beneficial relationship and interaction between the objectives of development planning and the design, operation, and effectiveness of the market system. Efficiency in the marketing system results from effective resource management in that area, without which unnecessary marketing expenses as well as qualitative and quantitative losses in the process of creating time, place, and form usefulness of the products grow. Additionally, within the framework of the marketing system, commodity prices that serve the purposes of resource allocation, intersectional income distribution, and capital formation are generated. These three tasks of price will be carried out inefficiently if a market structure lacks forces that encourage the generation of efficient pricing. So, this study will be valuable for exploring the current market structure.

Are the agricultural markets operating within the bounds of the current state of technology and other environmental considerations, while adhering to the socially and economically recognized norms of efficiency? It is important to identify the reasons behind reported inefficiencies and to consider institutional and technological changes that could improve both physical and financial performance.

Even a cursory glance at the agricultural markets in developing nations will reveal how heavily the marketing system is influenced by government involvement and regulation. Many of these policies have their roots in sociopolitical and economic considerations, which are frequently based on inaccurate and imprecise knowledge of how the current organization functions. Such assumptions have a great potential to be shown wrong by impartial empirical investigations, which would then give policymakers greater information and tools for starting workable marketing improvement initiatives.

Agricultural policy in many early conceptions of economic development is characterized by political assault, regulation, and displacement of the core food grain commerce. Because they affect pricing relationships and the effectiveness of market processes, these policies have

significant effects on how agriculture and other sectors evolve. Such policies must be founded on in-depth understanding of how markets function in order to be effective in promoting the operation of price signals and the optimal use of resources. One needs to know how efficiently transportation and communication networks enable market integration and cross-market transfers, how efficiently storage facilities enable the transition of commodities from one season to another, and how efficiently processing facilities change the form of commodities. By understanding these procedures, a foundation for judgments about the scope and methods of improving market functioning will be established. Price signals that emerge at the consumer level are not adequately communicated to the producers if the marketing system is inefficient. Because of this, farmers are not sufficiently encouraged by prices to raise the production of the goods. Thus, ineffective marketing strategies have a negative impact on the standard of life of both producers and final customers.

As markets initiate the process of growth, agriculture marketing is crucial in Bangladesh for promoting and maintaining the pace of rural and economic development. Marketing maintains the right balance between supply and demand as well as serving as a commercial link between producers and customers. Without the aid of an effective marketing system, the goals of rapid economic expansion and equitable distribution of products and services could not be met. The presence of numerous middlemen between producers and final customers is one of the key aspects of agricultural marketing, particularly in developing nations. The term "marketing channel" refers to the path that produce takes from its producers to its final customers. For any given product, many marketing channels are used in a certain geographic area. It appears that the best route is the one with the fewest intermediaries, albeit this does not necessarily mean that it is the most lucrative for the creators. It is crucial to understand what fair fees for these intermediaries' services should be, as well as the best marketing channels for certain goods. Studying the marketing margins and costs across different channels is crucial for this reason.

Understanding the relationship between pricing in geographically distinct markets is the fundamental tenet of market integration measurement (Goletti and Babu, 1994). Therefore, markets that are interconnected do not have pricing for differentiating products that behave independently (Monke and Petzel, 1984). Areas are referred to as segmented if price changes

for a commodity in one market have no bearing on anticipated price changes for the same commodity in other markets (Kumar and Sharma 2003).

In other words, two markets are geographically integrated anytime trade occurs between them and if the price difference for a given good is equivalent to the costs of transferring that good between the two markets. However, flaws in the market, particularly those brought on by trader activity, are typically seen as significant contributors to the emergence of divergent price fluctuations in various markets. The protection of producers' and consumers' interests is the primary goal of the price policy. The producer's interests can be best protected if he receives fair compensation for his output. If markets are properly integrated, he receives fair prices. In marketplaces with good integration, the middlemen's cut should be fair, and consumers should pay reasonable rates for their produce. Therefore, it is crucial to comprehend whether commodities markets operate well. When these are included in pricing relationships, markets run smoothly. This study will be carried out with the following precise goals in mind.

1.3 Objectives of the Study

The overarching goal of this research was to evaluate the efficiency of the Aman rice market. The following were the specific goals of this research:

- To determine the Aman rice marketing channel in the study locations.
- To assess the marketing efficacy of Aman rice across various distribution channels.
- To determine the issues with Aman rice marketing in the study locations.
- To make sensible recommendations for improving Aman rice marketing.

1.4 Scope of the Study

The research is limited to the Aman rice marketing system, with a focus on different market levels, market player roles in market channels, price setting, cost-benefit analysis of Aman rice production, cost-margin for producers and traders, buying and selling strategies, transportation, and market information, as well as market integration and marketing efficiency. As a result, there is a sufficient space for future study in this sector, such as demand and price forecasting, as well as an in-depth investigation of rice market structure, conduct, and performance, price fixation, and approval process.

1.5 Limitations of the Study

The hardest part of the poll was gathering the trader's data. Most of the time, dealers are hesitant to provide accurate information because they associate it with taxes and other costs. In addition, they had an interview that had a strict time limit. The intermediaries buy and sell Aman rice according to their own standards, thus even though the researcher was aware of the impact of quality on price, she was still able to investigate it (this might be a problem in most of the agricultural markets in Bangladesh).

1.6 Organization of the Study

Following the aforesaid succinct introduction, the thesis' remaining section is structured as follows. The literature study on marketing analysis from various sources is presented in Chapter 2. Chapter 3 then provides a description of the study area and techniques. Both descriptive and econometric results are presented and thoroughly explored in chapters 4, 5, 6, and 7. The summary, conclusion, and policy implications of the study's findings are presented in the final portion, chapter 8.

CHAPTER II

REVIEW OF LITERATURE

In this chapter, the findings of a few earlier studies that are relevant to the current study project are briefly reviewed. Any research project must include a review of related literature since it gives the opportunity to determine the body of knowledge that is pertinent to the planned inquiry. This information offers guidelines for developing a future research problem and approving fresh discoveries.

2.1 Review of Empirical Marketing Studies in Aman Rice

One of the most significant food crops in the world is paddy. All business operations involved in the movement of commodities from the manufacturer to the final consumer are referred to as marketing. The most crucial task in generating significant economic gains and prosperity, particularly in the agriculture sector, is marketing any product. Aman and Boro, two of Bangladesh's three rice seasons, are the most productive and extensively planted. In this section, research that were carried out in Bangladesh and other countries that are connected to the current study are briefly reviewed.

Ahmed and Bernard [1] calculated the correlation coefficient between the rice prices in the districts of Aman and Australia. They discovered that, in the case of the Aman price, 51 out of the 63 statistically unimportant associations related to Barisal, Patuakhali, Dinajpur, and Bogra. They concluded that the first three were far behind in terms of infrastructure development. They also showed that there may have been an imbalance in price fluctuations between these three and the other rice markets in Bangladesh due to production concentration and outdated infrastructure.

Farruk [2] used field data collected over the course of three crop seasons to examine the nature of spatial pricing correlations of rice in several local markets. The price spread, costs, and margins between various markets were examined in his study. He demonstrated how rice prices are seasonal and how they relate to storage costs. He discovered that pricing differences did

not exceed the entire expenses associated with transporting a stock during the storage period in the absence of structural or environmental defects.

Ismail and Verbeke [3] investigated at whether the regional/divisional rice markets were spatially interconnected after the rice market was liberalized. Using co-integration analysis and a vector error correction model, wholesale weekly coarse rice prices at six divisional levels were used to gauge the extent of market integration in Bangladesh (VECM). The test resulted in at least three co-integrating vectors, suggesting that the Bangladeshi rice markets were somewhat interconnected during the study period and that the long-run equilibrium was stable.

In order to determine how much the price in the reference market affects local prices, Ravallian [4] created a market integration model. Prior to and throughout the 1974 famine in Bangladesh, he used his model to predict rice prices. His experiment was equivocal about short-term market integration, but it did reject the idea that the rice market is split, or completely devoid of integration.

Ali et al [5] investigated the profit efficiency using behavioral and stochastic frontier approaches. The goal of this study is to quantify the profit inefficiency of farms in Pakistan's North-West Frontier Province by utilizing behavioral profit functions and stochastic frontier. It concluded that small farm ownership should be promoted because they appear to be more productively efficient than large farms.

Coelli et al. [6] briefly studied the method of performance measurement that can be applied to a variety of firms and provided the summary of relative merit and demerits of each measurement methods.

The gap between actual and potential agricultural production in developing nations has gained attention in the development community once again, and modernization to technical efficiency has a significant impact on productivity, according to Herdt et al. [7] 's study on modern technology and economic efficiency of Philippine rice farmers.

Rajagopal [8] used both primary and secondary data to conduct a case study on the economic effectiveness of the Madhya Pradesh paddy marketing system. To assess the financial success of the marketing channels, he used a few measures. A producer's share, a marketer's margin, a middlemen's margin, a price deviation, a peak period seasonal price variability, a lean period

seasonal price variability, and a price deviation were the indicators. He concluded that channel III has the highest marketing efficiency, followed by channel II and channel IV.

In Haryana, Kumar and Sharma [9] conducted research on the spatial price integration and pricing effectiveness of paddy at the farm level. The prospect of farmers receiving a greater net price by selling more carefully in a market with a positive significant coefficient of distance traversed was demonstrated even though it was in a very remote area, specialized market.

Using a case study of the Banda area in Uttar Pradesh, Chauhan et al. [10] examined the economic performance of various paddy marketing channels and determined which one was most effective. They employed several performance metrics, including the producers' share, marketing expenses, middlemen's margin, price deviation, peak season price variability, and lean season price variability. The producers' portion of the final product price varied by marketing channel, with channel II having the highest share, followed by channels IV and III, and channel I am having the lowest share. The producer's share in each channel appeared to be quite small, compared to the large marketing expenses and middlemen's margins. The regulated markets were advised to offer more incentives by the governments to increase the producer share.

Inuwa et al. [11] carried out an investigation on profitability analysis of rice processing in Nigeria. The study established the rice processing and marketing sector's profitability in Kano State. The study's goals were to analyze the value contributed to the commodity at each stage in the study area, measure the profitability levels of rice processing and marketing, and identify the most productive services. Based on the findings, it was advised that the traders should strengthen the current co-operative societies, stimulate bulk purchases of milled rice, and pay the parboilers for their services separately from the expenses of input for parboiling. Both the high price of milled rice and the cost of transportation will decrease as a result.

Noonari et al. [12] conducted a study on rice profitability and marketing chain in Sukkur Sindh Pakistan and examining rice marketing and profitability in Jakarta was the study's goal. Utilizing a survey methodology, the study was conducted in the north, west, and east of Jakarta.

Ali et al. [13] carried out a study on profit efficiency among Basmoti rice producers in Pakistan Punjab and a variable-coefficient profit frontier was used to estimate the farm-specific profit

inefficiency of Basmati rice producers. They concluded that education levels in farm households, employment outside of agriculture, and credit restrictions were socioeconomic factors that contributed to profit loss. Water restrictions and the fertilizer's tardy application were institutional factors that contributed to profit loss.

Balcombe et al. [16] studied on technical efficiency of rice producers in Bangladesh. This study uses Bayesian approaches to assess and explain the technical efficiency of a sample of Bangladeshi rice producers. The findings shed light on the distribution of technical effectiveness and pinpoint significant factors that affect rice cultivation.

According to Coelli et al. [17], when programming techniques are used to precise data for 406 rice farms in 21 villages during 1997, inefficiency measurements are produced that are very different from the outcomes of straightforward yield and unit cost measures. Overuse of labor, which may indicate population pressure, and of fertilizer, where prescribed rates may need to be revised, are the causes of allocation inefficiency. Large families are more inefficient, according to second-stage regressions, whereas farmers with greater access to input markets and those who perform less off-farm employment tend to be more effective. The extension agents could assist inefficient farmers by using the knowledge on the causes of inter-farm performance differences. Given that survey data are frequently gathered at significant expense, there are few justifications for such sub-optimal usage.

Hossain [18] studied on marketing system of Katarivog rice in some selected areas of Dinajpur district and the purpose of this study was to examine the rice value chain in a few key locations in the dinajpur district. The study's goals were to evaluate the activities linked to value addition, quantify the value added to rice by various players, and pinpoint the opportunities and constraints present in the rice value chain.

Islam [19] examined the functionaries' behavioral patterns and calculated the marketing expenses and profit margins for each one. Due to increasing marketing expenses, he concluded that the middlemen's profit margin was not substantial. He said that there was plenty of room to cut back on marketing expenses and transportation losses, and that by enhancing marketing infrastructure and physical facilities, efficiency could be increased.

Islam [20] looked studied the distribution networks, calculated the margin and expenses of marketing, and identified the issues that the producers and middlemen of aromatic rice in the Dinajpur district were dealing with. In the research area, he discovered a sophisticated marketing chain made up of Faria, Bepari, the miller, Arathdar, the wholesaler, the store, and the consumer. According to the survey, Miller received the biggest margin followed by merchants. Retailer had the biggest profit, expressed as a percentage of the marketing margin followed by Miller. Low prices, a lack of capital, a dysfunctional communication and transportation system, insufficient credit facilities, and other marketing issues were the main ones that manufacturers and intermediaries had to deal with.

In certain parts of the Sherpur district, Khan [21] studied on the processing of Boro paddy and its commercialization. The study was carried out to examine the rice marketing system, evaluate the marketing costs and margins of various intermediaries, and pinpoint issues and limitations of millers and intermediates with potential recommended solutions. Prior to other intermediaries, millers had the biggest margin. Additionally, the millers made the most money, followed by the native rice varieties Arathdar and Bepari. The lowest profit was made by the retailers. Additionally, they received some recommendations for resolving these issues, including the availability of paddy supplies, the provision of bank loans, more affordable electricity rates, consistent electricity supply, the availability of working capital, and the improvement of transportation infrastructure, among others.

A study on Boro paddy marketing was carried out by Miah [22] in a few regions in the Tangail district. According to the study, a complicated marketing channel was created by Faria, Bepari, Miller, Arathdar, and retailer who participated in the marketing of Boro paddy and rice. The cheap cost of Boro paddy, inadequate finance and transportation facilities, inadequate storage facilities, etc. were the main issues in the research area.

Tasnoova and Iwamoto [23] used primary data that was purposefully gathered from 24 farmers and 65 intermediaries in Sadar Thana of the Dinajpur region to evaluate the marketing systems of Kataribough rice in Bangladesh. Primary data were collected during the months of January and March 2000. To estimate marketing costs and margins, as well as to investigate possible suggestive solutions to marketing issues, efforts were undertaken to discover the Kataribough rice marketing system. A complicated marketing channel was developed in the research area

by Faria, Bepari, the miller, Arathdar, and the retailer who were all involved in the marketing of Kataribough rice. The millers had the biggest margin, followed by the retailer Bepari, Arathdar, and Faria. Lack of money, inadequate storage facilities, inadequate market knowledge, excessive market tolls, a lack of market facilities, and poor communication and transportation infrastructure were the main issues that farmers and intermediaries had to deal with.

In some chosen locations of the Jamalpur district, Uddin [24] studied the marketing of boro paddy and discovered that millers saw the highest profits and marketing expenses. According to the report, the main marketing issues were poor communication, a lack of suitable market officials and information, price fluctuations, a lack of adequate marketing and storage facilities, a greater market toll, and unpredictability in the supply of electricity.

The primary goal of the case study undertaken by Zaman et al. [25] was to determine how farmers participate in the paddy/rice market. In that paper, it is also examined how much rice is sold and how surpluses are marketed. According to the analysis, the price support program and open market participation are least beneficial to small farmers. Direct selling from home and selling at a local market were determined to be the two main marketing strategies. They end by highlighting the necessity of raising surpluses to enhance small farmers' capacity to engage in the market.

A case study was also carried out by Zaman et al. [26] to investigate the rice processing method and marketing in Bangladesh. One of the most important rice-trading organizations in the research region was the rice processing industry (millers). According to their findings, the processing industry gives rural residents a sizable number of jobs. According to seasonal employment patterns, there were many job opportunities during the harvesting of the Boro (spring paddy) crop. Additionally, it was discovered that the millers' selling price exceeded the break-even price, proving that rice trading is a successful industry in Bangladesh.

Through the investigation carried out by Bapari [27], both conventional and high yielding rice production were studied in terms of their causes, costs and benefits, and resource allocation in Bangladesh's Rajbari district. A pre-tested questionnaire was used to collect data from 300 regular rice growers of both conventional and high yielding varieties in the study area. Random selection approach was used to choose the respondents from this group. The findings also

demonstrated that both varieties of rice were grown inefficiently by the study area's farmers. The main policy recommendations for growing more rice in the study area with more efficiency in the future included a constant supply of electricity, flexible credit, and strengthening the existing resources.

Hasan et al. [28] studied on profitability analysis and socio-economic characteristics of rice cultivating fermers at jhenaidah. This study's primary goal was to examine the socioeconomic traits and financial viability of Bangladesh's Jhenaidah district's rice farmers. The primary data used for this study came from 112 farmers who grow rice. In 2016, a survey was done on the production years between 2014 and 2015. The findings indicated that most farmers in the study area only had an elementary education and borrow money for farming. Production of the rice in Boro yielded larger profits than that of the rice in Aus and Aman.

In a research of Boro paddy prices in a few key districts of Tangail district, Akter [29] discovered that millers, Paikers, and Kutials had bigger margin shares than merchants, Farias, and Beparies. This occurred because of the former group's engagement in paddy processing. Most intermediaries relied on unofficial credit since they lacked access to bank loans.

Using data from a farm level survey conducted in April and May of 2016, Sujan et al. [30] examined the profitability and resource use efficiency of boro rice growing in the Bogra area of Bangladesh. They showed that the primary production factors such as human labor, irrigation, insecticide, seed, and fertilizer had a statistically significant impact on yield, according to a Cobb-Douglas production function study. MVP and MFC ratio research revealed that most of the resources were allocated by farmers during the logical stage of production.

From the above review of literature, it appears that several studies on paddy/Boro rice marketing system have been conducted in different areas of Bangladesh and in nearby countries. But there have a few studies exclusively on Aman rice marketing system of Bangladesh. So, an attempt has been made by the researcher to study the efficiency of Aman rice marketing system in Bangladesh.

CHAPTER III

METHODOLOGY

3.1 Introduction

Any research must include methodology as a necessary and vital component. The right approach was followed in the research, which has a significant impact on how reliable the results are. Exotic outcomes are generally the product of improper approach. A researcher must therefore take careful considerations to follow a logical and scientific technique when doing his research. It is very important for the researcher to be very clear about the types of research designs, methods, and procedures that should be used when choosing the study areas, using sampling techniques, analyzing the data that has been collected, and interpreting the findings to reach the correct conclusion. The methods employed in this investigation is provided below in chronological order.

3.2 Selection of Study Area

A crucial first step in any research project is choosing the research topic. The selection of the study locations should consider the greater concentration of mills for processing and manufacturing of paddy as well as the researcher's ease of access. Because of the larger concentration of Aman paddy production, processing mills, and the availability of logistical assistance for data collecting, Cumilla district was purposefully chosen for the current study. Again, three Upazilas—Borura, Laksham, and Brahmanpara—were chosen for collecting primary data after discussion with the agriculture officer and subagricultural assistant officer of each Upzilla. The next sections and Figure 3.1 provide a thorough explanation of the research district.

The study district: Comilla has a total area of 3146.30.17 square kilometres. It is bounded by Brahmanbaria district and Narayanganj district of Dhaka division to the north, Munshiganj district of Dhaka division and Chandpur district to the west, Noakhali and Feni districts to the south and the Indian state of Tripura to the east. The district headquarters of Comilla is located close to the Indian border, with the town of Sonamura on the other side. Major rivers passing

through Comilla include the Gumti and the Little Feni. It is hot in summer and cold in winter. According to the 2011 Bangladesh census, Comilla District had a population of 5,387,288, of which 2,575,018 were males and 2,812,270 females. Rural population was 4,546,962 (84.40%) while the urban population was 840,326 (15.60%). Comilla district had a literacy rate of 53.32% for the population 7 years and above: 54.08% for males and 52.65% for females. Muslims make up 95.10% of the population, while Hindus are 4.79% of the total population. There are nearly 5,000 Buddhists in the district.

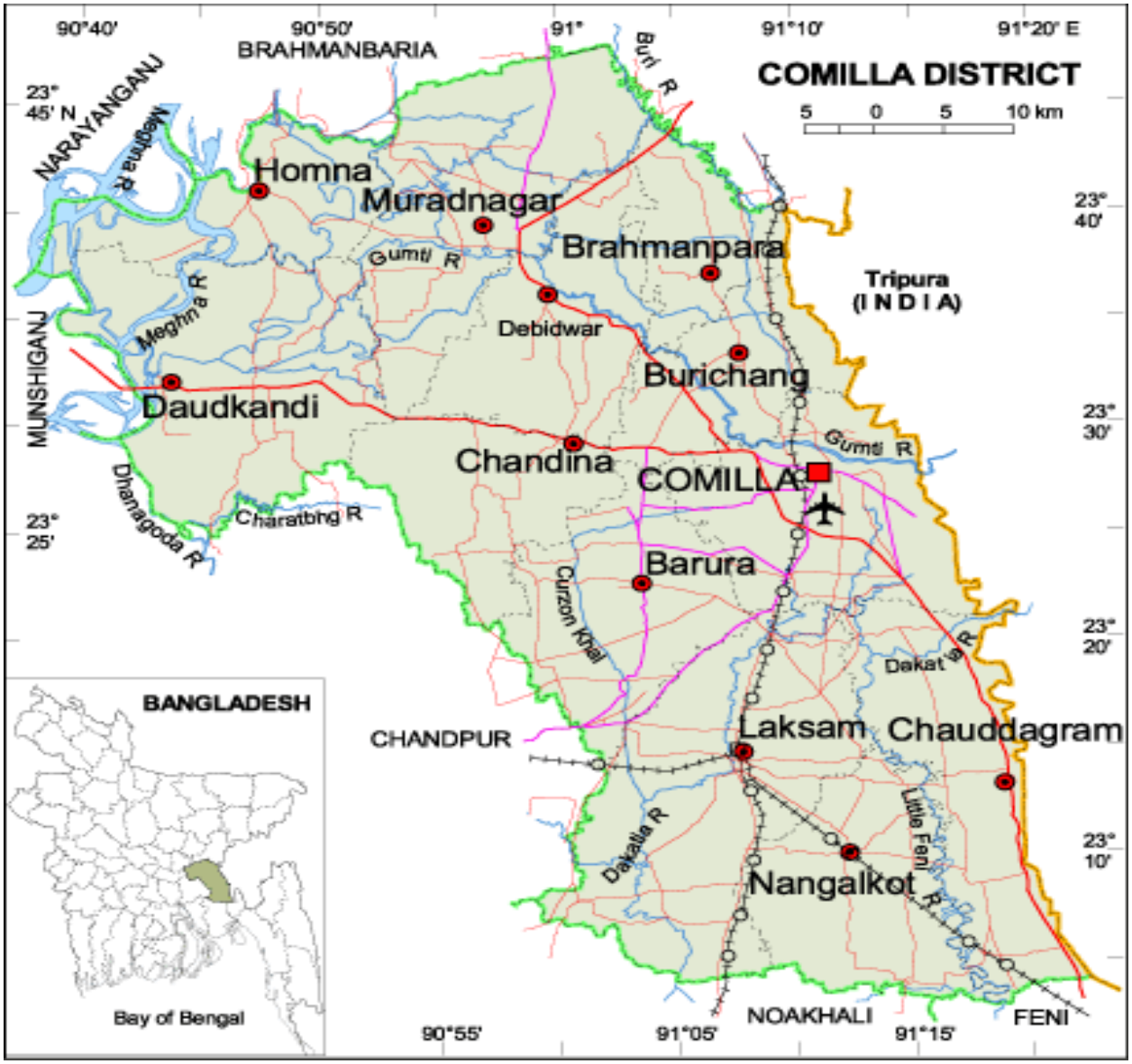

Figure 3.1 Map of Cumilla district.

3.3 Sampling Design

Sampling plays a crucial role in survey work. Due to time and resource limitations, it was not possible to interview every farmer and intermediary in the research area. The target population for the study is every individual from the point of production to the point of consumption of the rice industry (farmers, market intermediaries, consumers, etc.). As a result, accurate sampling is required to accurately represent the population. However, in this study, random selection was used to choose paddy farmers and intermediaries (i.e., millers, wholesalers, Beparis, Farias, and retailers) from the study areas. For the study, 60 farmers who produce Aman were chosen 15 from each Upazila. Again, 75 intermediaries in total, including miller, retailer, Faria, Bepari, and Arathdar, were chosen for this investigation. Using a pre-tested interview schedule, first-hand interviews with the respondents were used to gather primary data.

Table 3.1 displays the numbers of samples that were arbitrarily chosen from the district that was purposefully chosen.

Table 3.1 Category of sample respondents in the study areas

Respondent category	Sample size
Farmer	60
Faria	15
Bepari	15
Wholesaler	15
Miller	15
Retailer	15
Total	135

3.4 Research Instruments

The effectiveness of a research project or survey depends on how well the schedule is created. A preliminary structured interview schedule and checklist were carefully created with the research objectives in mind to gather information from the chosen respondents. The researcher himself pre-tested the initial timetable on a few farms in the study area. The draft schedule was enhanced, adjusted, and rearranged considering the actual and practical experience gained from the pretesting during the interview process if any corrections, changes, or revisions were required. Finally, a straightforward schedule was created to ensure that precise information could be acquired without duplication or misunderstanding. When creating a schedule, the researcher followed the three key components: the general form, the order of the questions, and the formulation and language of the questions. For each group of intermediates, a distinct set of questions was prepared. The questionnaire had the kinds of questions that are pertinent to the study (e.g., cost of production, cost of buying and selling, cost of milling, quantity of mills, price of different intermediaries in various channels, etc.).

3.5 Type of Data and Its Sources

Both primary and secondary data, which were gathered from various sources, were required to achieve the study's stated goals. The ensuing subsections detail the different types of data and their sources.

Primary data: Cross-sectional data are often information on one or more variables gathered at the same time The researcher gathered information from producers and intermediaries in the study areas about the cost of buying and selling paddy, the cost of paddy cultivation, and the challenges that producers and intermediaries, respectively, faced when producing and managing paddy and their businesses at a particular time. Personal interviews with respondents in the study areas were used to gather primary data.

Secondary data: The study also made use of secondary data, the majority of which were time series data. Regular time intervals, such as daily, weekly, monthly, quarterly, or annually, can be used to collect time series data (Gujarati, 2003). Secondary data were gathered from a variety of published sources, including the DD office of the Cumilla district, the Internet, the DAE, BBS, BRAC, DAM, and BRRI.

3.6 Period of Data Collection

Data were gathered from the chosen Aman rice producers and traders. In the study locations, June through September were predicted to be the Aman paddy's peak and lean seasons, respectively. Data for this study, however, were gathered from the Cumilla district between July and September 2022.

3.7 Collection of Data

The researcher himself conducted face-to-face interviews with the respondents to gather data. The study's goals were made known to the respondents during the data gathering process so they could answer candidly. Interviews with the traders took place in Haats and paddy markets. Producers were questioned in the Cumilla district's chosen communities. For the respondents to answer readily, the interviews were conducted during their free time. The material was entered on the interview schedule and the questions were asked methodically and simply. Data were collected in local units to reduce mistakes. These units were later changed to conventional units, though. All feasible steps were made to prevent errors and guarantee the accuracy of the data from the field/study location. For instance, each schedule was examined and validated after each interview to ensure that the responses to each item had been accurately recorded. The respondents were re-interviewed to obtain pertinent corrections if any things were missed or inconsistent. Adequate steps were taken to ensure the data was accurate and reliable, making it significant for the current study.

The following information was gathered using a pre-tested questionnaire:

Information was gathered on the amount of Aman rice sold, the price of the rice sold, the total amount of Aman rice grown land, the cost of production inputs, the output's size, access to the market, market knowledge, land ownership, credit availability, and family size.

Aman rice purchase and sale prices as well as expenses related to various facets of its marketing were gathered and used to examine the marketing costs, margins, and profits of various intermediaries.

The Aman rice market's structure and operations were examined using the information that was gathered from a sample of informants using a questionnaire, including information on the market information system, exchange agreements, storage system, transport facilities, price setting strategy, purchasing strategy, selling strategy, and entry barriers.

3.8 Editing and Tabulation of Data

The first step was to carefully examine each schedule's data to look for any discrepancies or omissions in the data collection process and to weed out unnecessary information. To ensure that there were no scheduling or information-recording problems, the data were extensively edited. To make tabulation easier, processed data were uploaded to an excel spreadsheet and assembled. Local units originally gathered information. After being examined, these were scored appropriately to turn them into quantitative form. The data were summarized, and the necessary tables were created. According to the study's goals, the acquired data were analyzed. Data inconsistencies were eliminated. The relevant version of the software, Microsoft Excel, was used for the analysis.

3.9 Analytical Techniques

To reach a meaningful conclusion is the research's primary and final goal. To accomplish the stated goals in this regard, tabular, statistical, and graphical analysis were used. The main statistical techniques used to assess the effectiveness of various channels and the margin earned by middlemen by middlemen were average, percentage, and simple statistical tools. The following formula was used to estimate the marketing margins, marketing costs, and net margins of various intermediaries:

3.9.1 Estimation of marketing cost

The following formula was used to determine the overall marketing expense borne by growers and middlemen in a channel:

$MC = MC_p + MC_{m1} + MC_{m2} + MC_{m3} + \ldots + MC_{mi.}$

Here,

MC = Total marketing cost in a channel

MC_p = Marketing cost paid by the producer

MC_{mi} = Marketing cost incurred by the i^{th} intermediaries in the process of buying and selling of rice in a channel (i= 1, 2. 3… n).

3.9.2 Estimation of gross marketing margin

The difference between the purchase price and the sale price is called the gross marketing margin. The following three techniques can be used to determine the marketing margin:

1. By choosing certain truckloads of a commodity and tracking them using the marketing system.

2. By calculating the difference between the quantity handled at various stages in the marketing channel's buy and sale prices.

3. By contrasting prices at various marketing levels.

The specific study objectives and the investigator's own interests will determine the relative benefit of various strategies. The second technique of calculation was used to calculate the marketing margin in the current study. Marketing margins of different categories of intermediaries are calculated individually to analyze their relative performance of marketing activities. The following formula was used in this study to estimate the marketing margin:

$MM_g = P_s - P_{P,}$

Where, MMg = Gross marketing margin

P_s = Sale price of Aman rice

P_p = Purchase price of Aman rice

3.9.3 Net marketing margin

The difference between gross marketing margin and marketing expense was used to calculate net marketing margin, or profit. The calculation was made using the following formula:
Net margin (Tk. /mound) = Gross marketing margin (Tk. /mound)-Marketing cost (Tk. /mound).

3.9.4 Estimation of marketing efficiency

There are many other sorts of measurements that can be used to gauge market performance, each with their own benefits and drawbacks, but no one can provide a comprehensive picture. The effectiveness of Aman rice marketing in the research areas was assessed using the following performance measures (Rajagopal, 1986). The indicators include (1) the proportion of a product that is sold through a channel, (2) the producer's share of the price paid by consumers, (3) relative marketing expenses, (4) the level of middlemen's margin, (5) price deviation, or the difference between the maximum and minimum prices of Aman paddy in a month, and (6) price variability. All of these criteria were applied in accordance with the several Aman rice's channels. Below is a discussion of some analytical tools for evaluating the performance criteria.

Producer's share to the consumer's price: The producers' share was calculated as the difference between the producers' gross/net price and the weighted average selling price of Aman rice. This formula was used to calculate it:

$Ps = (Pp \div Pr) \times 100$

Where, Ps = Producer's share to the consumers price(%)

Pp = Producers' selling price

Pr = Retailers' selling price/consumers' price

Relative marketing costs and margins: Based on marketing channels and the price of a unit of Aman rice, the cost of marketing was calculated. The lowest cost marketing channel received a ranking of 1. Using the same methodology, the channel with lower middleman margins was ranked first.

Deviations between maximum and minimum price: The channel that had the smallest difference between the maximum and minimum pricing of Aman rice was given the top spot. The following equation was used to get the average price deviation:

$Dp = \sum di \div N$

Where, Dp = Average price deviations

di = Price deviations in i^{th} month (i = Jan to Dec)

N = Number of total months (12 months)

Seasonal price variability: The following standard deviation (∂) formula was used to calculate the price variations in the lean and peak seasons:

$\partial = \sqrt{(1 \div T)} \sum Wt\ (Pt - P)^2$

Where, ∂ = Seasonal price variability index

P = Average price of the whole season (12 months average) Pt = Average price for a particular period

T = Total months (12 months), and

$$Wt = \frac{Quantity\ sold\ through\ a\ particular\ channel\ during\ the\ month\ (St)}{Total\ quantity\ sold\ during\ the\ month\ in\ all\ channel\ \Sigma i \Sigma t\ Sit}$$

For each time, the standard deviations (∂) were individually computed. A smaller number of suggests that seasonal variations won't have an impact on farmer prices, and vice versa. Ranking 1 went to the channel with the lowest standard deviation. The following index formula was used to get the final ranking of each of the six indicators for each of the channels:

$R = (Ri \div Ni)$

Where, Ri = Total value of ranks of all indicators, and Ni = Number of indicators.

3.10 Problems Faced During Data Collection:

The researcher ran into the following issues during the data collection period:

Most responders lacked a solid education in the study areas. They had never heard of such a study before. They were suspicious about the researcher and therefore did not want to cooperate for the first time and it was therefore difficult to explain the purpose of this research to convince them. Due to our efforts, the respondents were ultimately persuaded.

The producers and intermediates occasionally weren't available at their homes or places of business because they were still working outside. Due of this, it was occasionally necessary to make multiple visits to obtain information from them. Therefore, the researcher had to put in extra time and effort to get the necessary data.

Most farmers in Bangladesh do not document their annual or daily transactions or activities in writing. As a result, it was quite challenging to get data, and the researcher was forced to depend solely on farmers' memories.

CHAPTER IV

SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENT FARMERS AND INTERMEDIARIES

4.1 Introduction

The area under Aman paddy production and marketing, as well as the characteristics of the Aman paddy producers, are significantly influenced by their socioeconomic backgrounds and characteristics. Therefore, a brief explanation of characteristics is required to evaluate the major goals of the current study. As a result, data on the respondents' age, family structure, level of education, occupation, annual income, etc. were gathered for the study. Listed below is a quick explanation of these traits.

4.2 Age Distribution

Following the data collection, the respondents were divided into three age groups: 20 to 40 years old, 41 to 55 years old, and over 55 years old. According to Table 4.1, 55.55%, 53.57%, and 50% of small, medium, and big farmers, respectively, were between the ages of 20 and 40. 27.77%, 25%, and 28.57% of small, medium, and big farmers, respectively, were between the ages of 41 and 55. 16.66%, 21.42%, and 21.42% of small, medium, and big farmers, respectively, were between the ages above 55.

Table 4.1 shows how old Aman paddy farmers are in relation to the size of their farms.

Farm size	**Age groups**		
	20-40(%)	**41-55(%)**	**Above 55(%)**
Small	55.55	27.77	16.66
Medium	53.57	25	21.42
Large	50	28.57	21.42
All farms	53.04	27.11	19.84

4.3 Family Size and Composition

In the current study, a family is defined as a group of people who live together, eat meals together, and live under the direction of a single person. It includes a husband, a wife, a son, a daughter who is not married, a parent, etc.

According to this criterion, Table 4.2 shows that 77.77% male and 22.22% female in small farm group, 75% male and 25% female in medium farm group, and 85.71% male and 14.29% female in large farm group, it also reveals that for small, medium, and large farmers, the average family size was 4.50, 5.00, and 7.50 people, respectively. Large farmers had the largest families, followed by medium-sized and small-sized farmers, indicating a strong correlation between family size and land ownership.

Table 4.2 shows the family makeup of Aman paddy producers in relation to farm size.

Farm size	Male (%)	Female (%)	Family size (No.)
Small	77.77	22.23	4.50
Medium	75	25	5
Large	85.71	14.29	7.5
All farms	79.50	20.50	5.66

4.4 Occupational Status

The primary occupation of a farmer was that one, meaning it was where most of the family's revenue came from. According to Table 4.3, agriculture accounted for 74.17 percent of farmers' primary occupations, while business and service accounted for 20.40% and 5.42%. Most of the sample farmers were found to be engaged in agriculture, accounting for 77.77%, 71.42%, and 73.33 percent of the small, medium, and big farmers, respectively. The remaining farmers in each category indicated that their primary occupation was either business or service.

Table 4.3: Aman paddy producers' occupations by size of farm

Farm Size	Agriculture (%)	Business (%)	Service (%)
Small	77.77	16.66	5.55
Medium	71.42	17.85	10.71
Large	73.33	26.66	0
All farms	74.17	20.40	5.42

4.5 Educational Status

A nation's agricultural development can be accelerated in large part through education. The educational attainment of the Aman paddy growers in the research area is displayed in Table 4.4.

Table 4.4 shows that 52.91 percent of farmers were illiterate, while 18.78 percent had a primary education, 15.07 percent had a below secondary education, 5.95 percent had a secondary education, and 7.27 percent had a higher secondary degree.

Table 4.4 shows the Aman paddy farmers' level of education.

Education level	Small (%)	Medium (%)	Large (%)	All farms (%)
Illiterate	44.44	57.14	57.14	52.91
Primary (Class I-V)	27.77	21.42	7.14	18.78
Below secondary (Class VI-X)	16.66	7.14	21.42	15.07
Secondary	0	3.57	14.28	5.95
Higher secondary	11.11	10.71	0	7.27

4.6 Household Income

The farmers who were chosen worked mostly in agriculture, which also provided most of their income. Business and services were also sources of revenue. For small, medium, and big farms, respectively, the respondents' total yearly incomes were TK. 78000, TK. 120000, and TK. 210000. Their respective average monthly incomes were TK. 6500, TK. 10000, and TK. 17500.

Table 4.5 shows the Aman paddy farmers' annual household income.

(In Taka)

Farm size	Total Average annual income	Average income per month
Small	78000	6500
Medium	120000	10000
Large	210000	17500
All	136000	11333

4.7 Socio-economic Characteristics of Intermediaries

The selected intermediates' socioeconomic traits, such as age, education, and profession, are addressed below.

4.7.1 Age distribution of the intermediaries

The chosen Aman paddy intermediaries were divided into three age groups: 20–40 years, 41–55 years, and over 55 years. According to Table 4.6, roughly 36 percent of merchants were between the ages of 20 and 40, followed by about 41.33 percent of traders between the ages of 41 and 55, and the remaining 22.66 percent were over the age of 55. Table 4.6 makes it clear that the age range of 41 to 55 years was home to the greatest number of distinct intermediaries.

Table 4.6 shows how old the intermediates are.

Intermediaries	Age group		
	20 to 40(%)	41 to 55(%)	Above 55(%)
Farias	53.33	20	26.66
Beparis	46.66	40	13.33
Millers	20	46.66	33.33
Arathdar	26.66	46.66	26.66
Retailers	33.33	53.33	13.33
All	36	41.33	22.66

4.7.2 Occupational status

According to Table 4.7, 46.66 percent intermediaries are related to business and rest 53.33 percent are involved in business and agricultural activities.

Table 4.7: The intermediates' professions.

Intermediaries	Business	Business + Agriculture
Farias	66.66	33.33
Beparis	60	40
Millers	33.33	66.66
Arathdar	26.66	73.33
Retailers	46.66	53.33
All	46.66	53.33

4.7.3 Educational status

Effective marketing of Aman paddy depends in large part on education. Because they would be more informed and would make logical marketing judgments, educational middlemen. Table 4.8 details the education level of intermediaries. The chosen intermediaries were divided into four categories based on their educational background after data collection.

Table 4.8 various sample intermediaries' literacy rates

Educational Status	Faria %	Bepari %	Miller %	Arathdar %	Retailer %	All %
Illiterate	26.66	33.33	46.66	33.33	20	32
Primary (Class I-V)	20	13.33	20	40	33.33	25.33
Below secondary (Class VI-X)	13.33	20	20	20	13.33	17.33
Secondary	26.66	26.66	13.33	6.67	20	18.67
Higher secondary	13.33	6.66	0	0	13.33	6.66

CHAPTER V

MARKETING SYSTEM OF AMAN PADDY

5.1 Introduction

The marketing system can be viewed as the cord or the link that connects manufacturers and customers. Physical distribution, which is concerned with the handling and transfer of products as they move from producers to consumers, is one of the two key responsibilities played by the marketing system. Additionally, it increases the value of agricultural products and streamlines the exchange procedure between buyers and sellers (Kohls and Uhl, 1985). Based on primary data such as marketing channels, market intermediaries, and their roles or functions, this chapter discusses the various paddy marketing system elements in Bangladesh. Below, the three parts of the Aman paddy marketing system are briefly discussed.

5.2 Marketing Channels of Aman Paddy

A marketing channel is the network of middlemen between producers and consumers that facilitates the exchange of goods. To accomplish the marketing goals of the producing farms, a marketing channel is a road made up of middlemen who carry out the necessary tasks to ensure the safe, orderly, and sequential movement of goods and services from producers to consumers. Through market intermediaries like Faria, Bepari, miller, Arathdar, and retailer, paddy is transported from the producer-seller to the consumers in the research areas. It was noted that Aman paddy had to travel a great distance from the points of production to the points of consumption.

Figure 5.1 displays the Aman paddy marketing channels that were seen in the study area.

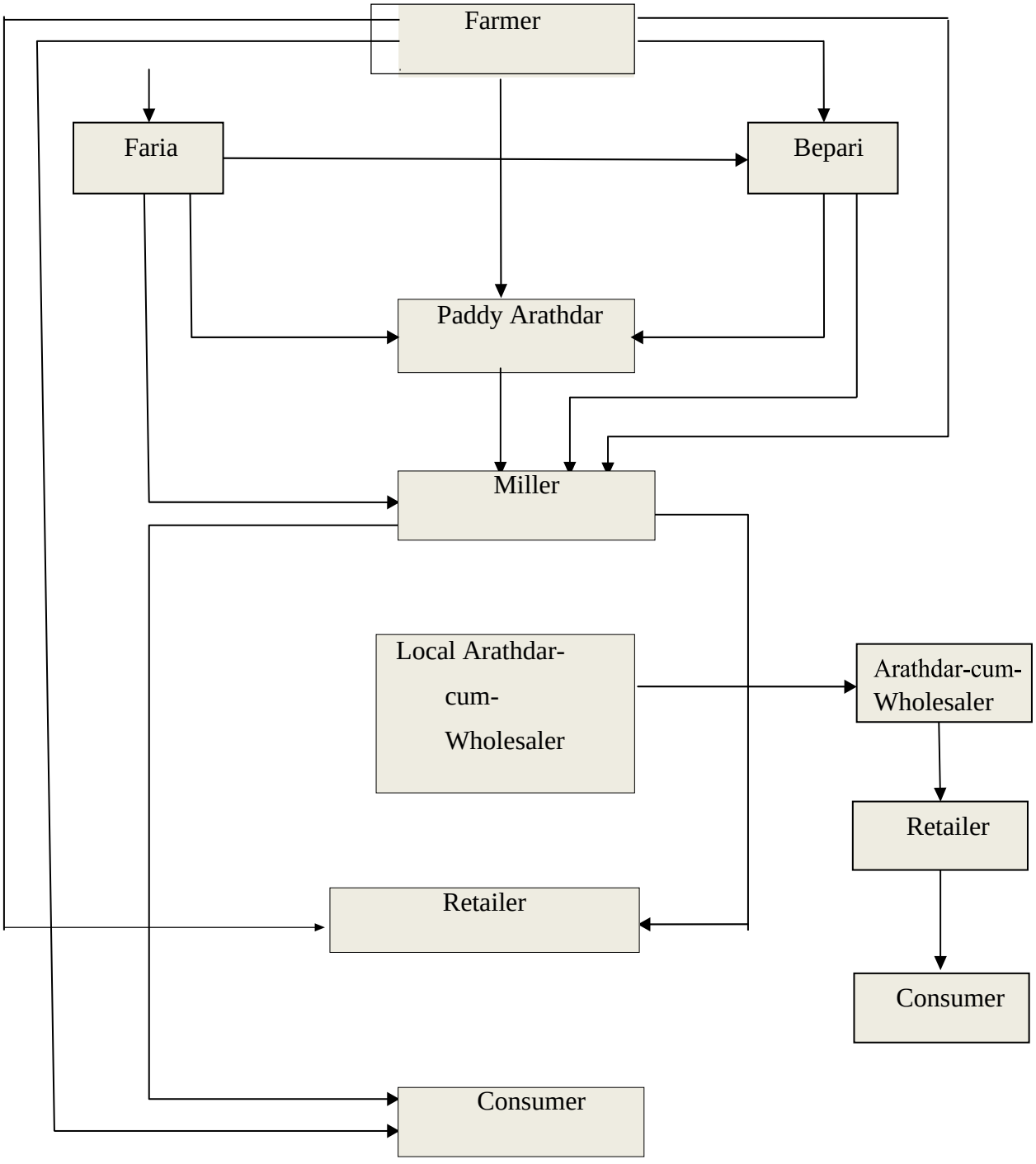

Fig 5.1 Marketing channels of Aman paddy in the study area

Source: Field survey,2022

The following channels were found in the study areas based on Figure 5.1.

1. Farmer → Consumer
2. Farmer → Retailer → Consumer
3. Farmer → Faria → Bepari → Miller → Retailer → Consumer
4. Farmer → Faria → Miller → Consumer
5. Farmer → Bepari → Miller → Local Arathdar → Wholesaler-cum-Arathdar → Retailer → Consumer
6. Farmer → Faria → Bepari → Miller → Wholesaler-cum-Arathdar → Bepari Retailer → Consumer
7. Farmer → Miller → Retailer → Consumer
8. Farmer → Faria → Bepari → Miller → Local Arathdar-cum-Wholesaler → Retailer → Consumer
9. Farmer → Bepari → Miller → Retailer → Consumer
10. Farmer → Miller → Consumer

5.3 Market Intermediaries

Bangladesh's paddy marketing is carried out by a network of middlemen. They are millers, assemblers, distributors, and retailers. Although there is a lack of information on these intermediaries, some significant topics are explored in order to comprehend their significance and position in the marketing channel. The data from the Cumilla district are the main source of the debate that follows.

5.3.1 Faria /Bepari

Faria /Bepari based on the size of their operations, Farias and Beparis are distinguished slightly in the Bangladeshi literature on food marketing. They are classed as various types of agents in some studies and as the same type of agent in other investigations. The DAM has not provided any specific instructions for us to follow on their role. For the sake of clarity, the terms Faria/Beparis were used to refer to the same kind of paddy assemblers.

Small-scale, unlicensed paddy assemblers working mostly in village markets include Faria and Beparis. They don't have a fixed place of business; instead, they move from village to village buying paddy straight from the growers. They occasionally also purchase paddy at the local market. Some of the individuals in this category serve as paddy Arathdar agents. Most of them are seasonal. Some of them also worked at small farms, selling their labor to others, and other related jobs. They typically invest their own money into running a firm. From the grower's home to their own home and from their home to the market, they transport paddy using rickshaws and vans.

5.3.2 Arathdar

The commission agents that typically work for the millers are Paddy Arathdar. However, some paddy Arathdar work independently and do not represent the miller. In the upazila market, both types of businesses have a fixed location. They typically buy paddy at the upazila market. Some Arathdar purchase paddy directly from the growers with the understanding that they may request payment at any moment. Arathdar typically receives funding from the millers. After receiving an order, they provide paddy to the millers within 3 to 7 days. These Arathdars, who were employed by millers, had little discretion over what they bought and sold. They adhere to the millers' judgments. To decide whether to buy the paddy at the going rates or not, they are constantly in contact with the millers. They buy the remaining 75% of the paddy from the Bepari/Piker and roughly 25% from the farmers.

For buying paddy, they typically received Tk. 2, 90,000 in advance from the millers; any remaining money, if any, was paid once the complete amount of paddy was delivered. Millers pay for the entire cost of purchasing paddy. They travel to the Arathdar location to pick up the paddy for delivery. Occasionally, Arathdar will send the purchase volume via truck or other vehicle along with the purchase receipt, and the millers will then pay the remaining balance. Arathdar was compensated for his services with a fee of Tk. 12.00 for every 40 kg of paddy. People who run their businesses freely and without acting as the millers' agents invest their own money in them.

5.3.3 Rural retailer.

Rice is mostly sold seasonally by rural shopkeepers. At the local market, these little vendors directly buy paddy from the farmers. Family effort was used to parboil and dry food in the backyard. The dried paddy is then brought to the neighboring small rice mills for milling, which are located close to the village market. The retailers were charged Tk. 40.00 per mound by rice millers for grinding the paddy. Once the rice has been milled, it is sold to villagers during the weekly (Haat) and daily bazaar days. Their monthly paddy transactions range from 0.7 to 1.0 tons. In general, rickshaw or van pullers, marginal and landless producers, and these businesses. These rice merchants are also day laborers for the Arathdar. For various categories of farmers in the study locations, distinct marketing channels were discovered (i.e., small, medium and large). The following graphs display:

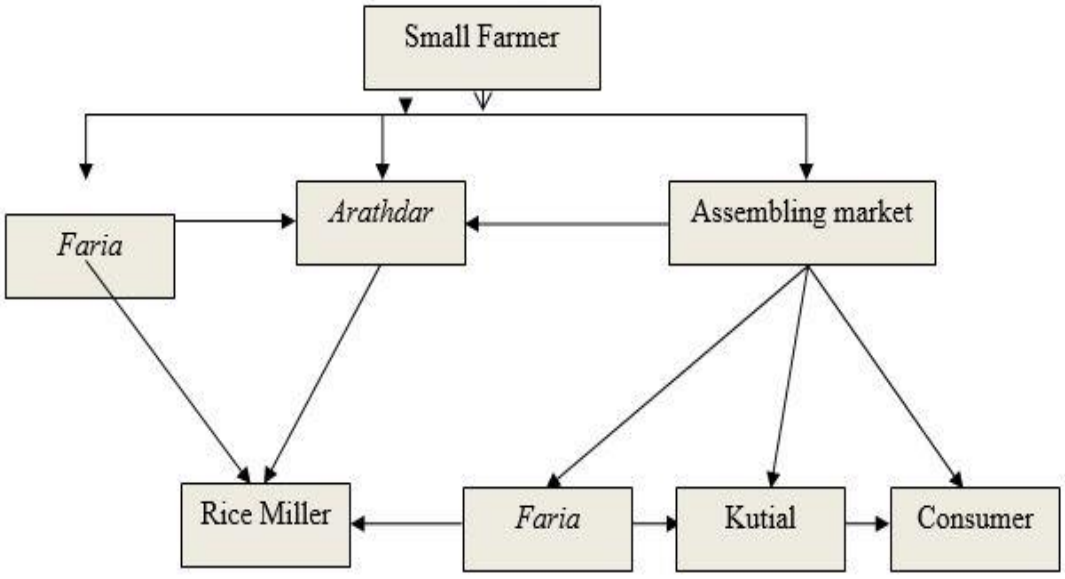

Figure 5.2 Aman paddy marketing channels for small farmers

Source: Field Survey, 2022

The marketing channels for large and medium farm groups were different from those for the small farm group, as shown in Figures 5.1 to 5.4. They have access to the rice mill directly.

The presence of numerous rice mills involved in the paddy and rice marketing was a significant aspect of the survey region. The paddy is purchased by rice millers from various itinerants, particularly from local Bepari, Faria, and Arathdar (commission agency).

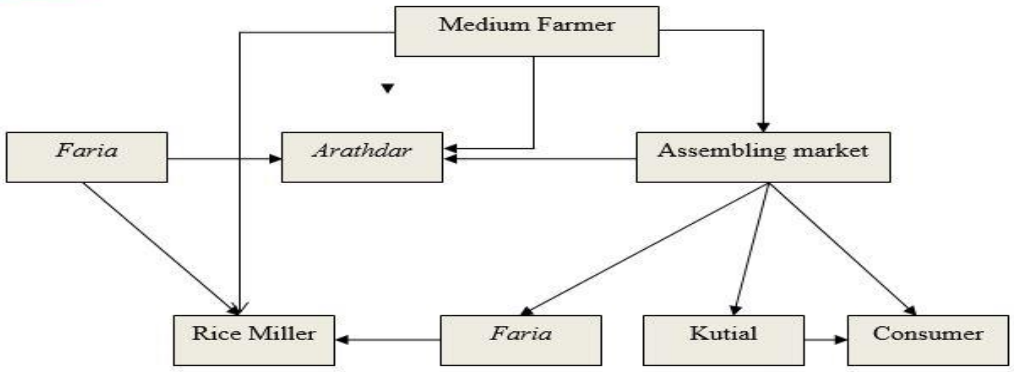

Figure 5.3 Aman paddy marketing channels for medium farmers

Source: Field Survey, 2022

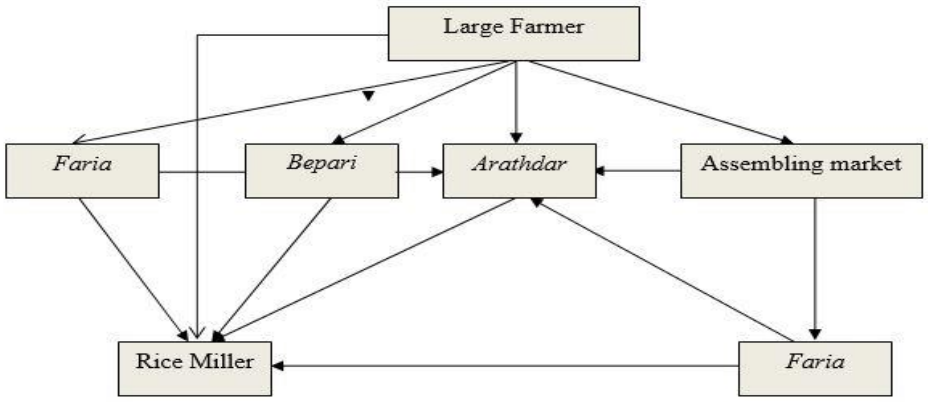

Figure 5.4 Aman paddy marketing channels for large farmers

Source: Field Survey, 2022

5.4 Role of Rice Mills

The paddy must be treated before being consumed once it is gathered from fields. The several steps in the processing of rice include parboiling, drying, and milling. Both at home (on a small scale) and at rice mills, these are carried out (large scale). The noncommercial, at-home milling business is possibly the oldest and essentially defunct way to grind rice in Bangladesh. After being parboiled and dried, paddy is processed using this technique. Most of the Bangladesh's paddy processing and milling is done in the rice mills. The term "commercial milling center" refers to these mills. In Bangladesh, there are two different types of commercial mills: the first type is the rice miller, who either buys paddy directly from the local bazaar or Haat or through their agents. After parboiling, drying, and milling the paddy, these facilities typically supply the completed milled rice to the wholesalers and assemblers of the major cities.

The processed paddy, on the other hand, is milled into finished rice in a tiny husking machine that is in the neighboring village bazaar after being parboiled and dried at home. These huskers also husk paddy for the village's tiny traveling merchants. Huskers from vendors have recently become available in the communities.

The number of industrial rice millers has grown throughout time. These industrial processing facilities have been essential to the rice marketing system. In Bangladesh, three different types of rice mills are available. These are husky, major, and automatic rice mills, according to the Ministry of Food (FPMU, 2009). A total of 29 mills from Laksham, Cumilla were chosen at random for the study, of which 19 were auto rice mills and the remaining 10 were husky rice mills. Data were gathered regarding many topics. Data collection from the rice millers was challenging. They were initially dubious about the goal, but after repeated requests and a clear explanation of the purpose, they agreed to speak with the researcher. However, in some instances, the millers did not answer as required. The researcher had also gathered some thorough data from a single auto rice miller to get around some of these issues. Although the research may have certain limitations and the sample sizes may not fully represent Bangladesh, our attempts will give a good overview of the features and functions of the commercial rice mills in the study area.

5.4.1 Rice millers as paddy buyers

The most important players in the marketing system in the research areas are the rice millers. They are essential to the buying and selling of paddy. They can purchase paddy directly from farmers or through a commission agent named Arathdar who maintains a fixed place of business in the upazila market. These commission agents receive capital (cash) up front from the millers in exchange for supplying the mills with paddy. Money amounts differ from mill to mill. Within three to seven days of buying paddy, Arathdar provided the mill with paddy. The millers decided and had control over how much paddy would be bought and at what price. Following payment, Arathdar are required to stay in contact with the millers to receive the essential instructions regarding the paddy buying procedure. Millers regularly monitor surrounding market information regarding the price and quantity of paddy traded at each market during the Haat day. The millers can use this information to direct their suppliers' next steps. Arathdar followed the instructions and gave the millers the required amount of paddy in exchange for a set fee. Most of the time, millers pay for everything. For the Arathdar, buying and delivering the paddy at the mill gate carries little danger. Paddy is not only supplied to the millers by Arathdar; the millers also buy paddy from growers and Bepari/Faria.

5.5 Volume of business

According to the current study, Faria handled 540 mound of Aman paddy on average per region (sit twice in a week). The observation revealed that the Beparis in the research areas bought and sold 900 mound of Aman paddy annually on average. Each miller bought on average 2500 mound of Aman paddy before selling the finished rice. They provided shops, regional Arathdar, and wholesalers from other districts with their processed rice. By head load/shoulder load, cycle and rickshaw van, the Farias moved 10%, 10%, and 80% of their Aman paddy, respectively. The Beparis used rickshaw vans and pickup to transport 10% and 90%, respectively, of their Aman paddy. However, most of the time when moving Aman paddy from the primary market to the secondary market, the millers and Arathdar used trucks. A tractor or van were occasionally utilized. Trucks carried 85 percent of the paddy for the millers and 95 percent for Arathdar. The remaining passengers traveled in rickshaw vans and truck. 70 and 30 percent of the rice was transported by rickshaw and van, respectively, by the retailers.

Table 5.1 Mode of transportation used by farmers and intermediaries

Mode of transport	Farmers and intermediaries					
	Farmer (%)	Faria (%)	Bepari (%)	Miller (%)	Arathdar (%)	Retailer (%)
Head load/ shoulder load	10	-	-	-	-	-
Bicycle	10	15	-	-	-	-
Rickshaw	80	65	70	30	20	50
Tractor	-	10	-	-	-	30
Truck	-	10	30	70	80	20

Source: Field survey, 2022

5.6 Storage of Paddy

Making products available when needed is the main goal of the storage function. It produces useful time. For agricultural commodities to lose as little as possible, proper storage facilities are crucial. However, the study location did not have a well-developed system for storing Aman paddy. Gola and Dole were utilized by almost 70% of farmers to store their paddy. Bamboo and clay are used to make Gola, whereas bamboo is used to make Dole.

In the study area, on average, 58% of paddy marketing intermediaries lacked dedicated grain storage facilities. The Farias typically kept their crops in a portion of their homes for at least 15 to 25 days. There were no long-term storage facilities on the Beparis. But occasionally they made use of other people's warehouses, for which they had to provide a one-time payment. The millers had private grain storage facilities, which were often tin sheds or buildings. Their store was utilized by Arathdar to store Aman paddy. Retailers kept their purchased rice in their store.

5.7 Grading of Paddy

One of the fundamental tasks in manufacturing is grading, which is the classification of goods based on a set of measurements (Kohls and Uhl, 1980). Grading allegedly has an impact on

how things are bought and sold as well as how prices are set. Aman paddy quality testing was shabbily arbitrary. Eye estimation determines quality. The moisture meter measured the amount of moisture present. When acquiring paddy at the government procurement center, the following factors were considered. However, there was no evidence of a common grading scheme being used by the intermediates in the research region.

Component	**Percentage**
Moisture content(maximum)	**13.0**
Foreign materials	**0.75**
Admixture of different verities	**7.5**
Immature and damaged grain	**3.0**
Immature dried grain	**0.75**

5.8 Paddy Processing

Processing is mostly done to create useful forms; by changing a product's form, it raises its worth. The main task of food producers or processors is to transform raw materials into useful forms. Rice is made from milled paddy. Processing paddy into rice was a foundation and essential task in the marketing of rice. At the neighborhood market, the millers purchased the paddy from Faria and Bepari before turning it into rice. They either processed the paddy themselves or contracted out the work to other millers.

5.9 Financing

Like other paddy marketing, funding is a key component of Aman paddy marketing. Except for millers, most of the other traders had their own funding. The dealers required sufficient funds in addition to their own capital to run their firm successfully. The sources of funding for Aman paddy traders are displayed in Table 5.2. Around 60% of Farias, 70% of Beparis, 45% of millers, 40% of Arathdar-cum-wholesalers, and 80 % of shopkeepers conducted their businesses solely with their own funds.

Table 5.2 Source of finance of the Aman intermediaries

Sources of finance	**Intermediaries**					Average
	Faria	Bepari	Miller	Arathdar	Retailer	
Own	53.33	46.66	40	66.66	60	53.33
Institutional	26.66	40	26.66	33.33	20	29.33
Non-institutional	20	13.33	33.33	--	20	17.33

Source: Field survey, 2022

Only 26.66% of Farias, 40% of Beparis, 26.66% of Millers,33.33% of Arathdar and 20% of retailer borrowed money from a bank or other institutional source (i.e., Krishi Bank, Sonali Bank, etc.). The remaining funds were borrowed from private sources. The percentage of Farias, Beparis, and retailers who received funding from non-institutional sources like Mohajan, payday lenders, friends, and family was around 20%,13.33%,33.33% and 20%, respectively.

5.10 Risk in the Paddy Marketing

For paddy intermediaries in the research areas, risk is a key element. However, it was discovered that local market traders in the research area took on their own risk. Because they disliked taking chances, they didn't turn to insurance. However, in the secondary market, the millers and Arathdar-cum-wholesalers use insurance policies to shield themselves from risk.

5.11 Market Information System

For the marketing system to operate effectively, market knowledge serves as a facilitative function. Most intermediaries obtained their market knowledge from other dealers as well as from personal observations, market trips, and other sources. To get information, Millers and Arathdar-cum distributors typically used the telephone (Table 5.3). There is no information on the price of Aman rice, despite the DAM of Bangladesh's ongoing efforts to consistently disseminate market prices for agricultural products through newspapers, weekly bulletins, and radio.

Table 5.3 Sources of market information of the intermediaries

Sources of information	Intermediaries					Average
	Faria	Bepari	Miller	Arathdar	Retailer	
Market visit and personal observation	70	75	20	30	85	56
Fellow traders	30	15	45	10	15	23
Mobile phone	-	10	35	60	-	21

Source: Field survey, 2022

5.12 Pricing

Before a product is made available to the intended customers for purchase, the marketing management of a firm determines its monetary value. Unlike commercial businesses, the paddy producers in Aman did not create a marketing strategy. The amount of produce, cash needs, and debt held by the farmers all had an impact on their sales decisions. The quantity of goods offered for sale and the number of purchasers that attended the market primarily influenced the price. All the middlemen who were involved in the purchasing and selling of Aman paddy in the study areas used open negotiation to set the prices of their goods, and as contrasted to the middlemen, individual farmers had little negotiating power. Because of an eye evaluation of the lot, intermediaries provided price quotes for each transaction separately.

CHAPTER VI

MARKETING COST AND MARGIN OF THE INTERMEDIARIES

6.1 Introduction

Marketing expenses are the fees incurred by middlemen when they carry out various marketing tasks to get a good from the producers to the final consumers. Various costs, including those for transportation, loading and unloading, market tolls, personal expenses, etc., were borne by the various middlemen in the Aman paddy marketing channel. Aman paddy marketing costs have been attempted to be quantified in the study, but only for the intermediaries of Farias, Beparis, millers, Arathdar, and retailers.

6.2 Marketing Cost of Farias

The Farias bought paddy from different local marketplaces and sold it to those markets and secondary markets in its natural state without any processing. These services come with a price tag that covers things like transportation, loading and unloading, market tolls, bag costs, weighing fees, personal expenses, etc. For their trading, they transported Aman paddy in carts, vans, or rickshaws. When the distance was relatively close, they occasionally transported Aman paddy by bicycle. The price of Farias per quintal is shown in Table 6.1.

Tk. 32.95 was the total marketing expense per mound of Aman of Farias. Purchase and sales expenses made up 54.62 and 45.37 percent of the whole marketing expense, respectively. Farias's biggest expense (53.10%) was for transportation, which was followed by loading and unloading (16.38%). They were required to pay 11.53% market tolls. During operating their firm, other expenses included the cost of the bag (6.06%), the weighting fees (4.55%), and personal expenses (6.06%), among others. Additionally, they spent 2.27% on others.

Table 6.1 Marketing cost of Farias

Cost heading	Cost (Tk./Mound)	
	Average cost	% Of total
A. Buying cost		
Transportation	8	24.27
Loading and unloading	3.2	9.71
Market tolls	3.8	11.53
Cost of bags	2	6.06
Personal expenses	1	3.03
Sub-total	**18**	**54.62**
B. Selling cost		
Transportation	9.5	28.83
Loading and unloading	2.2	6.67
Personal expenses	1	3.03
Weighing charges	1.5	4.55
Others	0.75	2.27
Sub-total	**14.95**	**45.37**
Grand total (A+B)	**32.95**	**100**

Note: a) Average cost = Total cost/Total amount

Percentage of total cost = One item/Total cost*100

Personal expenses. Bidi, Cigarette, betel leaf, sweet meats, tea etc.

Others: loss of grain, weight, problem extra labor cost, charity etc

6.3 Marketing Cost of Beparis

Aman paddy was typically bought by the Beparis from farmers and Farias. They offered their unprocessed Aman rice to the millers. Rent, loading and unloading, transportation, the price of the bags, market tolls, energy, personal expenses, etc. were some of the costs associated with providing these services. For their trading, they transported Aman paddy via truck, wagon, and rickshaw.

The marketing cost of the Beparis per quintal is shown in Table 6.2. Aman paddy from Beparis had a total marketing expense of Tk. 39.6 per mound. Costs associated with purchasing and selling made up 65.15% and 34.84%, respectively, of the overall marketing expense. Transportation costs made up most marketing expenses (27.77%), followed by loading and unloading costs (29.03%). They also incurred other charges, including market tolls (21.71%),

bag costs (5.80%), personal costs (5.04%) rent (2.52%), energy (3.03%), and others (5.05%).

Table 6.2 Marketing cost Beparis

Cost items	**Cost (Tk/Mound)**	
	Average cost	% Of total
A. Buying cost		
Rent	1	2.52
Loading and unloading	6.5	16.41
Transportation	11	27.77
Cost of bags	2.3	5.80
Marketing tolls	4	10.10
Personal expenses	1	2.52
Sub-total	**25.8**	**65.15**
B. Selling cost		
Electricity	1.2	3.03
Loading and unloading	5	12.62
Market tolls	4.6	11.61
Personal expenses	1	2.52
Others	2	5.05
Sub-total	**13.8**	**34.84**
Grand total (A+B)	**39.6**	**100**

Note: a) Average cost = Total cost/Total amount

Percentage of total cost = One item/Total cost*100

Personal expenses. Bidi, Cigarette, betel leaf, sweet meats, tea etc.

Others: Extra labor cost, weight problems, loss of grain etc.

6.4 Marketing Cost of Millers

At the local market and secondary markets, the millers bought paddy from farmers Farias and Beparis. Following the requisite Aman paddy processing, they sold rice. They used their own mills to process their Aman paddy. They thereafter sold their rice to the Arathdar and merchants in the town of Cumilla.

The millers spent Tk. 112.8 on average each mound. Table 6.3 shows that buying and selling expenses made up, respectively, 17.02 percent and 82.97 percent of the total marketing expense. The cost for processing and grinding the Aman paddy was the highest at 44.32 percent, followed by the Arathdar commission at 13.29 percent. For their sales, they were required to give Arathdar commission at a rate of Tk. 15.00 per mound. They also incurred

additional expenses, such as the cost of bags (1.86%), loading and unloading (3.71%), transportation (10.63%), market tolls (1.95%), telephone charge (0.88%), labor cost (12.41%), electricity (2.21%), permanent labor (3.98%), rent (0.35%), association membership (0.79%), maintenance cost (1.77%), and others (0.88%).

Table 6.3 Marketing cost of millers

Cost items	**Cost (Tk/Mound)**	
	Average cost	% Of total
A. Buying cost		
Cost of bags	2.1	1.86
Loading and unloading	1.9	1.68
Transportation	12	10.63
Market tolls	2.2	1.95
Others	1	0.88
Sub-total	**19.2**	**17.02**
B. Selling cost		
Processing and milling charge	50	44.32
Arathdar commission	15	13.29
Telephone charge	1	0.88
Labor cost	14	12.41
Electricity	2.5	2.21
Permanent labor	4.5	3.98
Rent	0.4	0.35
Loading and unloading	2.3	2.03
Subscription for association	0.9	0.79
Maintenance cost	2	1.77
Other costs	1	0.88
Sub-total	**93.6**	**82.97**
Grand total (A+B)	**112.8**	**100**

Note: a) Average cost = Total cost/Total amount

Percentage of total cost= One item/Total cost*100

Personal expenses. Bidi, Cigarette, betel leaf, sweet meats, tea etc.

Others: loss of grain, weight, problem extra labor cost, charity etc

6.5 Marketing Cost of Arathdar-Cum-wholesalers

Rice was bought by the Arathdar from the millers and then sold to other wholesalers and other Arathdar. The Arathdar purchased and sold rice in various locations throughout Bangladesh. The overall cost of marketing Arathdar was Tk. 26.30 per mound, as shown in Table 6.4. Transport expenses accounted for the greatest marketing expense (28.51%), followed by labor costs (11.78%) and Loading & Unloading (17.1%). Even though they bought Aman rice from the neighborhood millers in the Cumilla district of Upazilas, transportation was expensive. They utilized a rickshaw, truck, and van.

According to the volume of demand from other Arathdar-cum wholesalers, they purchased rice. They distributed their rice throughout many districts. Transaction volume fluctuated occasionally.

Table 6.4 Marketing cost of Arathdar-cum-wholesalers

Cost items	**Cost (Tk/Mound)**	
	Average cost	% Of total
A. Buying cost		
Marketing tolls	1.1	4.18
Sweeper	1.7	6.46
Weighting charge	2	7.60
Cost of bags	0.5	1.90
Transportation	7.5	28.51
Loading and unloading	2.2	8.36
Sub-total	**15**	**57.03**
B. Selling cost		
Loading and unloading	2.3	8.74
Rent	1.9	7.22
Electric charge	0.9	3.42
Labour charge (permanent)	3.1	11.78
Telephone charge	2.1	7.98
Others	1	3.80
Sub-total	**11.3**	**42.96**
Grand total (A+B)	**26.3**	**100**

Note: a) Average cost = Total cost/Total amount

Percentage of total cost= One item/Total cost*100

Personal expenses. Bidi, Cigarette, betel leaf, sweet meats, tea etc.

Others: Charity, weight problems, extra labor cost, loss of grain etc.

6.6 Marketing Cost of Retailers

Typically, retailers buy rice from millers and sell it to customers. Only two stores out of thirty bought Aman paddy from the farmers. The overall marketing expense incurred by merchants was Tk. 10.55, as shown in Table 6.5. They spent the most on Transportation (36.01%), rent (26.54), and electricity (18.48%) costs.

Table 6.5 Marketing cost of retailers

Cost items	**Cost (Tk/Mound)**	
	Average cost	% Of total
A. Buying cost Transportation	3.8	36.01
Sub-total	**3.8**	**36.01**
B. Selling cost Rent Electricity Loading and unloading Others	 2.8 1.95 1.1 0.9	 26.54 18.48 10.42 8.53
Sub-total	**6.75**	**63.99**
Grand total (A+B)	**10.55**	**100**

Note: a) Average cost = Total cost/Total amount

Percentage of total cost= One item/Total cost*100

Others: Charity, weight problems, extra labor cost, loss of grain etc.

6.7 Marketing Margin of the Intermediaries

The difference between a commodity's buy price and sale price is the marketing margin for that stage of the product flow. The difference between what customers pay and what the producer receives is what characterize as the marketing margin.

The purchase price of Aman paddy was subtracted from the sale price to calculate the marketing margin for each intermediary, and the marketing cost per quintal was subtracted from the marketing margin to calculate the net margin. Table 6.6 shows that the expected

marketing margins for Faria, Bepari, the miller, Arathdar, and the retailer per mound were 45, 60, 120, 50, and 70 TK, respectively. Miller had the greatest margin, followed by Arathdar, Bepari, and retailer. By creating form utility and time utility, the miller was able to increase the value of their goods and increase their marketing margin. They purchased Aman paddy, processed it, and stored it during the harvest. Later, they marketed it for the highest price.

The same Table shows that the anticipated marketing expenses for Faria, Bepari, the miller, the arathdar, and the retailer per mound were 32.95, 39.6, 112.80, 26.3, and 10.55, TK respectively. Miller had the largest marketing expenses, followed by Bepari, Faria, and Arathdar. The store in the research area, however, had the lowest marketing expense at Tk. 10.55 per mound.

Table 6.6 Marketing margin of different intermediaries
(Tk per mound)

No	Intermediaries	Purchase price	Sale price	Marketing margin	Total marketing cost	Profit or net margin
		A	B	C = B-A	D	E = C-D
1	Faria	1025	1070	45	32.95	12.05
2	Bepari	1070	1130	60	39.6	20.4
3	Miller	1130	1250	120	112.8	7.2
4	Arathdar	1250	1300	50	26.3	23.7
5	Retailer	1300	1370	70	10.55	59.45

The estimated net margins or profits for Faria, Bepari, the miller, Arathdar, and the retailer per mound were 12.05, 20.4, 7.2, 23.7, and 19.45 taka, respectively. The retailer received the greatest net margin per mound, at Tk. 59.45.

Figure 4 displays the marketing margin, total marketing expense, and net margin.

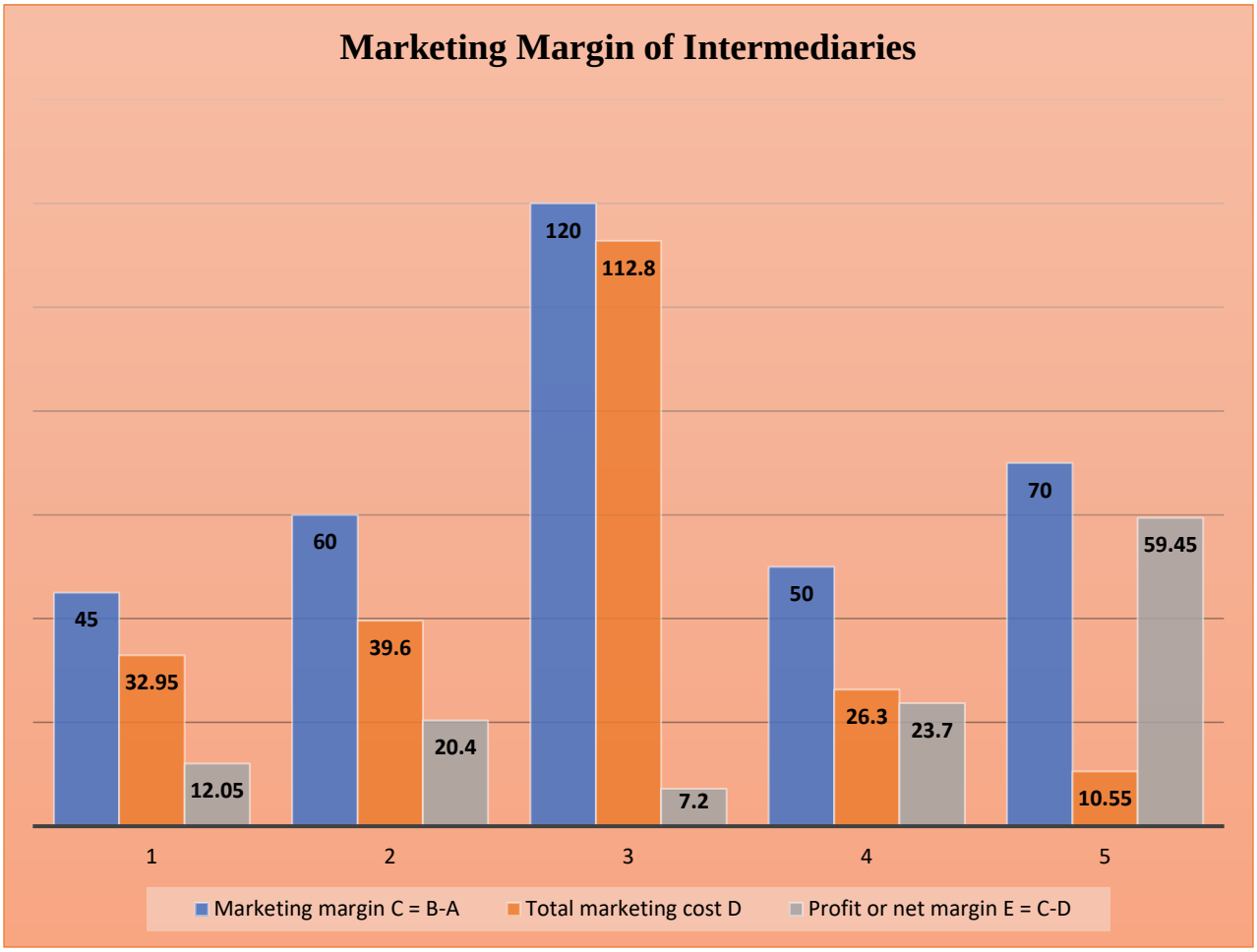

Fig. 6.1: Marketing Margin of Intermediaries

CHAPTER VII

EFFICACY OF AMAN PADDY MARKETING SYSTEM

7.1 Introduction

The definition of marketing efficacy is a challenging task. For other people, it has a distinct meaning. Marketing professionals and economists see the concept of marketing efficiency from several angles. The optimization of the input-output ratio is how Kohls defined marketing efficiency. The numerous resources of land, labor, capital, and management that are used to carry out the various marketing services are the inputs of marketing. The pleasures gained from using those products and services are referred to as the outcome of marketing.

The transfer of goods from producers to consumers at the lowest cost possible while still delivering the service that consumers want and can afford is referred to as market efficiency. It is possible to assess a market's effectiveness (one method) by comparing the price and quality of the services offered through the existing channels. The going rate of interest should be reflected in the current price along with a profit margin that is just large enough to cover investment costs. In respect to price and customer demand, service quality shouldn't be either too high or too low. Examining the structure, conduct, and performance of marketing enterprises allows one to assess factors that affect efficiency (Abbott and Makeham, 1981).

In the current study, six performance indicators were used to gauge the effectiveness of various marketing channels. The producer's share of consumers' prices, relative marketing expenses, level of middlemen's margin, price deviation—the difference between the maximum and minimum prices of Aman paddy in a month—and price variability—were the six performance measures of efficiency. In the study locations, which were previously indicated, various marketing channels for Aman paddy/rice were in use. However, not all channels were equally significant in the studied locations. The following channels were more important channels based on the priority given by the respondents during their marketing of Aman paddy in the study areas:

I. Farmer → Faria → Paddy Arathdar → Miller → Arathdar-cum-wholesaler → Wholesaler → Retailer

II. Farmer → Bepari → Miller → Arathdar-cum-wholesaler → Wholesaler → Retailer

III. Farmer → Paddy Arathdar → Miller → Arathdar-cum-wholesaler → Wholesaler → Retailer

IV. Farmer → Miller → Arathdar-cum-wholesaler → Retailer

7.2 Channel Wise Marketing Margin

High marketing margins are frequently seen as "Prima facie" proof of blatant marketing inefficiency, and middlemen are frequently held responsible for these high margins due to their inefficiency or overabundance (Matin, 2004). Because great customer service is rarely connected with high marketing margins in less developed economies, high marketing margins have historically been interpreted as a sign of ineffective marketing.

In other words, these countries' marketing systems have a lot of room for development (Rashid and Chaudury, 1973). Therefore, the size and make-up of the marketing margin can be utilized as an effective indicator of efficiency. Table 7.1 displays the marketing expense, margin, and net margins for various channels. Channel IV had the largest net margin, while channel I had the lowest. Due to Channel IV's involvement of a greater number of intermediaries than other channels, the biggest marketing margin was apparent. Although Aman paddy Arathdar were present in channels I and III and were added because of their presence as just one additional channel member, the researcher regarded them as a medium of exchange for Aman paddy from farmers and/or Farias to millers rather than a channel member because of their extremely low marketing costs and returns. As a result, Channel IV involved a lot of intermediates.

Table7.1 shows how the producer's part of the price varies by channel.

Channels				
Particulars	I	II	III	IV
Producers Average price (A)	700	720	750	770
Price of rice	1250	1270	1300	1330
Price of bran	550	560	550	570
Price of broken rice	500	520	510	520
Price of husk	110	130	100	120
Weighted average price of rice, bran, broken rice and husk (B)	970.5	980.75	990.5	995.6
% Of producer's share (A/B) *100	72.12	73.41	75.71	77.34
Rank (I)	4	3	2	1

Note: The average recovery ratio for head rice, bran, broken rice, and husk were 50%, 15%, 20%, and 6% respectively goes to wastage during processing.

$$\text{Producers' Share} = \frac{\text{Producers' average price}}{\text{Weighted average price of rice bran, husk \& broken rice.}}$$

Source: Field survey, 2022

Table 7.2 shows marketing expenses and middlemen's profit for various Aman marketing channels.

	Channels			
Particulars	I	II	III	IV
A. Transportation	6.7	7.1	4.9	4.2
B. Loading and unloading	4.5	4.8	3.5	3.1
C. Market tools	1.1	1.4	1.2	1.4
D. Cost of bags	2	2.25	2.3	1.7
E. Weighting charge	2.75	3.5	2.4	2.1
F. Labor cost	3.2	3.4	2.8	1.9
G. Personal expenses	0.9	1.2	0.9	2.1
H. Others	1.9	2.1	1.5	1.4
Total marketing cost	23.05	25.75	19.5	17.9
Rank (I_2)	3	4	2	1
Margin to middlemen	180	192	165	100
Rank (I_3)	3	4	2	1
Net Margin	156.95	166.25	145.5	82.1

Source: Field survey, 2022

7.3 Channel Wise Producer's Share, Marketing Cost, Margin and Profit

The producer's share, marketing margin, cost, and profit for Aman paddy in various marketing channels are shown in Tables 7.1 and 7.2. Channel IV had the largest producer net share, followed by Channels II and I and Channel III had the lowest; similarly, Channel II had the highest marketing cost and margin, followed by Channels I and III and Channel IV had the lowest. It was suggested that the producers would have benefited most if they had been able to sell their goods through millers, wholesalers, or retailers like Arathdar.

7.4 Deviation between Maximum and Minimum Price

Table 7.3 shows the pricing deviations for various channels for each month. Price deviation is the difference between a month's highest and lowest prices. The difference between the highest and lowest prices for each month was computed, and after adding all the differences for all the months, the average deviation was determined. The Table shows that channel I and channel III both had the lowest pricing deviations. Channel IV had the biggest price variance.

Table 7.3: Deviation between the Highest and Lowest Price in Each Channel

Deviation in Different Channels						
Months	**Max**	**Min**	I	II	III	IV
September	930	900	25	30	28	30
October	960	940	15	18	20	20
November	1030	980	30	30	50	38
December	1040	995	45	30	28	40
January	1060	1010	32	50	30	32
Σd			147	158	156	160
N			5	5	5	5
$d = \frac{\Sigma d}{N}$			29.40	31.60	31.20	32.00
Rank (I4)			1	3	2	4

Note: N =Total number of month (5 months),

d = Deviation bet^{n} the maximum and minimum price in each month in the respective channel

Source: Field survey, 2022

7.5 Seasonal Price Variability

The seasonal price changes of Aman paddy in various channels are shown in Tables 7.4 and 7.5 for the peak season and Table 7.6 for the lean seasons, respectively. The seasonal price fluctuation of Aman paddy in various channels showed that during peak season, channel I had the highest price variation and channel IV had the lowest price variation (Table 7.3) for both types of paddies. It suggested that because this route had the least amount of price volatility, growers would gain more if they sold their paddy through millers rather than wholesalers or retailers like Arathdar. Channel IV's producer price was less impacted by seasonality than the prices of other channels. However, during the lean season, channel IV had the biggest price volatility while channel I had the lowest (Table 7.4)

Table 7.4 Seasonal price variations for peak season by channel

Peak Season for	Months		Channels I	II	III	IV
Aman	September	Wt (Pt - P)^2	789.76	677.88	436.63	297.29
	October		323.40	318.68	252.37	195.32
	November		212.56	89.97	107.82	25.77
	$\sum$Wt (Pt - P)^2		1325.72	1086.53	796.82	518.38
Total number of months (N)			3	3	3	3
$\partial = \sqrt{\frac{\Sigma Wt(Pt-P)^2}{N}}$			21.02	19.03	16.29	13.14
Rank (I5)			4	3	2	1

Source: Field survey, 2022

Table 7.5: Seasonal pricing variations for the lean season by channel

Lean Season for	Months		Channels I	II	III	IV
Aman	December	Wt (Pt - P)^2	892.12	980.21	987.92	1123.92
	January		1097.23	1139.80	1391.22	1532.47
$\sum$Wt (Pt - P)^2			1989.35	2120.01	2379.14	2656.39
Total number of months(N)			2	2	2	2
$\partial = \sqrt{\frac{\Sigma Wt(Pt-P)^2}{N}}$			31.53	32.55	34.49	36.44
Rank (I6)			1	2	3	4

Source: Field survey, 2022

7.6 Channel Efficiency Measures

Using the composite index formula, the effectiveness of various marketing channels was determined as the foundation for the ranks of all six performance indicators, and the computed ranks are shown in Table 7.6. According to the Table, channel IV has the highest marketing effectiveness, followed by channel I and channel III (both channels achieve the same composite index number).

Table 7.6 Measures of channel efficiency

Performance indicator	**Channels**			
	I	**II**	**III**	**IV**
Producer's share (I1)	3	2	4	1
Marketing costs (I2)	3	4	2	1
Margin to middlemen (I3)	3	4	2	1
Price deviation (I4)	1	3	2	4
Peak period seasonal price variability (I5)	4	3	2	1
Lean period seasonal price variability (I6)	1	2	3	4
Composite index ∑(Ri/Ni)	2.5	3	2.5	2
Final ranking	2	3	2	1

Note: *Ri* = Total value of the ranks of performance, *N* = Total number of performance indicator

CHAPTER VIII

CONSTRAINTS TO PRODUCTION AND MARKETING OF AMAN PADDY

8.1 Introduction

The agriculture production and marketing system in Bangladesh is not without issues. At various stages of the marketing process, from production to sales, growers are dealing with a variety of issues. The issues listed below are specific to the study area of the researcher, but it was anticipated that because Aman rice is a uniform commodity, issues faced by farmers and middlemen in the rice selling chain would be similar across the nation. The examination of production and marketing restrictions in this section was justified by the idea that the difficulties faced by farmers and middlemen may decide how effective marketing is, with the more difficulties present, the less effective marketing is. In the previous section, channel-by-channel efficiency, or which channel is more efficient than others, was examined. However, by learning about the problems, one can theoretically infer the market's efficiency, so the researcher tried to analyze the nature of the issues with the rice marketing system in the following section.

8.2 Producer's Constraints

When asked what kinds of issues they are having, the producers in the study areas responded that they have a variety of issues. Table 8.1 provides an overview of these issues along with a brief discussion of the main issues.

Shortage of land: The main issue for the producers was a lack of land. Approximately 59% of farmers responded to the issue. This circumstance forces the farmers to grow rice on rented or leased land, which immediately affects the amount of Aman rice produced.

Diseases and pests: About 30% of farmers also report having a problem with pests and diseases. The following illnesses and pests were found to affect rice: wave worm, shoot fly, and rice blast.

Shortage of seed supply and adequate storage facilities: Another issue, according to 23.6 percent of farmers, was this one. Additionally, it was found that 65.8 percent of farmers lacked modern post-harvest management tools such storage and storage facilities. Farmers sold their paddy as soon as it was harvested since there were no adequate storage facilities. The farmers typically used a portion of their residence to store the paddy and other items like cement-filled containers, gunny bags, etc. However, the techniques used for storing were crude and illogical. Because of the wetness and bug infestation caused by this, the quality of the paddy was reduced, resulting in a lower price when it was time to sell.

Malpractice in selling method (Scaling or Weighing): About 31% of the respondents complained about different frauds, including underquoting prices and scale, or weighing products.

Lack of market: About 29% of respondents also state that there are issues with the market because of the low production price and the upkeep of standards and grades. For instance, when grains are husked, they are split into small pieces (farmers typically utilized traditional threshing, which involves thrashing the grain with a stick and an ox), and this shattered grain lowers market demand.

Lack of information exchange: One issue that farmers faced was a lack of interaction or communication. Sample families also cite a lack of accurate or trustworthy market price, demand, and supply information as an issue.

Transportation problem: About 70 percent of the farmers in the study were reacting favorably regarding the transportation issue. The communities were not well connected to the neighborhood markets. Farmers were able to move their produce to markets that were farther away and had higher pricing because of the inadequate communication system.

Lack of capital and credit availability: About 48.2% of the sample producers have responded to the capital shortage problem, while 44% have addressed the credit availability issue. After harvest, farmers have an acute need for cash. Farmers urgently required cash during this time

even though the price of paddy was always lowest since they had to pay their bills and rent as well as purchase some essentials. Lack of post-harvest credit frequently forces farmers to sell their produce as soon as possible after harvest, when prices are low.

Table 8.1 Sample farmers' production, marketing, and institutional issues

Types of problems	**% Of responses**
A. Production aspect	
1. Problems of availability of improved rice variety	27
2. Problems of fertilizer supply for rice production	21.3
3. Chemical supply problem	15.5
4. Seed supply problem	21.2
5. Shortage of land	65
6. Disease problem	28
7. Problems of farm implement	17.7
8. Problems of post-harvest technology /storage loss	64
B. Marketing aspect	
1. Lack of market	23
2. Problem of price setting	41
3. Malpractice in selling method (scaling or weighing)	22
4. Information exchange problem	63.2
5. Problem of storage facilities	26.3
6. Problems of threshing machine or miller/quality	32.3
C. Financial and institutional aspect	
1. Loan repayment problem	46.9
2. Lack of capital availability	42.5
3. Problems of credit facility	68.1
4. Transport problems	34.6
5. Lack of institutional support	13.7
6. Problem of theft	9
7. Problems of excess water (flooding)	28

8.3 Constraints to Aman Rice Value Chain

No player in the study areas made the best advantage of the Aman rice value chain due to ignorance and a lack of new technologies. According to the study, the following restrictions exist:

Farmer’s constraints

There were two key obstacles for farmers. The first one dealt with the creation of Aman paddy, and the second one dealt with value addition.

8.3.1 Production related constraints

Expensive labor, irrigation, and other inputs used in the cultivation of rice. As a result, farmers did not make the profit they anticipated to pay their production costs. Nearly 90% of the farmers who responded said their main issues were the high cost of input materials, notably the high cost of irrigation and fertilizer.

A very low yield was the outcome because modern technologies like the power tiller, disc harrow, deep tube-well, etc. were unavailable and inaccessible. Additionally, 90% of the farmers in the study areas used small, fragmented plots of land for the cultivation of paddy. They were unable to deploy contemporary technologies on their land as a result.

Although most of this study's data came from the previous paddy season, when irrigation was largely unnecessary barring a few unusual circumstances, however, 70% of farmers noted the issue of intermittent electricity during the irrigation season. Additionally, the cost of diesel was exorbitant, making it impossible to obtain timely and adequate irrigation.

Most of the paddy produced by small farmers had to be sold for quick cash. They were unable to hold out for a lower price in the future.

The development of the roads and highways was lacking, as were the quality of the transportation amenities. Due to these factors, marketing expenses were considerable. Farmers were required to sell their goods locally to the Farias and Beparies at a significantly reduced price at the farm gate.

Lack of agricultural loan support and subsidies. There were no financial institutions to support credit, and local moneylenders had hefty interest rates. Due to the lengthy credit application process, marginal farmers were unable to get financial assistance from banks and other NGO's. Approximately 24% of major farmers have access to bank loans. In the study areas, Krishi

Bank was the only institution offering agricultural financing.

Farmers alleged they were excluded from government procurement programs. Because of this, they were unable to manage a decent price at the time of harvest.

Most farmers lacked literacy and were ignorant of the pest and disease attacks on their paddy. They lacked adequate training. More than 78% of farmers said that insect and disease attacks had a negative impact on their ability to produce paddy.

8.3.1.2 Value Adding Constraints

- Most farmers were unaware of the value chain's functions and benefits. Furthermore, the farmers were unable to benefit from value addition because of urgent monetary needs. The study discovered the following issues with adding value to paddy fields.
- Price fluctuations made adding value by holding paddy risky. Due to the paddy market's extreme volatility, there was no assurance of receiving a better price when storing.
- A distressed sale must be made by farmers. During the harvest season, a significant amount of paddy was sold to cover family needs and debt payments.
- The high cost of transportation contributed to the high marketing costs.
- A lack of market data, including prices at nearby and other markets.

CHAPTER IX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Reviewing the accomplishments of the earlier chapters serves as the introduction to this section. Broad prospects, a summary, a conclusion, and recommendations were offered based on these findings.

9.1 Summary of the Findings

The study identifies the most effective marketing channels for promoting and distributing Aman rice, as well as the potential for expanding market reach and increasing sales through innovative marketing strategies.

The study's findings are expected to contribute to the existing literature on marketing channel efficacy in the rice sector, particularly in the context of Aman rice production and marketing in Bangladesh.

Using the composite index formula, the effectiveness of various marketing channels was determined as the foundation for the ranks of all six performance indicators, and the channel IV has the highest marketing effectiveness, followed by channel I, channel II and channel III.

The findings of this study contribute to the development of a more efficient and effective marketing channel system for Aman rice in Cumilla districts, benefiting farmers, traders, and consumers.

9.2 Conclusions and Recommendations

Bangladesh is an agro-based nation, and of its 8.5 crore total work force, around 51 percent is directly employed in the agriculture industry. When all the members' interests are satisfied effectively, a market is efficient. When the issues relating to each channel, including the growers, are effectively resolved, the rice market will become more productive. To protect the interests of producers on the one hand and of consumers on the other, improvements are required in several areas, including government pricing and marketing regulations. Understanding pricing spreads can help one understand how growers, middlemen, and consumers all earn their living. However, the report offers the following suggestions for enhancing the current rice marketing system:

The government should increase direct purchases from farmers at the time of harvest when the price of the paddy is at its lowest to pique their interest in selling to the government depot. Prices should be provided in cash rather than credit and instantly, and a temporary procurement center should be opened in the rural areas rather than the upazila market to reduce transportation costs.

The number of public storage facilities in the region where rice is grown should be increased so that farmers can store their produce during the harvest season rather than selling it right away. By keeping storage costs lower than those of private storage facilities, seasonal fluctuations in rice prices can be reduced. Farmers should be able to easily obtain loans from the government's credit institution with simple terms and conditions (lower interest rate), and if possible, they should not be required to sell their paddy at lower prices to repay loans obtained from regional borrower or private banks.

It would be simple for the government to adopt a centralized effective intervention to achieve food sufficiency, reduce nutritional deficit, and execute efficient market policy because most of the rice markets in Bangladesh are effectively integrated.

There are a lot of middlemen in the rice marketing system, which drives up marketing costs and margins and lowers grower margins. Therefore, the appropriate actions should be done so that farmers can sell their produce through the effective channel that was mentioned previously. This means that not only can small farmers sell directly to millers, but also large and medium farmers.

Appointing an efficient and effective monitoring committee that will keep an eye on the markets, pricing strategies in each market, millers' storage conditions, and any other inconsistencies in rice marketing channels.

The government should make sure that inputs are delivered smoothly, particularly quality seeds, and should keep input price fluctuations to a minimum.

More duties for providing producers with market and price information may be placed with DAM, MoFDM, MoA, and other related government organizations. Since most farmers are still unaware of current information technology, the material should not be kept just on their websites but instead distributed in a proper manner.

Transportation and communication systems should be developed, and any illegal activities like the collection of subscription fees by the road and transportation authority itself and/or others (local gang), the hijacking/robbery of trucks carrying rice, and so forth, should be effectively controlled by the government. This is because efficient transportation systems tend to improve marketing efficiency.

Frequent increases in fuel and electricity costs will raise marketing and transportation expenses, which customers will pay for through a higher price for rice. Therefore, cutting government subsidies to the energy industry would not be a wise move. Instead, government subsidies may be cut to other sectors or sub-sectors that are comparatively less vital to society than the energy sector.

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APPENDIX

Table 1: Total Rice (Aus, Aman and Boro) Area (000'ha), Production (000'ton) and Yield (ton/ha) of Bangladesh

Year	Area (000'ha)			Production (000'ton)			Yield (ton/ha)		
	Aus	Aman	Boro	Aus	Aman	Boro	Aus	Aman	Boro
1971-72	3001.60	5410.70	866.40	2341.00	5695.00	1738.00	0.78	1.05	2.01
1972-73	2930.00	5713.80	1002.60	2243.00	5587.00	2071.00	0.77	0.98	2.07
1973-74	3107.90	5718.70	1222.70	2801.00	6699.00	2220.00	0.90	1.17	1.82
1974-75	3179.10	5449.90	1161.20	2859.00	6000.00	2250.00	0.90	1.10	1.94
1975-76	3419.90	5759.90	1147.90	3229.00	7045.00	2286.00	0.94	1.22	1.99
1976-77	3217.10	5806.40	854.20	3014.00	6905.00	1650.00	0.94	1.19	1.93
1977-78	3161.70	5771.20	1093.70	3103.00	7422.00	2239.00	0.98	1.29	2.05
1978-79	3234.60	5805.10	1071.80	3287.00	7429.00	1929.00	1.02	1.28	1.80
1979-80	3036.30	5972.70	1148.40	2809.00	7303.00	2427.00	0.93	1.22	2.11
1980-81	3111.20	6035.80	1160.00	3289.00	7964.00	2630.00	1.06	1.32	2.27
1981-82	3145.60	6010.30	1301.70	3270.00	7209.00	3152.00	1.04	1.20	2.42
1982-83	3158.10	5993.00	1432.80	3065.00	7516.00	3548.00	0.97	1.25	2.48
1983-84	3138.70	6006.70	1401.20	3222.00	7843.00	3350.00	1.03	1.31	2.39
1984-85	2937.60	5710.20	1574.40	2783.00	7930.00	3909.00	0.95	1.39	2.48
1985-86	2844.90	6018.90	1533.20	2828.00	8542.00	3671.00	0.99	1.42	2.39
1986-87	2903.60	6052.40	1651.70	3130.00	8267.00	4010.00	1.08	1.37	2.43
1987-88	2788.30	5590.40	1942.60	2993.00	7690.00	4731.00	1.07	1.38	2.44
1988-89	2683.46	5100.80	2438.30	2856.00	6857.00	5831.00	1.06	1.34	2.39
1989-90	2255.00	5702.50	2453.60	2475.00	9202.00	6033.00	1.10	1.61	2.46
1990-91	2107.30	5775.30	2547.90	2261.00	9167.00	6357.00	1.07	1.59	2.49
1991-92	1915.90	5692.30	2634.90	2179.00	9269.00	6807.00	1.14	1.63	2.58
1992-93	1735.10	5843.70	2598.90	2075.00	9680.00	6586.00	1.20	1.66	2.53
1993-94	1649.40	5843.30	2580.80	1850.20	9419.20	6772.20	1.12	1.61	2.62
1994-95	1663.75	5594.17	2663.54	1790.70	8504.00	6538.70	1.08	1.52	2.45
1995-96	1541.85	5646.40	2753.57	1676.00	8790.00	7220.60	1.09	1.56	2.62
1996-97	1592.29	5802.49	2782.59	1870.00	9551.00	7460.00	1.17	1.65	2.68
1997-98	1565.88	5808.45	2888.56	1874.60	8849.80	8137.30	1.20	1.52	2.82
1998-99	1424.26	5165.50	3526.67	1616.90	7735.80	10551.90	1.14	1.50	2.99
1999-00	1351.32	5704.87	3651.89	1734.00	10306.00	11027.00	1.28	1.81	3.02
2000-01	1325.23	5709.96	3761.84	1916.00	11249.00	11920.50	1.45	1.97	3.17
2001-02	1242.18	5647.22	3771.34	1808.00	10726.00	11766.00	1.46	1.90	3.12
2002-03	1243.72	5682.11	3844.84	1850.70	11118.40	12222.20	1.49	1.96	3.18

2003-04	1202.58	5677.61	3943.50	1831.80	11520.50	12837.10	1.52	2.03	3.26
2004-05	1024.68	5279.92	4063.79	1500.00	9819.00	13837.10	1.46	1.86	3.40
2005-06	1034.27	5429.01	4065.81	1745.00	10810.00	13975.30	1.69	1.99	3.44
2006-07	905.71	5415.62	4250.10	1512.00	10841.00	14965.00	1.67	3.13	3.52
2007-08	918.66	3651.89	4607.85	1507.00	11427.0	17762.00	1.64	3.16	3.85
2008-09	1065.56	3676.84	4716.31	1895.00	11620.5	17809.00	1.78	3.25	3.78
2009-10	984.22	3771.34	4706.60	1709.00	12266.0	18059.00	1.74	3.27	3.84
2010-11	1112.87	3799.84	4770.00	2132.82	12422.2	18616.00	1.92	3.28	3.90
2011-12	1200.00	3823.5	4780.00	2333.00	12537.1	18759.00	1.94	3.3	3.92
2012-13	1053.00	3923.79	4760.00	2370.00	12937.1	18760.00	2.25	3.32	3.94
2013-14	1122.22	3936.81	4676.00	2130.44	13075.3	18776.88	2.28	3.33	3.98
2014-15	980.45	3950.1	4553.23	2343.12	13165.0	19876.77	3.01	3.4	3.70
2015-16	1011	3957.85	4897.32	2098.44	13462.0	17865.00	1.98	3.4	3.87
2016-17	1098.33	4006.31	4760.32	1908.76	13609.0	18963.98	1.95	3.42	3.65
2017-18	1121.43	4116.6	4567.92	2098.65	14059.0	17655.35	2.21	3.43	3.50
2018-19	998.87	4270	4897.22	2198.09	14654.0	18545.56	2.00	3.48	3.94
2019-20	1021.75	4310	4765.98	2299.08	15003.0	19876.45	2.98	3.53	3.89
2020-21	1269.55	4460	4768.32	2197.65	15737.0	19558.97	2.87	3.13	3.92