Paper ID: URP 0135

Analysis of market margin on rural agricultural products

M. S. Reza[1], Y. Ahmead[2], I. Khan[3], A. Ahmed[4], M. A. Wakil[5], D. Sarker[6]

[1]Department of Urban & Regional Planning, RUET, Bangladesh (sifatreza303@gmail.com)
[2]Department of Urban & Regional Planning, RUET, Bangladesh (yeasinahmead1807008@gmail.com)
[3]Department of Urban & Regional Planning, RUET, Bangladesh (ikhanmusa@gmail.com)
[4]Department of Urban & Regional Planning, RUET, Bangladesh (abraulahmed1807016@gmail.com)
[5]Department of Urban & Regional Planning, RUET, Bangladesh (mawakil@urp.ruet.ac.bd)
[6]Department of Urban & Regional Planning, RUET, Bangladesh (dulalsarker@urp.ruet.ac.bd)

Abstract

The market margin, which is defined as a function of the price differential between the farm and retail prices of a specific agricultural product, is used to calculate the expense of providing marketing services. This article aims to explain the market margins in the rural agricultural products market in Pabna, Bangladesh. To know about the existing condition, data are collected from primary sources by doing a physical survey, questionary survey, and secondary sources such as BBS (Bangladesh Bureau of Statistics), and LGED (Local Government and Engineering Department). By descriptive statistical analysis of those data, we have found that the middlemen in Pabna have greater information than the farmers themselves, they frequently employ their services to transact on behalf of farmers in the agricultural sector, which has an impact on the marketing margin. Recurrent increases in marketing margin due to logistical expenses result in high farm-to-retail pricing for agricultural products. The issue may be mitigated by reorganizing the Market Management System, updating institutional and regulatory policies, and enhancing market infrastructure.

Keywords: Market Margin, Agriculture, Pabna, BBS, LGED.

1 Introduction

The agricultural sector plays an important role in the overall economic performance of Bangladesh in terms of contribution to GDP, job creation, and food security(Akhtarul, 2011). The livelihood of the majority of Bangladesh's population depends on agriculture. The country's economic development plans are therefore determined by the productivity, growth, and efficiency of the agricultural sector. Damage in this area greatly affects the well-being of most people in this country(Rahman & Neena, 2019). Rice production in the form of acres and shares constitutes the majority of Bangladesh's agricultural production. About 74.4% of the total cultivated area is used for rice cultivation and about 3% for wheat. In contrast, the cultivation of horticultural products accounts for only about 7.3% of this total cultivated land but produces more than 18% of agricultural GDP(BBS, 2007). Food demand in Bangladesh is changing rapidly. Economic growth and urbanization are shifting food demand from traditional staples to high-value foods (Begum & D'Haese, 1970). Pabna district plays a significant role in the national agricultural sector. It is known for its substantial contributions to rice and onion cultivation, with its fertile lands producing a substantial portion of the nation's rice supply. This district's efforts in crop diversification and agro-processing have added value to the agricultural sector, supporting the economy and food security at the national level.

The quality of agricultural products, especially vegetables and fruits, sold in Bangladesh is not very satisfactory. This is the result of unscientific post-harvest treatments such as sorting, washing, trimming, refrigeration, packaging, and transportation. Post-harvest loss is also very high because of the high price of cultivation and the market system(MANNAN, 2020). Farmers are involved in the production and primary processing in this market system, and intermediaries are involved in Aggregation, Processing, Distribution, and Marketing. The intermediaries of marketing operation are 'Farias' or collectors, 'Beparis' or assemblers,' avatars or wholesalers and retailers(Rahman & Neena, 2019). Because of all these, the agricultural product's price varies, discouraging the rural people from cultivating. The specific objectives of the study were to examine the existing marketing situation of rural agricultural products, to evaluate the market margin of agricultural products among the farmers, middlemen and retailers, to examine cost and margins at different stages of marketing channels, to examine the price behavior in terms of seasonal price variation and suggest some remedial measures. Thus, the study was

conducted for understanding the present situation of the marketing system of rural agricultural products of Pabna, Bangladesh.

2 Literature Review

The National Agriculture Commission defines agricultural marketing as "the process that begins with the decision to produce salable produce". This also includes pre- and post-harvest operations, assembly, sorting, storage, transport and distribution." These are the main features of agricultural marketing. Many theoretical and empirical studies show that agricultural products move from the hands of farmers to the hands of consumers through a series of intermediaries or agents. Based on this, the market is divided into primary market, secondary market, final market or export market. These markets operate through various channels, including government channels, cooperative channels, and private channels(Murphy-dunning, 2004).'Rural-Urban Agriculture Market System: Challenges and Opportunities mentioned limitations to improve marketing performance, such as the dominance of different marketing instruments, and inadequate infrastructure. The author said that farmers alone cannot be efficient and also need government support and investment from private companies. He said that Bangladesh has several agricultural markets where agricultural products are traded, such as rural wholesale markets, urban wholesale markets, urban wholesale and retail markets, and urban retail markets. said it had little to do with it. Finally, the author recommended that Bangladesh's marketing system for agricultural products should be based on modern and scientific principles. must be introduced(Rahman & Neena, 2019).

The study 'Some Observations over Supply Chain: With Reference to Vegetables Market of Bangladesh' examines that the current Market Information System in Bangladesh is not yet well organized. No communication system has been developed to link wholesale and retail markets in different regions. Shipping is still bad. Research shows that of the USDA's 64 field offices, 4,444 marketing have only 24 phone lines and marketing information is primarily sent by email. Producer prices are broadcast on the radio once a week. Farmers can't get good vegetable seeds at the right time and the right price (Hossain & Hossain, 2013).In each market channel, the interests of farmers, consumers and intermediaries are different, so farmers' share of the consumer's rupee is relatively small compared to some intermediaries' shares. It was pointed out that ``the producer's share of the consumer's rupee is higher without a middleman than with a middleman." Marketing efficiency, therefore, lies where there are no middlemen(Das & Ibemcha Chanu, 2014).

Wide studies conducted in different parts of Bangladesh showed that agricultural marketing in rural areas has been suffering from manifold problems and the regulated market is associated with various shortcomings. The regulated markets established under different Market Committees by the Bangladesh Agricultural Marketing Board have been unable to make transactions of notified agricultural commodities satisfactorily. Due to the prevailing traditional marketing system in rural areas, the producers are not getting the actual prices of their agricultural products (Hossain & Hossain, 2013).

3 Methodology

A methodology section explains how the study was carried out, the research methodologies employed, and the rationale behind those methods' selection. The participants and research methodologies—such as surveys, questionnaires, and interviews should be described. cite additional pertinent studies. In this study the methodology is distributed within some headings which are topic selection, site selection and preparing objectives, literature review, primary questionary, data collection and analysis, evaluate findings. The difference in selling prices among the farmer, bepari and the retailer is a very common scenario throughout the country. This situation affects the market. Thinking the situation analyzing market margin on rural agriculture products is selected as the topic of this study. To analyze the market margin two villages named Kajipur and Ariadangi in Pabna district are selected. The village Kajipur is 5-6 kilometers far from Ataikula bazar (an agricultural market) and Ariadangi is 4-5 kilometers far from the bazaar. Most of the portion of those villages is agricultural land. Farmers cultivate different crops like rice, jute, wheat, onion, garlic, dal, etc. and bring them to the Ataikula bazaar to sell.

Data collection for this research is done in mainly two ways. One is the primary data collection method within a questionnaire survey and the second one is secondary data collection from different newspaper and online market prices of the agricultural products.

A questionary is designed to get information from the respondent. In different sampling methods, we choose stratified random sampling. In stratified sampling, respondents are divided into groupings known as strata based on shared traits (e.g., race, gender, educational attainment). Each subgroup is then randomly picked using a different probability sampling technique after being partitioned. Here our target people are only the farmer. We have made our questionary for them. So, as we fixed a target group stratified random sampling is better for it. The number of farmer in those villages are 160. We have taken a confidence level of 90% and the margin of error is 10. So, the sample size is shown as 48.

4 Data Analysis and Result

Unfortunately, about 45% of farmers are illiterate. The good news is that they are now motivated to educate their offspring. About 30% of farmers are literate, meaning they can read and write. 25% of farmers are adequately educated in this field, preventing them from understanding the key information about their local agriculture market.

Farmers generally cultivate their land within two seasons in a year. In season-1 they cultivate rice and jute. There are about 97.50% of farmers cultivate rice and 55% of them cultivate jute and some of them cultivate both crops. In season-2 farmers cultivate wheat, onion, garlic and dal. The percentage of cultivating wheat is 27.50%, onion is 95%, garlic is 55% and dal is 20%.

To analyze the production cost and the profit, firstly we need to find out the total production mean of crops per Bigha in grain. To find out this SPSS software is used. After that selling price mean per grain is found and shown in (table 1). By the multiplication of these two which is the 3rd and 4th column, we can get the total selling price of a product in the 5th column in (table 1). The total production cost is calculated by the summation of different costs like labor cost, irrigation cost, fertilizer cost, government tax etc. The total cost per bigha is shown in the 6th column of the table. By subtracting total sales per bigha and production cost per bigha we get the income of a farmer per bigha in a season which is given in the 7th column. From (table 1) it is seen that in season-1 the profit of jute is high and in season-2 profit of onion is higher than the others.

Table 1: Production Cost and Profit Analysis

Season/ Group	Crops	Production Mean per Bigha (Grains)	Selling Price Mean Per Grain	Sell per Bigha (Tk)	Production Cost per Bigha (Tk)	Income in one season (Tk)
1	Rice	7.64	1076	8220.64	3391	4829
	Jute	6.57	2923	19204.11	9023	10181
2	Wheat	6.77	794	5375.38	2716	2659
	Onion	37.26	1427	53170.02	15319	37851
	Garlic	27	1622	43794	11722	32072
	Dal	6.38	2425	15471.5	4662	10809

The hypothesis to test relationships or differences in prices:
Price Differences by Region: Hypothesis-There are significant price differences for the same agricultural product across different stages of the market.
H_0: There are no significant price differences across different stages of the market for the agricultural product.
H_a: There are significant price differences across different stages of the market for agricultural products.

Table 2: ANOVA Hypothesis testing table

ANOVA

Agricultural product selling price of Farmer per grain to Agricultural product selling price of bepari per grain

	Sum of Squares	df	Mean Square	F	P-value
Between Groups	176036.325	6	29339.387	4.860	.001
Within Groups	193194.444	32	6037.326		
Total	369230.769	38			

the p-value (0.01) in the ANOVA table is less than your chosen significance level (often 0.05), So, we can reject the null hypothesis and conclude that there are significant price differences across different stages of the market.

Rice: Among all intermediaries, retailers make the most profit at Taka 325.64 per grain of rice, followed by bepari at Taka 202.57. Intermediary profit varies due to changes in their costs, purchase price, sales price, and

market condition. The graph shows the rice selling price per grain in three Intermediaries at farmers, bepari and retailers. The rice selling price per grain at farmers is approximately 1076 BDT, at bepari this pricing is around 1280 BDT and for retailers it is about 1605 BDT. So, it can say that the pricing difference from bepari to retailers is higher than the pricing from farmers to bepari. The selling price per Grain variation of rice at bepari to retailers is 62% whereas at farmers to bepari is about 38%.
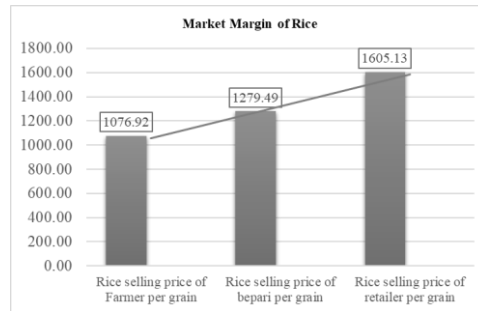
Figure 1: Market margin of rice.

Wheat: Among all intermediaries, retailers make the most profit at Taka 255.55 per grain of wheat, followed by bepari at Taka 244.45. Intermediary profit varies due to changes in their costs, purchase price, sales price, and market condition. The graph shows that the rice selling wheat per grain in three Intermediaries at farmers, bepari and retailers. The wheat selling price per grain at farmers is approximately 795 BDT, at bepari this pricing is around 1039 BDT and for retailers it is about 1295 BDT. So, it can say that the pricing difference from bepari to retailers is higher than the pricing from farmers to bepari. The selling price per Grain variation of wheat at bepari to retailers is 51% whereas at farmers to bepari is about 49%.
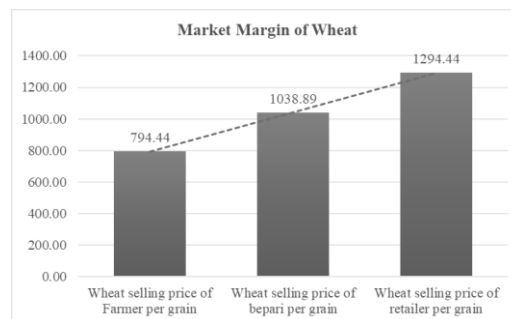

Figure 2: Market margin of wheat.

Onion: Retailers make the most profit at Taka 241.1 per grain of onion, followed by bepari at Taka 217.11. Intermediary profit varies due to changes in their costs, purchase price, sales price, and market condition. The graph shows the onion selling price per grain in three Intermediaries at farmers, bepari and retailers. The onion selling price per grain at farmers is approximately 1427 BDT, at bepari this pricing is around 1645 BDT and for retailers it is about 1887 BDT. So, it can say that the pricing difference between bepari to retailers is higher than the pricing from farmers to bepari. The selling price per Grain variation of onion at bepari to retailers is 53% whereas at farmers to bepari is about 47%.
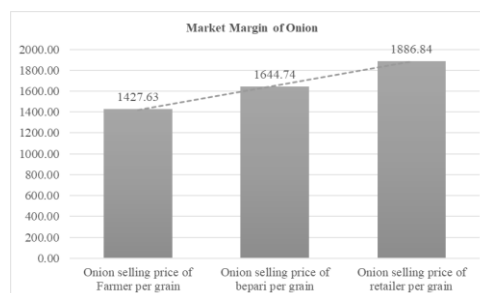

Figure 3: Market margin of onion.

Garlic: Among all intermediaries, retailers make the most profit at Taka 529.55 per grain of garlic, followed by bepari at Taka 186.36. Intermediary profit varies due to changes in their costs, purchase price, sales price, and market condition. The graph shows the garlic selling price per grain in three Intermediaries at farmers, bepari and retailers. The garlic selling price per grain at farmers is approximately 1623 BDT, at bepari this pricing is around 1809 BDT and for retailers it is about 2388 BDT. So, it can say that the pricing difference from bepari to retailers is higher than the pricing from farmers to bepari. The selling price per Grain variation of rice at bepari to retailers is 76% where at farmers to bepari is about 24%.
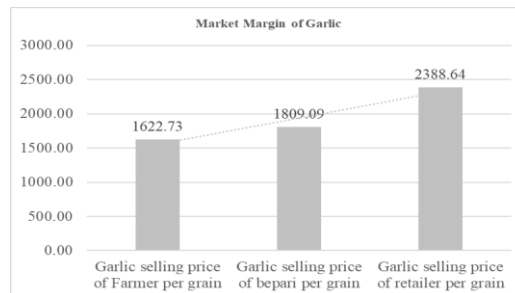

Figure 4: Market margin of garlic.

Jute: Retailers make the most profit at Taka 355.95 per grain of jute, followed by bepari at Taka 245.24. Intermediary profit varies due to changes in their costs, purchase price, sales price, and market condition. The graph shows the jute selling price per grain in three Intermediaries at farmers, bepari and retailers. The jute selling price per grain at farmers is approximately 2324 BDT, at bepari this pricing is around 3169 BDT and for retailers it is about 3525 BDT. So, it can say that the pricing difference from bepari to retailers is higher than the pricing from farmers to bepari. The selling price per Grain variation of jute at bepari to retailers is 59% where at farmers to bepari is about 41%.
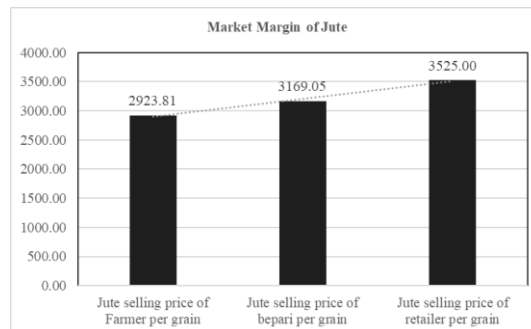

Figure 5: Market margin and selling price variation of jute.

Dal: Among all intermediaries, retailers make the most profit at Taka 631.25 per grain of dal, followed by bepari at Taka 256.25. Intermediary profit varies due to changes in their costs, purchase price, sales price, and market condition. The graph shows the dal selling price per grain in three Intermediaries at farmers, bepari and retailers. The dal selling price per grain at farmers is approximately 2425 BDT, at bepari this pricing is around 2681 BDT and for retailers it is about 3312 BDT. So, it can say that the pricing difference from bepari to retailers is higher than the pricing from farmers to bepari. The selling price per Grain variation of dal at bepari to retailers is 71% where at farmers to bepari is about 29%.
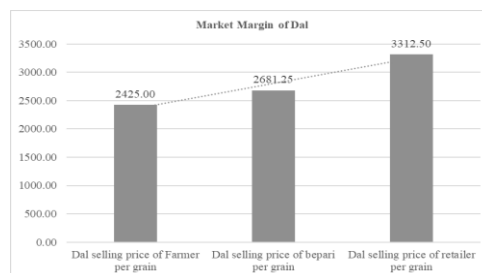

Figure 6: Market margin and selling price variation of dal.

The satisfaction level of agriculture is very less among the farmers. About 53% of farmers are unsatisfied with agriculture. 42% of them are neutral with the agriculture profession. Satisfied farmers are very less and only 5% of farmers satisfied with agriculture. There are many reasons for being unsatisfied in agriculture some are the high price of fertilizer and insecticides, high land rent, low price of agricultural products, mismanagement in the market, climate change etc.

5 Conclusion

In general, open bargaining between sellers and buyers determines the price. Many marketing intermediaries are involved in the marketing of different crops. Though there is a high demand for these products in Bangladesh, markets are centralized in some areas, and farmers have limited access to better alternative markets. The presence of some intermediaries appears to be worthless, as their presence only increases the cost to the consumer and the loss to the farmers. This study examined the marketing systems' current situation, as well as the limitations, in the Pabna district. According to the Food and Agricultural Organization (FAO) / World Health Organization (WHO) guideline, the market for food grains, and other agricultural products is insufficient compared to the demand. The respondents identified the most significant constraint in the marketing system as a lack of proper storage facilities. Furthermore, farmers are not interested in producing more agricultural products on a large scale due to a lack of quality inputs, high prices, and the uncertainty of returns from sales. To encourage farmers, it is critical to establish horticultural crop-based industries. A cost-benefit analysis shows that horticultural crop production is economically viable for the country.

References

Akhtarul, A. M. (2011). *An Analysis of Consumption Demand Elasticity and Supply Response of Major Foodgrains in Bangladesh*. 1–91.

BBS. (2007). *BBS. (2007). BBS. Retrieved from BBS: http://www.bbs.gov.bd/site/page/29855dc1-f2b4-4dc0-9073-f692361112da/Statistical-Yearbook - Google Search*.

Begum, M., & D'Haese, L. (1970). Supply and demand situations for major crops and food items in Bangladesh. *Journal of the Bangladesh Agricultural University*, 8(1), 91–102. https://doi.org/10.3329/jbau.v8i1.6405

Das, M., & Ibemcha Chanu, A. (2014). Reviewing the Literature of Agricultural Marketing in Assam with Reference to Jute Marketing. *Global Journal of Finance and Management*, 6(8), 719–724.

Hossain, M. N., & Hossain, M. A. (2013). Some Observations over Supply Chain: With Reference to Vegetables Market of Bangladesh. *Dhaka University Journal of Business Studies*, 34(2), 69–86.

MANNAN, A. (2020). *VALUE CHAIN ANALYSIS OF POTATO IN SOME SELECTED AREAS OF MUNSHIGANJ DISTRICT IN BANGLADESH ABDUL MANNAN SHER-E-BANGLA AGRICULTURAL UNIVERSITY DHAKA-1207 VALUE CHAIN ANALYSIS OF POTATO IN SOME SELECTED AREAS OF MUNSHIGANJ DISTRICT IN*.

Murphy-dunning, C. (2004). *Rural Urban Agriculture Market System : Challenges and Opportunities A Case Study : Eastern Nepal*.

Rahman, M. M. R., & Neena, S. B. (2019). The Marketing System of Agricultural Products in Bangladesh: A Case Study from Sylhet District. *Bangladesh Journal of Public Administration*, 26(2). https://doi.org/10.36609/bjpa.v26i2.21