CHANGES IN MARKETING SYSTEM
OF RAW JUTE IN BANGLADESH

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Abstract

The study examined the changes in raw jute marketing system in Bangladesh. Ten primary and two secondary markets were selected purposively from five intensive jute growing and two jute trading areas of the country, respectively during 2010-11. Between two terminal markets, annual arrival of raw jute was found higher in Khulna (Daulatpur) than that of Narayanganj. Most of the total raw jute is exported through Chittagong and Mongla sea ports of the country. The mode of payment for raw jute trading was mostly dependent on credit system with higher pay off period. None of the selected farmers sold any raw jute to the government purchased centres during the study periods. The number of licensed 'dealer of jute' as well as *kutcha* and *pucca* presses have increased over the years. The study identified more markets participants involved in the raw jute marketing system over the previous studies. In terms of profit (net margin) making, the performance of the millers and the *faria* was relatively better than that of other participants. Marketing costs and margins have increased over the years, but their net margins as percentage of total investment were not much higher. The existing raw jute marketing system can be identified an efficient system in terms of producers' share of the consumers' prices. The study showed higher seasonal variability and deviation in raw jute prices in the study area. Raw jute should be purchased directly from jute growers under public procurement programme with minimum support price.

Key wards: Marketing system, Marketing margin, Raw jute, Bangladesh

I. INTRODUCTION

Marketing of any product is the most important activity to harvest big economic fortunes and to bring prosperity, specially in agricultural sector. For sustaining and accelerating jute production and thereby promoting agricultural growth in our country, the existing marketing system must be well developed and made efficient enough to induce farmers to increase the intensity of jute cultivation. Any market improvement programme or policy must be on an understanding of the strength and weakness of the existing system.

A large number of intermediaries are involved in jute marketing system. Number of intermediaries present in the market found to have more significantly affected the price of jute than the volume of jute (Momen, 1974). Transportation, roads and highway, storage facilities and other infrastructure facilities affect extent of retail prices to the consumers. He identified

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price fluctuations, which were the highest at the terminal market and the lowest at the secondary market. If marketing costs of the agricultural commodities remain high or excessive, producers get lower prices and consumers also pay higher prices owing to marketing inefficiencies. Therefore, an efficient marketing system is essential for the movement of crops from growers to ultimate users, which would ensure highest returns to the producers. Momen (1974) also found that the jute marketing system was operating efficiently in consistence with the specification of the variables of economic or pricing efficiency within the context of given technology, know-how and constraints. The study was only confined to the marketing of white jute in a selected area of Mymensingh district. Khan (1976) examined the various aspects of marketing operation of jute at the same location.

Several studies have been conducted on marketing system of jute, which were mostly inadequate in terms of area of investigation and reflected very past situation. Moreover, most of the studies (Momen, 1974; Khan, 1976; Islam, 1987 and Podder, 1992) on marketing aspect were conducted not more than two areas of Bangladesh. But the present study was conducted in five intensive jute producing regions of Bangladesh and the data related to jute production and marketing were used. Hossain (1999) measured the efficiency of different channels of jute marketing system ignoring seasonal price variations, which is one of the vital indicators of efficiency measurement. Recently, Moniruzzaman (2007) carried out a study on this area and concluded that raw jute marketing system is efficient. But the researcher did not measure efficiency properly.

The major thrust of this study is to examine the marketing efficiency of jute in Bangladesh in terms of producers' share, marketing costs, marketing margins, seasonal price variability, etc. This study will able to pickup the clear scenario of raw jute marketing system in Bangladesh over the changing period. Because, an efficient marketing system as widely accepted by economists, is one which performs the various functions in the creation of time, place and form utilities according to the socially and economically accepted efficiency level within the constraint of the given level of technology and other environmental factors and having a dynamic character to adjust to the changes in the economy (Farruk, 1970).

II. METHODOLOGY

Study Area and Sample Selection

Ten primary/secondary markets (where jute is assembled from farms and primary markets and is processed for the first time into *kutcha* bales) such as Talma, Kanaipur and Khalilpur under Faridpur district, Ulipur and Durgapur under Kurigram, Katuadah and Baragangdia under Kustia, Monirampur under Jessore, Raniganj and Nandina under Jamalpur districts were selected for collection of marketing related data from farmer, *faria, bepari*, commission agent and *kutcha baler*. Narayanganj and Daulatpur (Khulna) terminal markets (where jute is finally processed into *pucca* bales and exported to overseas countries) were selected for collecting data from *pucca baler* cum exporters. According to the objectives of the study, a total of 140 traders of raw jute including 50 *faria*, 50 *bepari*, 10 *kutcha balers* and 30 *pucca baler* cum exporters were selected purposively. Data were collected from the selected respondents

during the period from July 2010 through June 2011 through face to face interview method. Key informants from BJMC, BJMA, BJSA, BJGEA and Banglacrafts were also interviewed to pickup a clear scenario of this sector as a whole.

Marketing Efficiency Measures

Six performance indicators were used for measuring efficiency such as: (i) percent of product which flows out through the channel (ii) producers' share to consumers price, (iii) relative marketing costs, (iv) level of middlemen's' margin, (v) price deviation i.e., differences of maximum and minimum price of raw jute in a month (vi) price variability (Chauhan et al., 1994) [indicator (ii) to (vi) are proposed by Rajagopal, 1986].

The producers' share was calculated using the following formula:

$$\text{Percentage of producers' share} = \frac{P_{pi}}{P_{ri}} \times 100$$

where, P_{pi} = Farm gate price

P_{ri} = Weighted average price of raw jute at the retail level, where the weights are quantity sold at each price. Weighted average price of raw jute was used in order to minimize the error.

The channel having lower marketing cost would be ranked 1 and that which has highest cost as the last. The same approach has been followed in ranking the margin of middlemen in each channel. The deviation (d) between the highest and the lowest price in each month in the respective channels were computed using prices for different farmers in the same channel. The price equalization among all the categories of producers denote d=0. That is, there is no price deviation among the producer's prices. If the differences are high, it implies highest price deviation and vice-versa. The seasonal movement of price has been studied by applying the simple standard deviation (δ) formula. The formula used in the study is as follows:

$$\delta = \sqrt{(1/T)\sum W_t \left(\overline{P_t} - \overline{P}\right)^2} \qquad \text{(Chauhan et al., 1994)}$$

where, δ = seasonal price variability index,

$\overline{P}$ = average farm gate price of raw jute of the season in each channel,

$\overline{P_t}$ = average farm gate price of raw jute for the agricultural year

T = total months in the season,

$$W_i = \frac{Sales\ during\ the\ month\ in\ each\ channels(S_t)}{Sum\ of\ the\ sales\ during\ the\ month\ in\ all\ channels\left(\sum_i \sum tSit\right)}$$

$$S_t = i^{th}\ month$$

$$S_{it} = i^{th}\ channels\ of\ t^{th}\ month$$

In the study, the peak and lean period were not considered. The δ was estimated separately for each period. A lower value of δ implies that the farmers' prices are not affected by seasonality and vice versa.

The final ranking of all the six indicators for all the channels was computed by the composite index formula for estimated the efficient marketing channel.

$$I = \sum I_i / N \quad \text{.. (2.51)}$$

Where, I refers to the individual rank, i =1,.......,6 and N is the number of individual ranks used.

III. RESULTS AND DISCUSSION

Raw jute marketing system in Bangladesh involves two segments–internal trade and export trade. Internal trade is performed by farmers-sellers and a number of market intermediaries like, *faria, bepari*, commission agents (*aratdar*), *kutcha balers* and millers. *Pucca balers* cum exporters participate in export trade. All market intermediaries of jute are needed a trade license from the Department of Jute under the Ministry of Textiles and Jute in Bangladesh. The license needs to be renewed every year due to easy monitoring and controlling illegal trading practices, as jute is an internationally traded commodity.

Broadly, three categories of markets are found in the marketing of raw jute in Bangladesh. They are: i) primary markets where raw jute is assembled from the farms, ii) secondary markets where raw jute is assembled both from farms and from the primary markets and there raw jute is processed for the first time into *kutcha* bales, and iii) terminal markets where jute is finally processed into *pucca* bales and exported to overseas countries. Primary markets are rural markets where producers bring their produce to sell. Players of this market level are producer *farmers, faria*, small *bepari* and local users. Secondary markets are well connected by road, river and rail transport. These are assembly markets which could be upazila Headquarters, rivers ports and railway linked markets. Mainly large *bepari, kutcha balers*, agents (*aradar*) of millers or exporters are major intermediaries in these markets.

Narayanganj and Khulna (Daulatpur) are two important terminal markets of raw jute in Bangladesh. Transactions in the terminal markets are steady throughout the year. Once, Narayanganj was the largest raw jute business centre in the world. But it has lost its previous importance just after closing of Adamjee Jute Mills. At present, Khulna is an important terminal market of raw jute in Bangladesh. Two markets are strategically located and very conveniently connected by roads, railways and waterways with the jute producing hinterlands as well as with the exporting points. From here, jute is forwarded to processing plants (i.e. baling presses and mills) and to exporting points (Chittagong, Mongla, Benapole and Banglabanda ports).

About 60 percent raw jute is exported through Chittagong and Mongla sea ports of the country and rest of the total through Benapole and Banglabanda ports during 2010-11. The annual arrival of raw jute in Narayanganj terminal market was about 3.8 lac MT in 2010-11, which roughly constitute 30-35 percent of the total production in the country. Podder (1992) showed that it was only 1.8 lac MT in 1991. On the other hand it was about 4.5 lac MT in the same year in Khulna, which is 35-40 percent of the total production in the country. A large number of traders such as *pucca baler* cum exporters, commission agents, foreign brokers, C&F agents etc operate in these markets. A total of 13 *pucca* baling presses are situated in

Narayanganj whereas it was 20 in Khulna (Daulatpur). All kinds of facilities like godowns, banking and insurances are available here.

Raw Jute Distribution Channels

The study reveals marketing channels in selected areas through which raw jute moves from the point of initial production to the point of milling or export as shown in Figure 1.

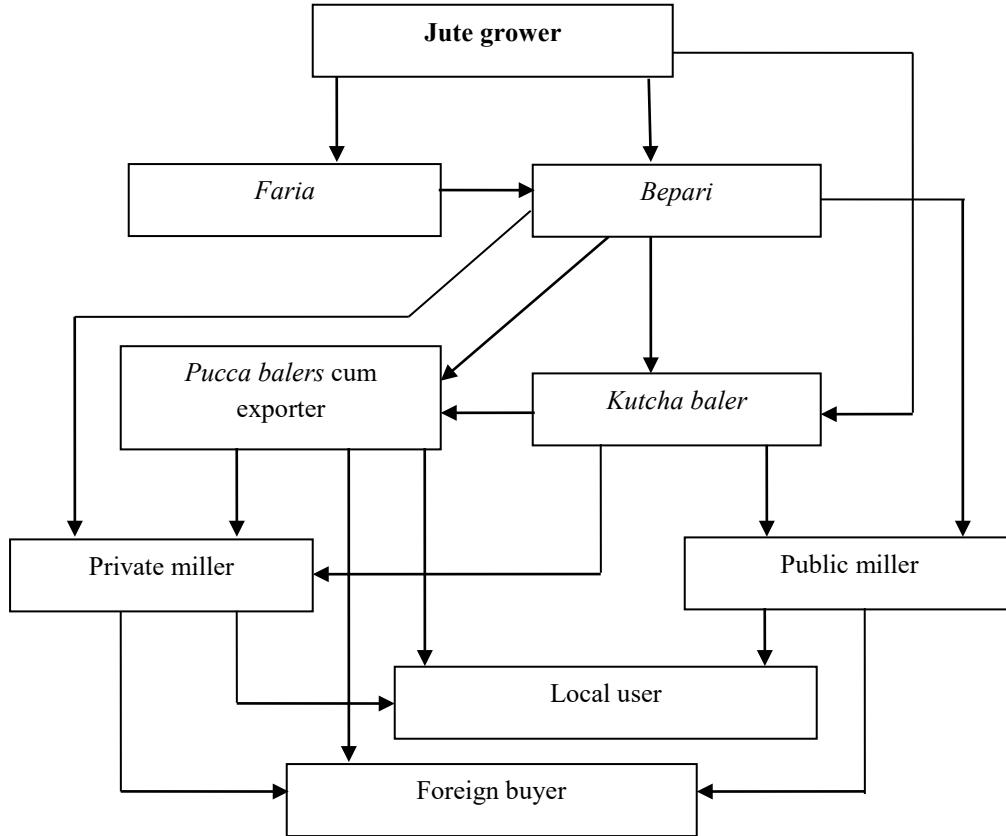Figure 1. Raw jute distribution channels

In the raw jute's journey from farmyards till it reaches the mills or foreign buyers, a number of important channels can be identified. But all the channels were not equally important in the study areas. According to the quantity of raw jute handled by the selected intermediaries in the channels, following major five channels were identified in the study areas (Table 1).

Table 1. Raw jute flows through the major distribution channels in the selected areas

No.	Channels	% of product flows	Rank (I_1)
I	Producers–*faria–bepari–pucca balers* cum exporters	34	1
II	Producers – *faria–bepari – kutcha balers – pucca balers* cum exporters	16	3
III	Producers – *bepari* – millers	19	2
IV	Producers – *kutcha balers –pucca balers* cum exporters	11	5
V	Producers – *kutcha balers* – millers	13	4

Source : Field survey (2010-11)

Table 1 also shows the efficiency of these channels on the basis of percent of raw jute flown through the channels. The highest quantity of raw jute in the study areas were routed through channel- I (Producers–*faria–bepari–pucca balers* cum exporters), which occupied by around 34 percent of the total products followed by channel-III (19 percent), channel-II (16 percent), channel-V (14 percent) and the lowest was the channel-IV (11 percent). Therefore, channel-I is identified as a prominent channel in the study areas according to the performance indicators. The channels show that apart from farmer-sellers different categories of intermediaries participate in the marketing process of raw jute in the study areas. The market participants include *faria, bepari, kutcha balers, pucca baler* cum exporters and millers. On the other hand, commission agents, internal and international brokers also participate as middlemen among the sellers and local/foreign buyers.

Most of the jute farmers have inadequate holding capacity, which propels them to off load their produce by the earliest opportunity. The farmers sell their raw jute at their farm yards or in the nearest village markets to the *faria* and *bepari*. Besides, some large farmers also sell jute *to kutcha balers* and millers. Most of the farmers sell their loose jute just after harvest for immediate need for cash. It may be mentioned here that none of the selected farmers sold any jute to the government purchase centres of BJMC. Though, Podder (1992) found some jute farmers those were got the chance to sell their products at those places.

The *faria* are the middlemen who purchase comparatively small quantities of loose jute directly from the farmers either at the farmyards or in the primary markets. They are mostly seasonal traders. Some had other occupation such as operating small sized farms; sometimes pursue petty business or similar activities. They sell the unassorted jute to the *bepari, kutcha balers* and millers. Their volumes of business are generally small in comparison to other intermediaries and possess little capital. Usually they do not have adequate storage facilities. They store loose jute for a short period (max. 15 days) at their dwelling houses.

Generally the *bepari* purchase jute either from the farmers or from the *faria* and sell to *kutcha balers, pucca balers* cum exporters and millers. Sometimes they sell jute to the government purchase centres directly or through *dalals*. The *bepari* can be divided into two categories – small and large *bepari*. The small *bepari* have license on jute trading but they are not professional jute traders. Not only jute, they trade other crops like pulses, oilseeds, wheat, etc.

They store all of the products in a common storehouse for a short period. They make their purchase mainly from the farmers and *faria* at the primary markets. They sell it either to the large *bepari* at primary markets or to the *kutcha balers* and different commission agents at secondary markets. On the other hand, there are some large *bepari* both on primary and secondary markets who are professional jute traders and have owned or hired separate godown facilities. They purchase raw jute from farmers, *faria*, small *bepari* and sell it to the *kutcha balers*, government purchase centres of BJMC, *pucca balers* cum exporters and millers either directly or through commission agents. They are independently organized and have salaried and casual labour. Generally, *faria* and *bepari* are licensed traders and together called 'dealers of jute' in Bangladesh. During 2010-11, the number of licensed dealers of jute was recorded 23003, whereas it was 22609 in 1990-91 (Podder, 1992).

The *kutcha balers* collect loose jute mainly from the *faria* and small *bepari* and process it into *kutcha bale* (150 kg). Generally, they operate in the secondary markets and practice recognized commercial grades (*kutcha bale)* and trade standards. They have storage facilities and employ necessary staff. They sell processed jute (*kutcha bale*) to the *pucca balers* cum exporters and *millers* either directly or through commission agents. Three categories of *kutcha balers* are found in the study areas: i) *kutcha balers* with small turnover and local establishment; ii) *kutcha balers* as the branch houses of the local firms with head office at terminal markets; and iii) *kutcha balers* serving as purchasing centres of different jute mills. During 2010-11, the number of licensed *kutcha balers* was found 297, whereas it was recorded 868 in 1990-91 (Podder, 1992).

The *pucca balers* cum exporters operate in the terminal markets and process jute into *pucca bale* (182.25 kg) according to export grades for export or local sale. They prepare *pucca bale* either from loose jute or from *kutcha bales* in their own presses or in other's presses on payment of baling charges. There are 57 *pucca presses* in Bangladesh during 2010-11 and it was found 49 in 1990-91 (Podder, 1992). While packing the bales, the *pucca balers* cum exporters put their bale marks. Each Exporter has a number of distinctive marks by which different grades of jute baled by him are recognized. These *pucca bales* are mostly exported, mills buy only a small portion. They are highly organized intermediaries in the raw jute marketing system and most of them have selected commission agents in the primary and secondary markets. Podder, (1992) found 113 *pucca balers* in Bangladesh during 1990-91 those are engaged only in pressed and packed of raw jute according to export grade. He also mentioned 140 raw jute exporters who exported raw jute after processing and baling it in their own or in others' presses on payment of baling charges. But the present study found that there was no difference between *pucca balers* and exporters. Generally exporters are operated their business in the terminal market and before exporting, they converted their raw jute into *pucca bale* through a baling process either in their own presses or in others' presses. However, the study recorded 512 licensed *pucca balers* cum exporters in 2010-11.

Generally, the BJMC, the BJMA and the BJSA set informal price levels in each procurement seasons as they are the largest users of raw jute. These mills set a benchmark mill gate price of raw jute which also set a farm gate price for raw jute received by the jute growers. The

public and private jute millers purchase loose jute from the farmers and traders of jute either at the mill gates or through their purchased centres or commission agents in different parts of the country. BJMC functions through more than 125 purchase centres situated in different jute growing regions. All these centres are located in the operational premises hired from private sources/agents. The operational premises consist of import shed, assortment shed, bale press shed, bale storage godown, office and other amenities. In addition, the private jute millers also procure jute in bale form from *kutcha balers* and *pucca balers* cum exporters. According to BJMC, the number of public and private jute millers in the country in 2011-12 stood at 27 and 192, respectively. But, the number of jute mills in the country in 1990-91 stood at 102 (Podder, 1992).

Commission agents (*aratdar*) have a fixed establishment in the market and operate as middlemen between any two jute traders and charge a fixed commission for the total purchases which varies from Tk. 5 to Tk. 10 per maund (40 kg). Podder (1992) treated the commission agents as *dalal* and the number of licensed *dalal was* 32 in 1990-91, who received a commission Tk. 6 per *pucca bale* (180 kg). Generally they operate between large *bapari* and *kutcha balers* or *pucca baler* cum exporters or millers. The present study found 164 licensed commission agents (*aratdar)* in raw jute marketing system in Bangladesh during 2010-11. They do not invest big amount of capital for operating the business. The appointing traders serve as a source of financing to purchase required raw jute for them. They are usually recognized by the government and have license for operating the business. Note that the variation in the number of all types of intermediaries over the year occurred due to obligatory annual licensing system in raw jute trading in the country. Some jute traders did not renew their trade license due to instable market condition of raw jute. Moreover, most of the large traders had more than one licenses of different categories of jute traders.

Mode of Payment

The producers and the traders in raw jute distribution system in the study areas transacted their products in both cash and credit. The jute growers sold 87 percent of their products in cash and the rest were sold on credit for duration of 7-14 days pay off (Table 2). Though the *faria* purchased about 94 percent of the total products in cash but they sold about one half of their total products on credit with an average 10-15 days pay off period. More or less similar trend of transaction was found in the cases of the *bepari* and *kutcha balers*, but the percentage of credit transaction was higher than that of the *faria*. On an average, they purchased about 40 percent and sold more than 75 percent of their total products on credit with about 15-40 days pay off period.

Table 2. Mode of payment for raw jute trading (% of total product)

	Purchased on		Sold on		Duration of pay off (days)
	Cash	Credit	Cash	Credit	
Producers	-	-	87.17	12.83	7-14
Faria	93.63	6.37	51.32	48.68	10-15
Bepari	62.11	37.89	21.13	78.87	15-45
Kutcha balers	57.45	42.55	25.75	74.25	15-30
Pucca balers cum Exporters	60.25	39.75	9.90	90.10	30-45
Millers	75.35	24.65	5.45	94.55	30-45

 Source: Field survey (2010-11)

On the other hand, the *pucca balers* cum exporters and the millers sold more than 90 percent of their total products on credit with higher duration of pay off (30-45 days) which was the highest among all other intermediaries in the study areas. This was mainly because of the fact that the clients of both the *pucca baler* cum exporters and the millers were mostly foreign buyers and the transaction procedure was different than all other traders in raw jute marketing system in Bangladesh.

Among all the intermediaries, *faria* are mostly affected from credit transaction system as they are the small traders in terms of capital investment. Moreover, the percentage of purchase in cash was higher compared to other traders. Findings concluded that the mode of payment for raw jute trading in the selected study areas were mostly dependent on credit system with higher pay off period that could be made a serious obstacle in the long run for smooth transaction of raw jute in the distribution system.

Marketing Costs and Margins

For improving the efficiency in marketing system, it is very important to acquire knowledge of distribution of marketing costs among various intermediaries. In order to minimize marketing costs the marketing facilities should operate at the maximum possible capacities with the least possible losses produce. High marketing cost could be due to delay in communication, long duration of storage, high transportation cost, lower degree of competition and poor marketing facilities. These situations create more opportunity for the intermediaries to make higher profit. Therefore, an attempt is made to estimate the net margin to understand the level of profits earned by the market intermediaries. High marketing margins are often regarded as *'prima facie'*- evidence of gross inefficiency in marketing and the middlemen who are blamed for being either inefficient, too numerous and most often regarded as the major cause of high marketing margin (Matin, 2004). So, the size and composition of marketing margin can be used as a useful measure of efficiency.

Comparative Marketing Costs and Margins for Intermediaries

Table 3 reveals that total cost of the *faria, bepari, kutcha balers and pucca balers* cum exporter for jute marketing was respectively 49 percent, 92 percent, 142 percent and 119

percent higher than previous study (Podder, 1992). The lowest marketing cost of raw jute was found for the *faria* and their estimated profit was about 9.03 percent of the total working capital. Moniruzzaman (2007) found that exporter received the highest profit among the all intermediaries though he did not mention millers in the raw jute marketing channels. The second highest profit was achieved by the millers, which was 8.41 percent of the total working capital, followed by the *bepari* (4.03 percent), the *kutcha balers* (2.85 percent) and the *pucca balers* cum exporters (2.49 percent). Podder (1992) found that the highest profit obtained by exporters, which was 5.46 percent of the total working capital, followed by *bepari* (4.30 percent), *faria* (0.73 percent) and *kutcha balers* (0.50 percent). But, the study ignored 'millers' as a participant of the raw jute marketing system.

Table 3. Comparative cost and margins of raw jute for different intermediaries (Taka/quintal)

Items	*Faria*	*Bepari*	*Kutcha balers*	*Pucca balers* cum Exporter	Millers
Total Cost	84.10	180.18	274.47	433.35	635.30
Purchase Price	4018.50	4250.78	5097.77	4820.00	4825.22
Sale Price	4473.05	4609.40	5525.35	5384.33	5919.55
Gross Margin	454.55	358.62	427.58	564.33	1094.33
Net Margin	370.45 (9.03)	178.44 (4.03)	153.11 (2.85)	130.98 (2.49)	459.03 (8.41)
Total working capital	4102.60	4430.96	5372.24	5253.35	5460.52

Figures in the parentheses indicate percentages of total working capital

It is seen from the Table 3 that marketing margin varied mainly due to variation in prices and marketing costs of raw jute for the intermediaries. It can be inferred from the above findings that except millers, *faria* received higher profit in raw jute marketing system though it could not be considered as an abnormal profit. One thing is important to note that the middlemen's profit has not increased notably over the years.

Figure 2. Share of different intermediaries in cost and margins for jute

It is evident from Figure 2 that marketing cost gradually increased with the passage of the product through successive stages in the marketing system due to increasing complexity and greater multiplicity of functions performed. The highest share in total marketing cost was incurred by the millers (39.52 percent) and the lowest by the *faria* (5.23 percent). It is observed that marketing cost of jute for all intermediaries except *faria* was high mainly for its bulkiness and high transportation cost. In terms of profit (net margin) making, the performance of the millers and the *faria* was relatively better than that of other participants, which was 35.53 percent and 28.67 percent, respectively. The share of the other participants in net margin for jute marketing system ranged between 10.14 percent and 13.81 percent (Figure 2). In terms of marketing margins, the jute marketing system was considered to be efficient since the intermediaries were not found to be exploitive in nature. They rather provided essential services by bridging the gap between farmers and industrial users.

Channel-wise Producers' Share, Marketing Costs and Margins

Table 4 presents the producers' share, marketing costs and marketing margins of raw jute in different marketing channels. Producers' share found the highest in channel- IV (85.28 percent) and the lowest in channel-II (69.09 percent). Besides, channel-IV had the lowest marketing cost (Tk. 690.51/quintal) and channel-II had the highest (Tk. 995.40/quintal). Participation of more intermediaries in channel-II made higher transportation cost, a major cost item for all traders, which was the main reason behind higher marketing costs. On the other hand, the gross and net margin was the highest in channel-V and was the lowest in channel-IV.

Table 4. Channel-wise producers' share, marketing cost and margins

Items	Channels				
	I	II	III	IV	V
Producers' price (P_p) (Taka/quintal)	3955.00	4082.00	4341.16	5191.25	5151.5
Weighted average price at the retail level (Taka/quintal)	5418.41	5908.38	5984.90	6087.03	7152.85
Percentage of producers' share	72.99	69.09	72.53	85.28	72.02
Rank (I_3)	2	5	3	1	4
Total marketing cost (Taka/quintal)	690.52	995.40	806.19	690.51	915.99
Rank (I_2)	2	5	3	1	4
Gross Marketing margin (Taka/quintal)	1463.41	1826.38	1643.74	895.78	2001.35
Rank(I_4)	2	4	3	1	5
Net margin (Taka/quintal)	772.89	830.98	837.55	205.27	1085.36

Source : Field survey (2010-11)

The higher marketing margins appeared due to the involvement of large traders like *kutcha balers* along with the millers in channel-V as compared to other channels. So, the study found

that the percentage of producers' share was the highest in channel- IV and marketing cost and margins was the lowest in the same channel. Hence, channel-IV can be identified an efficient channel in terms of these indicators. Hossain (1999) measured efficiency through producers' share of consumers' prices (53.50 percent) and concluded that jute marketing is relatively inefficient due to low prices received by the farmers. It could be inferred from the above analysis that if the jute growers could sell their products through channel-IV (Producers–*kutcha balers–pucca balers* cum exporters), they would have been more benefited than selling through other channels.

Seasonal Price Variability and Price Deviations

It revealed from Table 5 that the highest price variation was found in channel- I and was the lowest in channel-IV, indicating that the jute growers will be more benefited and will face less risk if they sell their products through channel-IV. In other words, producers' prices are less affected by seasonality in channel-IV compared to other channels in the study areas.

Table 5. Channel-wise seasonal price variability for the study period (2010-11)

	Months	Channels				
		I	II	III	IV	V
$W_i(P_i - \overline{P})^2$	1	5573.05	3995.45	4515.60	2292.10	3223.80
	2	19305.91	8255.50	10161.86	6543.01	8174.72
	3	35904.39	18232.26	22461.25	16299.81	14031.28
	4	17991.14	10876.84	11501.19	8017.97	9693.86
	5	27167.23	10216.09	14050.28	10089.97	11376.44
	6	14446.49	6193.45	7517.47	5884.52	5958.07
	7	5868.94	2599.58	3315.79	2022.63	2069.05
	8	5678.54	2785.47	3114.23	1864.95	2432.81
	9	27763.71	10023.12	13289.44	6564.95	9959.07
	10	11020.28	4300.32	5332.40	2293.50	4942.50
	11	2873.17	1060.10	1575.29	710.04	670.41
	12	7701.43	4212.28	5107.17	1816.89	1898.24
$\sum W_i(P_i - \overline{P})^2$		181294.30	82750.46	101942.00	64400.04	74430.24
Months		12	12	12	12	12
σ		657.98	455.48	502.65	394.55	428.05
Rank (I_6)		5	3	4	1	2

Deviation between maximum and minimum prices of different channels for each month is presented in Table 6. It exhibits that channel- IV possessed the lowest price deviation (Tk. 370.83/quintal), while the highest deviation was found in channel- I (Tk. 633.25/quintal). It might be due to demand-supply situation and number of intermediaries involved in the distribution channels.

Table 6. Price deviation of raw jute in different channels during 2010-11 (Taka/quintal)

Months	Channels				
	I	II	III	IV	V
July	852	795	550	602	804
August	710	650	500	550	651
September	805	700	511	353	600
October	975	605	450	410	506
November	720	800	500	425	520
December	605	780	400	350	455
January	710	525	375	455	523
February	550	403	420	310	405
March	595	450	360	314	411
April	450	395	205	390	380
May	312	375	225	282	450
June	315	325	310	209	328
$\sum d$	7599	6803	4806	4650	6033
D	633.25	566.92	400.50	387.50	502.75
N	12	12	12	12	12
Rank (I_5)	5	4	2	1	3

N= Number of months, D= Deviation between the highest and the lowest prices in each month in the respective channel

Channels' Efficiency Measurement

The efficiency of different marketing channels of raw jute has been drawn on the basis of final ranking of performance indicators using composite index formula and the computed ranks are presented in Table 7. Table indicates that channel-IV (Producers–*kutcha balers*–*pucca balers* cum exporters) possesses the highest efficiency of raw jute marketing followed by channel-I (Producers–*faria–bepari–pucca baler* cum exporters), channel-III (Producers–*bepari*–millers), channel-V (Producers–*kutcha balers*–millers) and channel-II (Producers–*faria–bepari–kutcha balers–pucca baler* cum exporters). The performance indicators revealed that channel-II is more inefficient in case of raw jute marketing in the study areas due to low prices received by the farmers compared to other channels. But, the study found that the lowest quantity of raw jute moved through channel-IV. Reason behind this fact that the *kutcha balers* are mostly concentrated in the secondary markets.

Table 7. Efficiency of different marketing channels

Performance indicators	Channels				
	I	II	III	IV	V
Raw jute flows through channels (I_1)	1	3	2	5	4
Total marketing cost (I_2)	2	5	3	1	4
Percentage of producers' share (I_3)	2	5	3	1	4
Gross Marketing margin (I_4)	2	4	3	1	5
Price deviation (I_5)	5	3	4	1	2
Price variability (I_6)	5	4	2	1	3
Composite Index $\left(\sum I_i / N\right)$	12.83	20.67	15.33	9.17	19.50
Final Ranking	2	5	3	1	4

I_i= Total value of the ranks of performance, N= Total number of performance indicators

IV. CONCLUSION

The study found that the annual arrival of raw jute between two terminal markets was higher in Khulna (Daulatpur) than Narayanganj. The study identified five major channels in the study areas according to the quantity of raw jute handled by the selected intermediaries. Among the channels, the highest quantity of raw jute were routed through producers–*faria*–*bepari*–*pucca baler* cum exporters in the selected study period. The modes of payment for raw jute trading, mostly dependent on credit system with higher pay off period and the *faria* are mostly affected from this transaction system. Moreover, the percentage of cash payment for purchased products was higher compared to other traders.

Share of jute producers in retail prices was much higher in each of the channels, in which the highest was found in channel-IV and the lowest was in channel-II. The marketing cost and margins were found also the lowest in channel-IV. The results also showed that the price deviation and price variability were the lowest in the same channel. The efficiency based on six performance indicators revealed that channel-IV had the highest efficiency.

Except the millers, the *faria* received higher profit from lower investment though it could not be considered as an excessive profit. The highest share in total marketing cost was incurred by the millers and the lowest by the *faria*. In terms of profit (net margin) making, the performance of the millers and the *faria* was relatively better than that of other participants. Total marketing costs and margins have increased over the years, but their net margins as percentage of total investment were not much higher. However, the existing raw jute marketing system can be considered as an efficient system in terms of producers' share of the consumers' prices (74.38 percent), which was 39 percent higher over the previous study.

The raw jute market faced high seasonal variability and deviation in prices in the study area. The implication of this variability and deviation in prices of jute is that it causes instability in income level of the producers and marketers as well and this will go a long way in affecting their welfare. For reducing that government should establish more storage facilities at intensive jute cultivation areas with private participation in order to store enough jute. The

produce should be purchased directly from jute growers throughout the year under public procurement programme with minimum support price. It is expected that the seasonal price variability and deviation in the marketing of jute can be reduced by implementing this support programme.

Moreover, government should offer some special incentives for the traders so that they can establish at least one *kutcha press* in each primary jute markets. The farmers' response to the channel-IV may be encouraged and facilitated in terms of policy adoption. These measures should be taken by the government so that the farmers can use this efficient channel of raw jute marketing.

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