

## Motivating and De-Motivating Factors towards Marketing of Rice for the Rice Marketing Channel Members in Pakistan

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### Abstract

From the production of rice at the rice fields to the final consumers, the rice moves from different marketing channels. This study aims to identify those factors which motivate and de-motivate the rice marketing channels members towards rice marketing. For this study the data were collected from 120 rice farmers, 45 rice commission agents, 45 rice millers and 45 rice traders from three districts of Punjab province in Pakistan. A structured questionnaire was used to collect the data from the respondents. OLS regression was applied using SPSS. The results of the study revealed different motivating and de-motivating factors for different marketing channel members. For the rice growing farmers, the motivating factors towards rice marketing were found to be cash payment at the spot, selling paddy at the farm gate, high demand due to exportable item, better results as compare to other crops and rice as the status symbol crop. The significant de-motivating factors for rice growers were found to be difficulties due to transportation issues, shortage of water for rice cultivation and low yield per acre. The significant motivating factors for commission agents were found to be less risk because of the working on rice mills payroll, profitable business despite the lack of education and financing by the rice millers. The significant de-motivating factors for commission agents were found to be issues in storage facilities, rising transportation cost and delay in payments by the rice millers. The significant motivating factors for rice millers were found to be growing demand of branded rice and satisfactory profit margins while significant de-motivating factors were found to be seasonal nature of business, high fixed cost, increasing cost due to alternative power usage and labor cost and mixing of different varieties. The significant motivating factors for rice traders were found to be whole year running business, good profit margin and growing demand of branded rice while high taxes and increasing transportation cost were found to be significant de-motivating factors for rice traders.

**Keywords:** Rice, Marketing, Marketing channels, motivating factors, De-motivating factors

### 1. Introduction

For the population of the world, rice is a source of 20% calories intakes in their diet as well is it is a staple food for 62.8% of the world (Timmer 2010). Rice is the staple food for the people of many developing countries (Hauser, 2003). Although rice is not a staple food in Pakistan but it is largely produced in the Punjab and Sindh province of Pakistan. Every year nearly 40% quantity of the produced rice is exported to earn foreign exchange. Rice contributes 15% in Pakistan's earnings in the form of exports (Anwar 2004, Siddique and Kemal 2002). Rice is second staple food in Pakistan and cultivated on 10% of the total cropped area in the country (Wahid et al 2011). Rice accounts 3.1% of the value addition in agriculture and 0.7% of the GDP of Pakistan (Government of Pakistan, 2014).

From the production facilities to the ultimate consumers, the movement of rice is dependent on the business activities of many intermediaries and the performance of these activities is called rice marketing (Ihene, 1996). The marketing of food occurs at different levels i.e. local level, national and at international level. The food availability is not restricted by location of the production or season but the availability is restricted by the marketing. The marketing aspect of the food availability includes different activities i.e. processing of goods, packaging of the processed goods, proper storage according to the requirements, delivery at the place where needed and the buying & selling of the product (Akinbode, 2003). The marketing of rice is a complex set of activities and involves four stages. These include production to harvesting stage, movement of the produce towards processing centers, movement from processing centers towards consumption areas and final stage covers the activities performed by wholesalers and retailers at urban and nearby areas (Aderibigbe, 1997). Rice is a promising sector which is a source of earning good returns for the farmers in Pakistan. There exist many production and marketing limitations which impede the marketing channel efficiency so keeping in mind this study was conducted to identify the factors which motivate and de motivate the rice marketing channels members towards rice marketing. Considering in mind the importance of rice to the economy of Pakistan, the identification of the motivating and de motivating factors towards rice marketing for the rice marketing channel members, would be helpful for the policy makers to remove the barriers which de-motivate the channel members towards rice marketing and resultantly can have a positive impact on the production of rice in Pakistan.

## 2. Materials and Methods

The present study was conducted in Punjab province of Pakistan which is a major producer of rice in the country. A multi stage sampling technique was applied while selecting the sample. In the first stage, three districts of Punjab province namely Gujranwala, Sialkot and Sheikhpura were purposely selected for the study as the selected three districts are famous for their intensive rice production. All districts in Pakistan are further divided into sub-administrative units for administrative purpose. So in the second stage of sampling, two sub division areas (also called tehsils) of each district were randomly selected. Overall from each district, 40 small farmers, 15 medium farmers and 15 large farmers were selected for this study. Hence for this study, total 120 small, 45 medium and 45 large farmers were selected from six tehsils of three districts. Small farmers were selected in greater number purposely as in Pakistan small farmers contribute a major share in total number of farms. From each district, the rice marketing channels members were also selected i.e. commission agents, rice millers and rice traders were selected with equal number hence from all three districts 45 commission agents, 45 rice millers and 45 traders were selected randomly for the study area.

Before the formal survey, an informal survey was conducted in the area to gain an overall insight into the marketing system of rice and practices commonly performed by different channel members. Informal discussion with different channel members was made during this session. Based upon the collected information regarding the general practices etc different structured questionnaires for different marketing channel members of rice were developed in English language and administered to respective channel members who were our target population. The responses of the respondents regarding the factors motivating towards rice marketing or factors de-motivating towards rice marketing were recorded using pre-coded alternative answers for close ended questions. In order to record the information possibly beyond the coverage of pre designed questions, follow up oral interviews with different categories channel members were made. Two graduates of a public sector university at Pakistan served as the research assistants and they collected data for this study. For each category, one questionnaire was applied in all three districts. Through the informal survey, different factors were identified which motivate or de motivate the marketing channel members towards the rice marketing. These factors have been described below.

### *2.1- Motivating/de-motivating factors for rice marketing channel members*

Based upon the preliminary survey, the motivating and de-motivating factors for different rice marketing channel members were identified and given below

#### *2.1.1- Motivating factors for rice growers*

Cash payments at the spot, selling at the farm gate, provider of the most liquid assets for the fulfillment of emergency needs, status symbol crop, source of personal use food item, better results as compare to alternative crops in the season, high demand due to exportable item.

#### *2.1.2-De-motivating factors for rice growers*

Costly fertilizer and pesticide, low yield per acre, counterfeiting in pesticides, shortage of water for rice cultivation, bound to sell to commission agents, difficulties due to transportation issues, lack of availability of credit

#### *2.1.3-Motivating Factors for commission agents*

Profit from input supply as well as from rice produce, easy availability of labor, attractive seasonal business after wheat marketing, profitable business despite the lack of education, financing by the rice millers, less risk because of work on rice millers payroll

#### *2.1.4-De-motivating factors for commission agents*

Delay in payments by the millers, objection by rice millers regarding the variety mixing, higher level of moisture in rice, higher percentage of broken rice due to outdated post harvested losses, rising transportation cost, issues in storage facilities

#### *2.1.5-Motivating factors for rice millers*

Convenient to buy paddy at mill gate, easy selling of the by-products, export oriented business, satisfactory profit margins, growing demand of branded rice

#### *2.1.6-De-motivating factors for rice millers*

Mixing of different varieties, higher level of moisture due to early harvesting, seasonal business, high fix cost, increasing cost due to alternative power usage & labour cost.

#### *2.1.7-Motivating factors for rice traders*

Good profit margins, whole year running business, growing demand of branded rice, trade credit facility provided by millers.

#### *2.1.8-De-motivating factors for rice traders*

Delay in payments by wholesalers, increasing transportation cost, heavy investment required in the form of capital at the start of business, high taxes, intense competition.

## 2.2- OLS regression application

The marketing of rice is function of certain factors which influence the rice marketing in two ways; these factors either motivate or de-motivate the relative marketing channel members towards rice marketing. The factors identified through the informal survey and discussion with different marketing channel members were put in front of the respondents and they were inquired whether the factors were motivating or de motivating them towards rice marketing. The OLS regression was applied to find out the significant factors which motivate and de motivate the marketing chain members towards rice marketing. Each motivating factor for the relevant marketing channel member was put forwards and if the respondent replied that the factor motivates him towards rice marketing, it was coded as 1 otherwise zero and each identified factor as de-motivating was put before the relevant marketing chain member and if the respondent replied that he dislike the cotton marketing due to that specific factor then it was coded as 1 otherwise 0. Rice marketing was considered the dependent variable. The conduct of marketing of rice was coded as 1 and 0 otherwise. The following equations were developed for different marketing channel members.

### (a) Model-1 (For rice farmers)

$$\text{Rice Marketing} = \beta_0 + \beta_1 \text{CPASi} + \beta_2 \text{SAFGi} + \beta_3 \text{PMLAi} + \beta_4 \text{SSi} + \beta_5 \text{SPUFi} + \beta_6 \text{RBRi} + \beta_7 \text{HDEi} + \beta_8 \text{CFPi} + \beta_9 \text{LYi} + \beta_{10} \text{CPi} + \beta_{11} \text{SWRCi} + \beta_{12} \text{LACi} + \beta_{13} \text{BSCAi} + \beta_{14} \text{DTi} + \epsilon_i$$

Where

CPASi = Cash payments at the spot, SAFGi = Selling at the farm gate, PMLAi = Provider of the most liquid assets for the fulfillment of emergency needs, SSi = Status symbol crop, SPUFi = Source of personal use food item, RBRi = Better results as compare to alternative crops in the season, HDEi = High demand due to exportable item, CFPi = Costly fertilizer and pesticide, LYi = Low yield Per acre, CPi = Counterfeiting in pesticides, SWRCi = Shortage of water for rice cultivation, LACi = Lack of availability of credit, BSCAi = Bound to sell to commission agents, DTi = Difficulties due to transportation issues,  $\epsilon_i$  = Error term

### (b) Model-2 (For rice commission agents)

$$\text{Rice Marketing} = \beta_0 + \beta_1 \text{Pli} + \beta_2 \text{EALi} + \beta_3 \text{ASBi} + \beta_4 \text{PBi} + \beta_5 \text{FMi} + \beta_6 \text{LRMPi} + \beta_7 \text{DPi} + \beta_8 \text{OMi} + \beta_9 \text{HMLi} + \beta_{10} \text{HBRi} + \beta_{11} \text{TCi} + \beta_{12} \text{SFi} + \epsilon_i$$

Where

Pli = Profit from input supply as well as from rice produce, EALi = Easy availability of labor, ASBi = Attractive seasonal business after wheat marketing, PBi = Profitable business despite the lack of education, FMi = Financing by the rice miller, LRMPi = Less risk because of work on rice millers payroll, DPi = Delay in payments by the millers, OMi = Objections by the rice millers regarding the variety mixing, HMLi = Higher level of moisture in rice, HBRi = Higher percentage of broken rice due to the outdated post harvest losses, TCi = Rising transportation cost, SFi = Issues in storage facility,  $\epsilon_i$  = Error term

### (c) Model-3 (For rice millers)

$$\text{Rice Marketing} = \beta_0 + \beta_1 \text{CBMi} + \beta_2 \text{EOBi} + \beta_3 \text{SPMi} + \beta_4 \text{GBRi} + \beta_5 \text{VMi} + \beta_6 \text{HLMi} + \beta_7 \text{SBi} + \beta_8 \text{HFCi} + \beta_9 \text{ICi} + \beta_{10} \text{ESBPi} + \epsilon_i$$

Where

CBMi = Convenient to buy paddy at mill gate, EOBi = Export oriented business, SPMi = Satisfactory profit margins, GBRi = Growing demand of branded rice, VMi = Mixing of different varieties, HLMi = Higher level of moisture due to early harvesting, SBi = Seasonal business, HFCi = High fix cost, ICi = Increasing cost due to alternative power usage and labor cost, ESBPi = Easy selling of the by-products,  $\epsilon_i$  = Error term

### (d) Model-4 (For rice traders)

$$\text{Rice Marketing} = \beta_0 + \beta_1 \text{GPMi} + \beta_2 \text{WRBi} + \beta_3 \text{GDBRi} + \beta_4 \text{TCFi} + \beta_5 \text{DPWi} + \beta_6 \text{ITCi} + \beta_7 \text{HIRi} + \beta_8 \text{HTi} + \beta_9 \text{ICi} + \epsilon_i$$

Where

GPMi = Good profit margins, WRBi = Whole year running business, GDBRi = Growing demand of branded rice, TCFi = Trade credit facility provided by millers, DPWi = Delay in payments by wholesalers, ITCi = Increasing transportation cost, HIRi = Heavy investment required in the form of capital at the start of business, HTi = High taxes, ICi = intense competition,  $\epsilon_i$  = Error term

## 3- Results and Discussion

On the basis of the responses of different marketing channels of rice marketing, the OLS regression was applied and the significant motivating and de-motivating factors of rice marketing for different marketing channels were identified. The details for each marketing intermediaries are given below.

### 3.1- Regression results for rice growers

Based upon the responses of the rice growing farmers, the OLS regression was applied. The results obtained through the application of OLS regression for 120 rice growing farmers' responses are given in table 1

Model	Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	.227	.116	1.953	.052		
CPAS	.212	.061	3.496	.001	.885	1.130
SAFG	.205	.065	3.141	.002	.745	1.342
PMLA	.079	.062	1.267	.207	.885	1.129
SS	.119	.054	2.204	.029	.955	1.047
SPUFI	-.080	.055	-1.468	.144	.940	1.064
RBR	.127	.059	2.160	.032	.913	1.095
HDE	.171	.068	2.521	.013	.703	1.422
CFP	-.009	.053	-.161	.872	.976	1.025
LY	-.155	.059	-2.607	.010	.917	1.091
CP	-.041	.055	-.755	.451	.931	1.074
SWRC	-.163	.074	-2.208	.028	.570	1.753
LAC	-.011	.071	-.155	.877	.586	1.706
BSCA	.045	.055	.813	.417	.925	1.081
DT	-.219	.060	-3.616	.000	.843	1.187
R-Squared	0.433					
F-Statistics	10.623			0.000		

Overall the model is fitted good as R-square value is 0.433 that shows the model is predicting 43.3% change in the explained variable. F-statistics also supports this argument (10.623, p=0.000). All the Tolerance (0.570-0.976) and Variance Inflation Factor Values (1.025-1.753) are in the acceptable ranges which show that there is no multicollinearity in our data.

Our regression results identified the five significant motivating factors including CPAS (cash payment at the spot), SAFG (selling at the farm gate), SS (status symbol crop), RBR (better results as compare to other crops) and HDE (high demand due to exportable item). These factors were found to be significant at 5 percent level of significance. CPAS was to be the most influencing factor that motivates the rice growers towards rice marketing (0.212, p=0.001). Other influencing factors included SAFG (0.205, p=0.002), HDE (0.171, p=0.013), RBR (0.127, p=0.032) and SS (0.119, p=0.029).

On the other hand, our regression results identified three significant de-motivating factors including LY (low yield per acre), SWRC (shortage of water for rice cultivation) and DT (difficulties due to transportation issues). These factors were found to be significant at 5 percent level of significance. According to these results, DT (-0.219, p=0.000) is the most de-motivating factor that forbids farmers towards rice marketing. Besides this, SWRC (-0.163, p=0.028) and LY (-0.155, p=0.010) are also found to be significant factors which de-motivate the rice growers towards rice marketing. BSCA (bound to sell to the commission agents) was among the factors identified as a de-motivating factor towards rice marketing for rice growers at the initial stage but in the regression results, BSCA is showing positive effect on rice marketing but its beta coefficient is found to be insignificant.

### 3.1.1- Explanation of the motivating factors found significant

Based upon the regression applied, considering the rice marketing as independent variable and pre defined motivating factors, five factors were found to be significant which motivate the rice growers towards rice marketing. The explanation of these factors is given below.

#### (a) Cash payment at the spot

Cash payment at the spot was found to be the most significant factor for the rice growing farmers in the study area which motivates the farmers of rice towards rice production and its marketing. Since cash is the most liquid asset and can be used by the farmers for different purposes i.e. to buy personal use items, to payback the agricultural credit or to buy inputs (seeds, fertilizer, pesticides) for the next crop so farmers were of the view that the cash payment made by marketing intermediaries is very important and useful for them. By receiving cash at the spot, it becomes very easy for them to make necessary arrangements for the cultivation of next crop. Cotton is an alternative crop which can be cultivated as an alternative of rice and it also offers the cash payment at the spot facility but the cotton production per acre i.e. yield in the area is low and farmers prefer rice over the production and marketing of cotton.

#### (b) Selling at farm gate

Selling at the farm gate was found to be the second most influencing factors for the rice marketing among the rice growing farmers in the study area. Since the rice factories in the study area are located at nearby areas, cities

and farmers from the villages face problems to transfer the rice produce at the factories due to the costly transportation so they prefer to avoid this cost by selling their rice produce to the local commission agents who collect rice from different farmers and use truck or mini truck to transfer the collected rice at the rice mills. This practice not only saves the cost but also saves the time of farmers.

*(c) Status symbol crop*

Rice as a status symbol crop was found to be one of the influencing factors for rice growers towards rice marketing in the study area. Since rice is widely grown in the study area because the natural conditions of land strongly support the cultivation of rice so when the heavy quantity of rice produce is harvested by the farmers, it is considered as a fortune and respect is paid by the fellow farmers for such farmers. Therefore this factor also motivated the rice growing farmers towards the marketing of rice.

*(d) Better results as compare to alternative crops in the season*

This factor was also found to be an influencing factor towards the rice marketing for the rice growing farmers in the study area because the alternative crops sown as a substitute of rice crop include cotton and maize. The returns from rice crop are greater than those of the alternative crops as rice has much demand by the rice mills because rice is an exportable commodity. Due to better results as compare to alternative crops, the rice growing farmers in the study area prefer to grow and market the rice.

*(e) High demand due to exportable item*

High demand of rice in the local and international market was found to be a significant factor in the study area which motivates the rice growing farmers towards its production and marketing as rice is a staple food for almost half of the world population and Pakistan is the 5th largest rice exporter in the world rice market (FAO, 2011). Every year a considerable quantity of surplus rice after meeting the local demand is exported from Pakistan so it is a profitable business for rice millers/exporters and other marketing chain members. This creates a huge demand of rice every year and farmers like to grow and market rice because of its growing demand in the local and international market.

*3.1.2- Explanation of the de-motivating factors*

Based upon the regression applied, considering the rice marketing as independent variable and pre defined de-motivating factors, three factors were found to be significant which de-motivate the rice growers towards rice marketing. The explanation of these factors is given below.

*(a) Low yield per acre*

Among the rice growing farmers in the study area, low yield per acre was found to be a factor which was de-motivating the rice growers towards its production and marketing. In the study area, normally Basmati varieties are grown as the natural land conditions are extremely suitable for the production of Basmati varieties. The yield per acre for Basmati rice is quite low in Pakistan as compare to the IRRI type varieties of rice therefore the farmers considered the low yield per acre as a de-motivating factor towards rice production and its marketing.

*(b) Shortage of water for rice cultivation*

Shortage of water for rice cultivation was also found to significant factor which de-motivates the rice growing farmers towards its production and marketing. Rice is a crop which needs excessive quantity of water during the whole cropping period. The declining level of underground water and shortage of canal water are the factors which are disturbing the delivery of uninterrupted supply of water to rice fields in the study area. Due to the shortage of water, the crop does not grow properly and if the farmers use tube wells as an alternative source of irrigation then their total cost of production increases and their profit margins decline so farmers believe that the shortage of water is de-motivating them towards rice production and its marketing.

*(c) Difficulties due to transportation issues*

Farmers faced a lot of difficulties to transfer the produce to the rice mills and it was declared one of the significant de-motivating factors by them. Especially the medium and large farmers produce the considerable quantities of rice because of greater land holdings as compare to small farmers and if they directly sell their produce to rice mills, they can receive higher price as compare to the price offered by the middlemen/commission agents but they face difficulties to move the crop after harvesting to the rice mills because of growing transportation cost, greater distances from the farm gates located at far away villages to the rice mills and poor conditions of the roads. Due to these reason, farmers in the study area believed that the difficulties faced by them during the transfer of produce from farm gate to the rice mills were de-motivating them towards rice marketing.

*3.2- Regression results for rice commission agents*

Based upon the responses of the rice commission agents, the OLS regression was applied. The results obtained through the application of OLS regression for 45 rice commission agents' responses are given in table 2

Table 2. Regression results at rice commission agents' level

Model	Unstandardized Coefficients		T	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	.465	.152	3.055	.005		
PI	.063	.082	.771	.447	.514	1.944
EAL	.017	.071	.241	.811	.743	1.346
ASB	.044	.076	.580	.566	.585	1.710
PB	.154	.071	2.153	.039	.662	1.511
FM	.132	.076	1.741	.091	.599	1.670
LRPM	.347	.094	3.714	.001	.408	2.451
DP	-.159	.070	-2.269	.030	.724	1.382
OM	-.094	.075	-1.256	.218	.599	1.670
HML	-.023	.079	-.290	.774	.598	1.673
HBR	-.090	.071	-1.271	.213	.659	1.517
TC	-.167	.072	-2.324	.027	.655	1.527
SFI	-.271	.083	-3.281	.003	.508	1.970
R-Squared	0.886					
F-Statistics	20.663			0.000		

Overall the model is fitted good as R-square value is 0.886 that shows the model is predicting 88.6% change in the explained variable. F-statistics also supports this argument (20.663,  $p=0.000$ ). All the Tolerance (0.408-0.743) and Variance Inflation Factor Values (2.451-1.346) are in the acceptable range which shows that there is no multicollinearity in our data.

Our regression results identified three significant motivating factors including PB (profitable business despite the lack of education) and LRPM (less risk because of the working on rice mills payroll) at 5 percent level of significance while FM (financing by the rice millers) was found to be significant at 10% level of significance. LRPM was the most influencing factor that motivates the commission agents towards rice marketing (0.347,  $p=0.001$ ) and others influencing factors included PB (0.154,  $p=0.039$ ) and FM (0.132,  $p=0.091$ ). PI (profit from input supply as well as from rice produce), ASB (attractive seasonal business) and EAL (easy availability of labor) are showing positive effect on rice marketing but their beta coefficients are insignificant. On the other hand, our regression results identified three significant de-motivating factors significant at 5 percent level of significance which included DP (delay in payments by the rice millers), TC (rising transportation cost) and SFI (issues in storage facilities). According to these results, SFI (-0.271,  $p=0.003$ ) is the most influencing factor that de-motivates the rice commission agents towards rice marketing. Besides this TC (-0.167,  $p=0.027$ ) and DP (-0.159,  $p=0.030$ ) are also found de-motivating factors for rice commission agents.

### 3.2.1- Explanation of the motivating factors found significant

Based upon the regression applied, considering the rice marketing as independent variable and pre defined motivating factors, three factors were found to be significant which motivate the rice commission agents towards rice marketing. The explanation of these factors is given below.

#### (a) Less risk because of rice mills payroll

Most of the commission agents were engaged in rice marketing on behalf of the rice millers so this reduces their risk in the operations of rice marketing in the study area. This factor was found to be significantly important towards their rice marketing decision. Because of being on the rice mills payroll, they need not to invest money from themselves, they get money from millers and pay it to farmers to buy inputs for rice crop and their personal risk is very low as money is provided by the rice millers and farmers are bound to pay back the money in the form of deduction from harvested crop/cash payments to the commission agents because commission agents are familiar with people and places so it is difficult for any beneficiary to become their defaulter.

#### (b) Profitable business despite the lack of education

Rice marketing was declared as a profitable business by the rice commission agents even in the absence of formal education therefore it was a motivational factor for them towards rice marketing in the study area. Rice commission agents were earning better returns just based upon their experience and their friendly relationships with farmers located at different locations. The business was profitable and did not require the presence of formal education therefore it was found to be significant motivational factor towards rice marketing by the

commission agents.

*(c) Financing by the millers*

Financing by the millers was identified as one of the influencing factor that motivates the commission agents towards rice marketing. Majority of the commission agents involved in the rice marketing business in the study area were engaged in the rice marketing due to the financing facility provided by the rice millers/exporters. Since most of the rice mills owners are also rice exporters so they are keenly interested in buying good quality of rice from the farmers so they prefer to finance the commission agents and ask them to buy rice from farmers. In this way they ensure the purchase of desired quantity of rice for processing at their rice mills. The commission agents declared this factor as a significant important factor that motivates them towards their decision of rice marketing in the study area. This factor allows them to enter into rice marketing activities even without spending any money so the removal of entry barrier makes the rice marketing environment more competitive.

*3.2.2- Explanation of the de-motivating factors found significant*

Based upon the regression applied, considering the rice marketing as independent variable and the predefined de-motivating factors as dependent variables, three factors were found to be significant which de-motivate the rice commission agents towards rice marketing. The explanation of these factors is given below.

*(a) Storage facilities issues*

Storage facilities issues were identified as the most important factor by the commission agents who de-motivate them towards rice marketing. The commission agents buy rice from different farmers and when they have rice in their possession in such a quantity which meets the maximum capacity of the truck, they move the rice towards the rice mills. After collection of rice and before the delivery to rice mills, they have to store it in warehouses but they lacked the proper warehouse facilities and due to this sometimes the pests also attack the rice because the rice has higher level of moisture. The commission agents declared the improper facilities of storage as the biggest de-motivating factor towards rice marketing.

*(b) Rising transportation costs*

Rise in the cost incurred on transportation was declared as a significant factor that de-motivates the commission agents towards rice marketing. The increasing cost on diesel was causing a decline in their profit margins.

*(c) Delay in payment by the millers*

Delay in payments by the millers was declared a significant factor that de-motivates the commission agents towards rice marketing. Although majority of the commission agents were working on the mills payroll or they were being financed by the mills in the form of provision of money for extending credit to buy inputs and to buy produce on behalf of rice millers but many commission agents were working independently. Any delay in the payments by the millers to the commission agents was considered a de-motivating factor by the rice commission agents.

*3.3- Regression results for rice millers*

Based upon the responses of the rice millers, the OLS regression was applied. The results obtained through the application of OLS regression for 45 rice miller's responses are given in table3.

Table 3. Regression results at rice millers' level

Model	Un standardized Coefficients		T	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	.602	.141	4.272	.000		
CBM	.078	.094	.827	.414	.514	1.945
ESBP	-.003	.069	-.042	.967	.853	1.172
EOB	.096	.087	1.102	.278	.599	1.670
SPM	.170	.076	2.241	.032	.685	1.459
GBR	.220	.093	2.365	.024	.463	2.161
VM	-.137	.072	-1.906	.065	.758	1.320
HLM	-.003	.072	-.040	.968	.759	1.317
SB	-.297	.085	-3.480	.001	.537	1.861
HFC	-.240	.084	-2.859	.007	.579	1.727
IC	-.231	.101	-2.297	.028	.401	2.494
R-Squared	0.866					
F-Statistics	22.064			0.000		

Overall the model is fitted good as R-square value is 0.866 that shows the model is predicting 86.6% change in the explained variable. F-statistics also supports this argument (22.064, p=0.000). All the Tolerance

(0.401-0.853) and Variance Inflation Factor Values (1.172-2.494) are in the acceptable range which shows that there is no multicollinearity in our data.

Our regression results identified two significant motivating factors towards rice marketing for the rice millers which include GBR (growing demand of branded rice) and SPM (satisfactory profit margins) significant at 5 percent level of significance. GBR is the most influencing factor that motivates the rice millers towards marketing of rice (0.220,  $p=0.024$ ) while SPM is the second significant motivating factor (0.170,  $p=0.032$ ) towards marketing of rice. The other influencing factors include CBM (convenient to buy paddy at mill gate) and EOB (export oriented business) showing positive effect on rice marketing but their beta coefficients are insignificant. Our regression results identified four factors as the significant de-motivating factor including VM (mixing of different varieties), SB (seasonal nature of business), HFC (high fixed cost) and IC (increasing cost due to alternative power usage and labor cost). Except VM (mixing of different varieties), others three factors were found to be significant at 5 percent level of significance and VM (mixing of different varieties) was found to be significant at 10% level of significance. The most influencing de-motivating factors for rice millers towards marketing of rice included SB ( $-0.297$ ,  $p=0.001$ ), HFC ( $-0.240$ ,  $p=0.007$ ), IC (0.231,  $p=0.028$ ) and VM ( $-0.137$ ,  $p=0.065$ ).

### *3.3.1- Explanation of the motivating factors found significant*

Based upon the regression applied, considering the rice marketing as independent variable and pre defined motivating factors as the dependent variables, two factors were found to be significant which motivate the rice millers towards marketing of rice. The explanation of these factors is given below.

#### *(a) Growing demand of branded rice*

Growing demand of branded rice was found to be a significant motivating factor for the rice millers towards the marketing of rice. Most of the rice millers were involved in rice exporting (branded as well as non branded rice export) as well as introducing their own rice brands at domestic level. By marketing rice in the form of brands, they are able to fetch better price from the domestic as well as international markets. In Pakistan now consumers of rice are becoming more brand conscious so the demand of branded rice has a positive impact towards the decision of branded rice marketing by the rice millers.

#### *(b) Satisfactory profit margins*

Satisfactory margin of profit was also found to be a significant motivating factor for the marketing of rice by the rice millers. The rice business is profitable for the millers because most of the millers are also exporters of rice and in the international market of rice, there is much demand of Pakistani rice. This demand is due to many factors i.e. in the middle east countries there are thousands of Pakistani people and they prefer Pakistani rice especially Basmati rice and the IRRI types varieties are also exported to many countries and as well Iran is also a big market for Pakistani rice so due to export oriented business, the rice millers/exporters earn satisfactory profit and this factor also motivates them towards marketing of rice.

### *3.3.2- Explanation of the de-motivating factors found to be significant*

Based upon the regression applied, considering the rice marketing as independent variable and the predefined de-motivating factors as dependent variables, four factors were found to be significant which de-motivate the rice millers towards rice marketing. The explanation of these factors is given below.

#### *(a) Seasonal Business*

Seasonal nature of the rice marketing business was found to be the most influencing de motivating factor for the marketing of rice by the rice millers. In many other rice growing countries, rice is cultivated more than once in a year but in Pakistan rice is cultivated just once in a year so after the harvesting season, the activities at the rice mills start and remain continue for 2-3 months and after that the rice processing plants remain idle. The rice millers have to pay the rent for the factory area. Even if the rice millers are the owners of the land, they have to look after the facility etc. In some areas of Pakistan, where the cotton crop is grown, the rice millers get involve in cotton processing/ marketing but in our study area, cotton is not grown widely so the rice plant areas remain idle so the seasonal nature of the business was considered a de-motivating factor by the rice millers towards rice marketing.

#### *(b) High fixed cost*

High fixed cost was also found to be an influencing de-motivating factor for the marketing of rice by the rice millers. For the business of rice milling, the plant has to be imported which is very costly as well as the big piece of land has to be devoted because at majority of the rice mills, the drying process is normally completed by spreading rice in an open field under the sunlight. The electricity cost is a variable cost but due to the shortage of power and sudden interruptions due to power supply outages the rice millers use heavy duty power generators which are costly so the high fixed cost was an influencing factor that de- motivates the rice millers towards marketing of rice.

#### *(c) Labour cost*

Labor cost was found to be an influencing de-motivating factor for the rice millers towards the marketing of rice. Labor is required at different stages of rice processing and the growing cost of hiring the labor was declared a



negatively influencing factor for the marketing of rice by the rice millers.

*(d) Mixing of different varieties*

Mixing of different varieties was another factor that negatively influences the rice millers towards the marketing of rice. Although Government of Pakistan has a separate institute named as “Seed Corporation of Pakistan” which is responsible to provide better quality of seed for different crops but its capacity to provide seeds to farmers is very low as well as farmers prefer to use locally marketed seed/seedlings for rice because of easy availability but this seed has mixing of different rice varieties. Due to this fact the rice grown is not pure and is a combination of different varieties. This rice is not suitable for exports as it creates problems while grading of rice so the rice millers declared the mixing of different rice varieties as a de-motivating factor for them towards the marketing of rice.

*3.4- Regression results for rice traders*

Based upon the responses of the rice traders, the OLS regression was applied. The results obtained through the application of OLS regression for 45 rice traders’ responses are given in table4.

Table4: Regression results at rice traders’ level

Model	Unstandardized Coefficients		T	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	.253	.192	1.321	.195		
GPM	.228	.119	1.921	.063	.560	1.787
WRB	.344	.107	3.208	.003	.719	1.391
GDBR	.213	.104	2.047	.048	.764	1.308
TCF	.161	.113	1.423	.164	.648	1.542
DPW	-.015	.099	-.156	.877	.800	1.250
ITC	-.281	.114	-2.467	.019	.638	1.567
HIR	.063	.108	.583	.563	.674	1.484
HT	-.285	.111	-2.570	.015	.692	1.445
IC	-.122	.111	-1.095	.281	.635	1.576
R-Squared	0.721					
F-Statistics	10.033			0.000		

Overall the model is fitted good as R-square value is 0.721 that shows the model is predicting 72.10% change in the explained variable. F-statistics also supports this argument (10.033, p=0.000). All the Tolerance (0.560-0.800) and Variance Inflation Factor Values (1.250-1.787) are in the acceptable range which shows that there is no multicollinearity in our data.

Our regression results identified three significant motivating factors including WRB (whole year running business), GDBR (growing demand of branded rice) and GPM (good profit margin). GPM was found to be significant at 10% significant level while remaining two were found to be significant at 5 percent level of significance. WRB is the most influencing factor that motivates rice traders towards rice marketing (0.344, p=0.003) while GPM (0.228, p=0.063) and GDBR (0.213, p=0.048) are also the significant motivating factor for rice traders towards rice marketing. Our regression results identified two significant de-motivating factors for rice traders including ITC (increasing transportation cost) and HT (high taxes) significant at 0.05 level. According to these results, HT (-0.285, p=0.015) is the most influencing de-motivating factor that’s de-motivates the traders towards rice marketing while ITC (-0.281, p=0.019) is also de-motivating factors for traders towards rice marketing. HIR is showing positive effect on rice marketing for the traders but its beta coefficient is insignificant.

*3.4.1- Explanation of the motivating factors found significant*

Based upon the regression applied, considering the rice marketing as independent variable and pre defined motivating factors as the dependent variables, three factors were found to be significant which motivate the rice traders towards marketing of rice. The explanation of these factors is given below.

*(a) Whole year running business*

Whole year running business was found to be the most influencing factor for the rice marketing decision by the rice traders. The traders invest heavy money on this business and they have their own rice storage facilities equipped with modern facilities of prevention of pests and other rice related diseases. They sell the required quantity of rice to the wholesalers at their demand and hence their business cycle remains continue for the whole year.

*(b) Good profit margin*

Good profit margins earning was found to an influencing factor that motivates the rice traders towards rice marketing. The traders were of the view that the business is profitable because they not only deal in rice but also in other agricultural commodities i.e. pulses, sugar, wheat etc so their fixed costs including vehicle for

transportation and storage are divided as they utilize the fix costs for different commodities so rice is a profitable business for them and this factor motivates them towards its marketing.

*(c) Growing demand of branded rice*

As per the rice traders, the demand of branded rice at domestic level was increasing as the consumers are becoming quality conscious so the traders buy branded rice from rice millers as well they create their own brand by packing the purchased rice from mills and then they distribute the rice through the wholesalers and retailers. The growing demand of the branded rice was declared one of the factors that motivate them towards rice marketing.

*3.4.2- Explanation of the de-motivating factors found to be significant*

Based upon the regression applied, considering the rice marketing as independent variable and the predefined de-motivating factors as dependent variables, two factors were found to be significant which de-motivate the rice traders towards rice marketing. The explanation of these factors is given below.

*(a) High taxes*

High taxes were identified as the most significant de-motivating factor towards the marketing of rice by the rice traders. The traders are legal registered business entities and they are entitles to pay taxes as per the tax rules of the country. The payment of taxes was considered by the rice traders as a factor that de-motivates them towards rice marketing.

*(b) Increasing transportation cost*

Increasing transpiration cost was found to be the second most influencing de- motivating factor for the rice traders for rice marketing. The rice wholesale markets are located at different distances from the location of the rice traders' warehouses. Most of the rice is produced in Punjab and Sindh province of Pakistan; 55.62% and 33.77% respectively (average production from 2005-2010) but is sold at far away locations in Pakistan so it is transported at such locations via freight trains and trucks so due to the increasing prices of oil, the transportation cost of delivering rice is increasing. Hence this factor was identified by the rice traders as a de-motivating factor towards rice marketing.

#### **4- Conclusion**

In the study area, the soil is fertile and very supportive for the production of rice. The marketing system in the study area is quite competitive as the demand of rice is high from the buyers' side to supply rice at domestic markets as well as at international markets. This factor motivates the farmers to devote the land towards rice production. The government of Pakistan should extend the coverage of provision of certified seed to farmers as this step would enhance the quality of rice and the farmers would be able to fetch better prices. Besides this, the farmers should be encouraged to produce the recommended varieties of rice as the recommended varieties have much resistance against attacks of pests and give higher yield. The shortage of water can be overcome by providing subsidy to farmers on the use electricity and diesel for irrigation purpose. The commission agents are the businessmen and government can announce the credit facility for them. By this the commission agents can upgrade their storage facilities for rice. The millers of rice should be given an exemption on the import of machinery for rice processing etc. Through the above mentioned steps, the rice marketing channels can be encouraged to better participate in rice marketing.

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