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WHAT IMPLICATIONS DOES THE WORLD FOOD PRICE RISE HAVE FOR FOOD SECURITY IN BANGLADESH

Mahbub Hossain
Ph.D. student at the University of Reading, UK and
Assistant Professor of Agricultural Economics, Bangladesh Agricultural University, Mymensingh 2202, Bangladesh, Email: mahbub@bau.edu.bd

Abstract

Bangladesh has often been regarded as a country whose food security situation is frequently worsened by price rise of essential foodstuffs. Rice has been the most significant cereal food in Bangladesh because it accounts for around 42 percent of per capita daily energy intake. Food price rise has become the most serious concern of majority of the country's household as price rise becomes the regular phenomenon in the country. One-third of the country's total population have been living under the poverty line. Regardless of the domestic rice production, Bangladesh imports around three million tonnes of rice every year which constitutes 17 percent of the country's total import. Therefore, this empirical paper has attempted to explore how Bangladeshi local rice price is being affected by the world rice price, and how rising rice price affects household food security. In doing so, co-integration model and error correction model were applied to weekly rice price data obtained from the on-line database of the Food Policy Monitoring Unit of the Ministry of Food, Government of Bangladesh. The results confirm that world rice price and Bangladesh local market rice price are co-integrated. Although there has not been any immediate impact of world price shock in Bangladesh due to the influence of short term measures taken by the government, there are long term impacts of such price shock. Logit model has been employed to determine the rice price threshold beyond which households become unable to ensure their food security. For this purpose a sample of 80 poor households whose per capita income was less than $1, was surveyed in order to obtain the required data. The results of the logit model suggest that if rice price goes beyond Tk 34 per kilogram, sample poor households become extremely vulnerable in respect of food security. Finally, some recommendations have been made at the end of this paper based on the empirical findings.

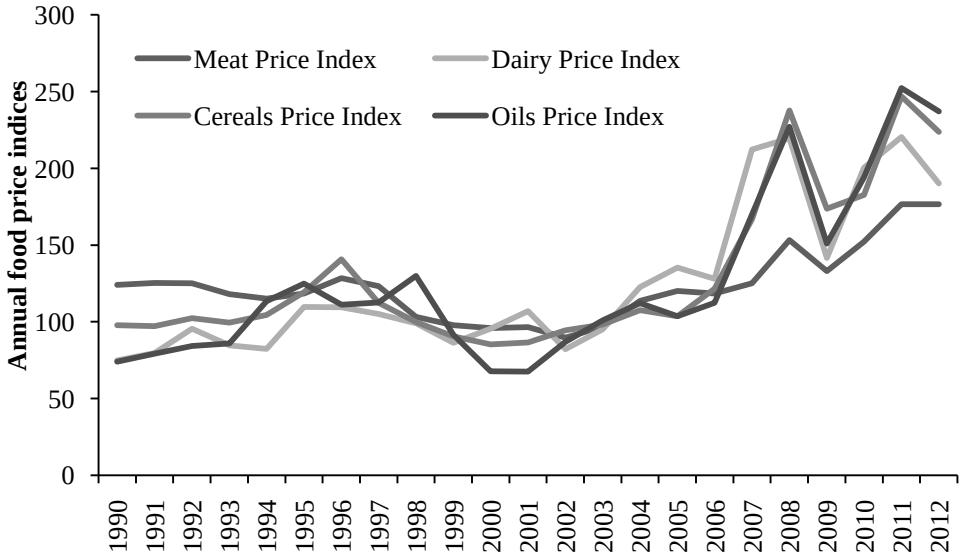
Keywords: *Food security, co-integration model, error correction model, the logit model.*

1. Introduction

It is argued that Bangladesh has been predominantly a net food importing country. Despite the impressive progress of the domestic agriculture sector in the country, Bangladesh still struggles to cope up with food price hike situation. Prices of essential foods have been increasing almost every day in Bangladesh since late 2007 food crisis. Generally, most of the essential foodstuffs are imported in Bangladesh for fulfilling the domestic food requirements.

Figure 1 shows the trend of the major food price index of Bangladesh from 1990 to 2012. It is evident that the prices of each of the major food types rose very sharply since 2007. Although, prices of all major food items fell down slightly in 2009, they again went up very

sharply in the subsequent periods. Amongst the major food items, price of cereals and edible oil marked the highest increase.



Source: FAOSTAT

Figure 1: Annual food price index in Bangladesh (Base period 2002-2004)

The major imported food items in Bangladesh include: rice, wheat, edible oil, pulse, various spices, powder milk. Among the various foodstuffs, price of rice has special significance in Bangladesh because rice is the main source of energy in the country. Rice accounts for around 42 percent of daily per capita calorie intake in Bangladesh which in terms of quantity is about 416 grams per day (HIES 2010). Bangladesh has often been regarded as rice consuming country as its per capita rice consumption rate is one of the highest in the world.

Rice has also been the most widely cultivated crop in Bangladesh. Around two-third areas of total cultivable land of the country remains under rice cultivation in three different cropping seasons in a cropping year. In spite of having such huge involvement of the country for producing rice, Bangladesh needs to import roughly three million tonnes of rice almost every year (BBS 2010).

It is well argued that the era of cheap food has gone and there is little chance that costs of agricultural production will fall in future. In Bangladesh human labour cost, and irrigation cost together accounts for more than 80 percent of costs of production in case of rice. Both these inputs are becoming costlier day by day in the country. This higher cost of production leads to higher price of rice at farm-gate as well as wholesale market and also in turn affecting retail price of rice. Rising fuel price and electricity cost resulted in higher irrigation costs. Besides, inflationary pressure has attributed to rising wages across Bangladesh.

On the other hand, world price of rice remains at extremely volatile level owing to multi dimensional reasons. Increasing costs of production in rice exporting countries, temporary export restrictions in those countries, production shortage, and adverse effect of climate change on agricultural production are the few among many other factors that lead to volatile rice price in the world market.

In the context of the scenario stated above, this empirical paper has been based on the obvious and the most pertinent questions; how world rice price affects the rice price in Bangladesh and then how the price rise impacts household food security in Bangladesh. The very next section discusses the methods that have been used in this paper to achieve the set objectives along with the description of data collection procedures. Section three and four discusses the results and, conclusions and recommendations respectively.

2. Materials and Method Used

Price data have been collected from the online database of the Food Policy Monitoring Unit (FPMU) of the Ministry of Food of the Government of Bangladesh. The FPMU has been responsible for providing information on food security status in Bangladesh with the support of National Food Policy Capacity Strengthening Programme, USAID, EU and FAO. The weekly price data of rice have been collected for the period starting from July 2008 to April 2012 which comprises 193 observations for price series that i.e., local market price of rice in Bangladesh and international market price of rice.

To test whether there is any long run equilibrium relationship between world rice price and Bangladesh local market price, co-integration model has been used. The technical aspects of co-integration model and error correction model have been discussed in the proceeding sections.

Let, Y_t= weekly local market price of rice in Bangladesh
X_t= weekly international market price of rice

If the linear combination of these two prices such as $\varepsilon_t = Y_t - \beta_1 - \beta_2 X_t \sim I(0)$ i.e., stationary then we will conclude that these price series are co-integrated. The regression coefficient estimated from the regression of the co-integrated variables measures the long term equilibrium relationship.

2.1 Economic Intuition of Co-integration Analysis

If ε_t also known as equilibrium error is stationary then this means that the two prices do not diverse from each other, in other words, they trend together. If the two prices are co-integrated then ε_t represents deviation from the long term equilibrium relationship. If any shock occurs (price hike) there will be a tendency that the equilibrium will be restored in the long run. On the contrary, if these prices are not co-integrated equilibrium error will exhibit a stochastic trend and deviation from the equilibrium will become very large over time, in which case we say that there is no long run equilibrium relationship.

Testing for co-integration was carried out following the Engle-Granger approach which implies Augmented Dickey Fuller (ADF) test on the residuals of the regression of Y_t on X_t such that, $\hat{\varepsilon}_t = Y_t - \hat{\beta}_1 - \hat{\beta}_2 X_t$.

The ADF regression takes the form, $\Delta\hat{\varepsilon}_t = \delta t + \psi\hat{\varepsilon}_{t-1} + \sum_{i=1}^{p-1} \phi_i \hat{\varepsilon}_{t-i} + u_t$
Where, $u_t \sim iid\ (0, \sigma^2)$

Here the null hypothesis is H_0: $\psi = 0$ i.e., $\varepsilon_t \sim I(1)$; No integration
H_1: $\psi < 0$ i.e., $\varepsilon_t \sim I(0)$; Co-integration

If these prices are co-integrated then we can regress $Y_t$on X_t as the following

$$Y_t = \beta_1 + \beta_2 X_t + \varepsilon_t \quad (1)$$

Where β_2 measures the effect of a permanent change in $X_t$on Y_t.

2.2 Error Correction Model (ECM)

For the further step, ECM analysis was feasible to implement indicating the impact which the international market price can have on the local market price in Bangladesh. The relationship between co-integrated variables can be expressed as an error correction model which is also known as Granger representation Theorem. The ECM can be represented as

$$\Delta y_t = \pi_0 + \psi\varepsilon_{t-1} + \pi_1\Delta x_t + u_t \quad (2)$$

The term ε_{t-1} is the residuals from the previously estimated cointegration tests. The focus of the analysis is on ε_t terms, as they provide an explanation of short run deviation from the long run equilibrium. These variables indicate the extent to which the system under consideration deviates from the long run equilibrium. In general, the ε_t coefficient indicates the short run disequilibrium response of the model. By using lagged values of ε_t, it is implied that the last period's equilibrium error will affect the current period. If ε_t equals zero, then the system is in equilibrium.

2.3 The Logit Model

The Logit model (Gujarati, 2003) was chosen to explore the effect of rice price on household food security. For this purpose a random sample of poor households of Bangladesh was surveyed with a view to obtain the required data. Six explanatory variables, five measured as continuous variables and one as discrete variable, were incorporated in the specific Logit model. These were household income (X_1), price of rice (X_2), cultivable land (X_3), household size (X_4), per capita production (X_5), and involvement in off-farm activities (X_6), which eventually give the proceeding form of the Logit model:

$$P_i = E(Y_i = 1|X_i) = \frac{1}{1+e^{-(\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6)}} \quad (3)$$

For ease of exposition, Equation (1) can be written as

$$P_i = \frac{1}{1+e^{-Z_i}} = \frac{e^{Z_i}}{1+e^{Z_i}} \quad (4)$$

Where, P_i stands for the probability of household i being food secured;

Y_i is the observed food security status of household i;

$X_{1i}, X_{2i}, ..., X_{6i}$ are factors determining the food security status of household i;

$\beta_1, \beta_2, ..., \beta_6$ stand for parameters to be estimated; and

$Z = \beta_0 + \beta_1X_1 + \beta_2X_{2i} + ... + \beta_6X_{6i}$

Now the probability of a household being food insecure is given by $(1 - P_i)$ which gives Equation (5)

$$(1 - P_i) = \frac{1}{1+e^{Z_i}} \quad (5)$$

Therefore the odds ratio, i.e., $\left(\frac{P_i}{1-P_i}\right)$ is given by Equation (6) as

$$\left(\frac{P_i}{1-P_i}\right) = \frac{e^{Z_i}/1+e^{Z_i}}{1+e^{Z_i}} = e^{Z_i} \quad (6)$$

The odds ratio is the ratio of the probability that a family is food secured to the probability that it is insecure. The natural logarithm of Equation (6) gives rise to Equation (7) as follows:

$$\text{Ln}\left(\frac{P_i}{1-P_i}\right) = Z_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + U_i \quad (7)$$

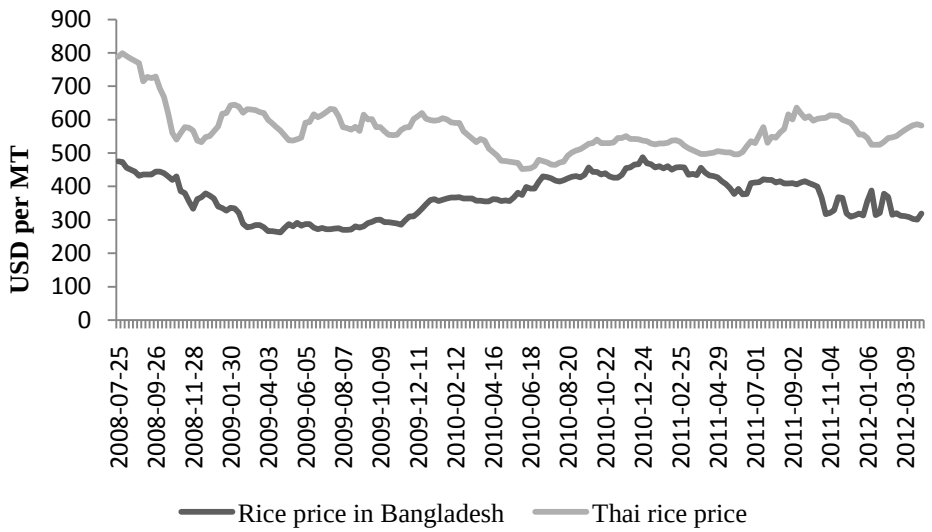
After estimating the Logit model with the help of SPSS package of 11.5 versions, the conditional probabilities can be computed from Equation (8) as

$$P_i = \frac{e^{\beta_0+\beta_1 X_{1i}+\beta_2 X_{2i}+\beta_3 X_{3i}+\beta_4 X_{4i}+\beta_5 X_{5i}+\beta_6 X_{6i}}}{1+e^{\beta_0+\beta_1 X_{1i}+\beta_2 X_{2i}+\beta_3 X_{3i}+\beta_4 X_{4i}+\beta_5 X_{5i}+\beta_6 X_{6i}}} \quad (8)$$

3. Results and Discussion

3.1. Co-integration Results of Local Market Price and International Market Price

The common objective of co-integration tests is to determine if there exists a long term relationship among the test variables. Two variables namely price of rice in Bangladesh local market (Y_t) and world price of rice (X_t) have been considered. Prices are given as US dollar per tonne. Time Series Modelling (TSM) software version 4.34 was used for the purpose of data analysis. Figure 2 represents the Bangladesh market price and world market price of rice. The procedures used for stationary testing, co-integration testing, and the ECM model estimation are described in detail in the following section.



Source: Food Policy Monitoring Unit of the government of Bangladesh

Figure 2. Weekly rice price in Bangladesh and international market

3.1.1. Unit root test

The unit root analysis was firstly used to test stationary of time series. For that reason, the Augmented Dickey Fuller (ADF) test was implemented to determine whether the series has a unit root. If the ADF test fails to reject the test in levels but rejects the test in first differences, then the series contains one unit root and is of integrated order one I(1). If the ADF test fails to reject the test in levels and first differences but rejects the test in second differences, then the series contains two unit roots and is of integrated order two I(2). For the ADF test, one must specify the number of lagged first difference terms to add in the test regression. In this analysis, time lag was specified according to Akaike Information Criterion (AIC) for each series. According to the criterion of AIC, the lowest AIC value was chosen for this implementation. If the series are found to be integrated of the same order, e.g., I(1), then co-integration tests can be performed.

3.1.2. Results of the test for stationarity

When applying the KPSS test with null hypothesis I(0) that is, the series is stationary, we obtain the results shown in the following Table 1.

Table 1. Results of the test for stationarity

Test of I(0)	KPSS test	P value	Accept/ Reject H_0: I(0)
Rice price in Bangladesh	0.595462	<0.025	Reject the null
Rice price in the international market	0.949786	<0.01	Reject the null

Source: Author's calculation.

Table 2. Results of the test for non stationarity

Test of I(1)	ADF test	p value	Accept/ Reject H_0: I(1)
Rice price in Bangladesh	-1.45959	<0.9	Do not reject the null
Rice price in the international market	-3.86602	<0.10	Do not reject the null

Source: Author's calculation.

The results of the ADF test presented in Table 2. reveal that the price series of rice are I(1). Therefore, if they are co-integrated then they share stochastic trends and ε_t obtained from regressing local rice price on international price should be stationary. Unit root test of the residuals are given below in Table 3.. Figures within the parentheses indicate p-value. We can see the null hypothesis of the test of stationarity is not rejected which confirms the co-integration between the international rice price and local market price of rice in Bangladesh.

Table 3. Stationary test of estimated residuals

Tests of I(0):	KPSS test = 0.207893 {<1}
Tests of I(1):	Augmented Dickey-Fuller Test = -7.06908 {<0.01} Phillips-Perron test = -12.0081 {<0.01}

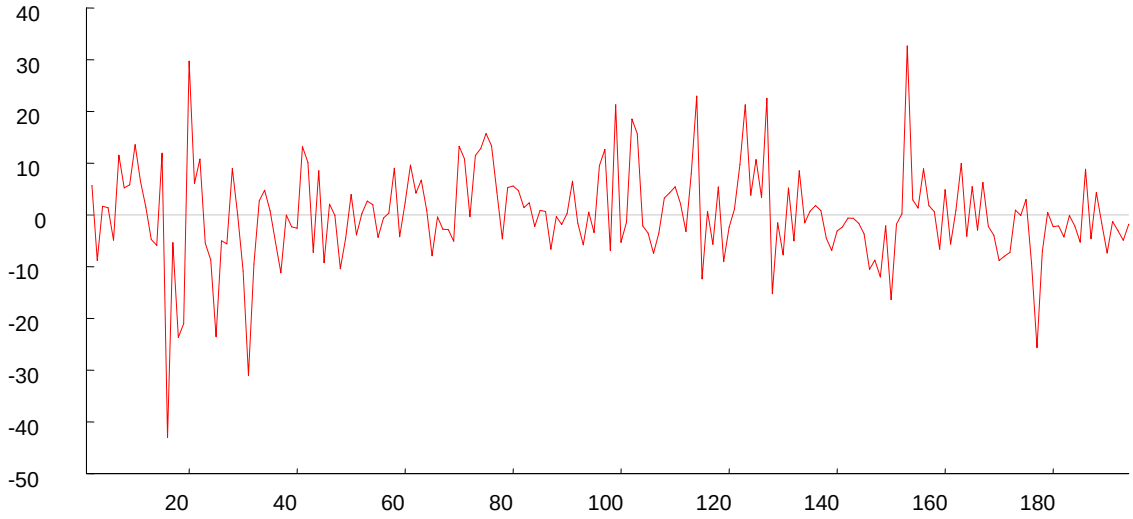


Figure 3. Stationarity of estimated residuals

3.1.3. Engle and Granger Error Correction Model

The residuals from the co-integrating regression capture deviations from the equilibrium of rice prices in two markets. Therefore, it can be estimate both for the short and long term effect of international price of rice on price of rice in Bangladesh by including the lagged residuals obtained from the co-integrated regression as our measure of the error correction mechanism explained in methodology section.

Table 4. Results of error correction model

	Coefficient	Standard error	t ratio	p value
Intercept (π_0)	18.8103	6.37957	2.949	0.004
Δ International price (π_1)	0.0167	0.04819	0.347	0.729
ECM (ψ)	-0.02316	0.00911	-2.542	0.012

Source: Author's calculation

3.1.4. Short-term and Long-term Dynamics of Rice Prices in Bangladesh

The error correction term tells us the speed with which the concern model returns to equilibrium following an exogenous shock. Here in this particular rice prices model the error correction term has found to be negative and significant, suggesting that the long term equilibrium relation between rice prices in Bangladesh and in world market is dynamically stable. On the contrary, the coefficient of world market price change is not statistically significant meaning that international rice price does not appear to have significant short term effects on change in rice price in Bangladesh. However, any price shock in the world rice price will certainly have distorting effect on rice price in Bangladesh market, but the equilibrium relationship between them will be restored again in the long term since the sign of the error correction term is negative.

The error correction coefficient of -0.02316 suggests that about 2.32 percent of price movement back towards equilibrium in the next time period i.e., one week. Intuitively, if there has been a price shock of 100 percent increase in the world rice price then its permanent impact will be reflected in Bangladesh rice market over a period of roughly 43 weeks or 11 months. Therefore, rise in the world market price of rice has serious concern for the government of Bangladesh from the viewpoint of food security because Bangladesh is a net rice importer and food-grain import alone comprises 17 percent of the country's total import.

On the other hand, plausible reason of not having short term or immediate impact of world market price shock on domestic market in Bangladesh could be the short term responses taken by the government of Bangladesh when price surge in the country is anticipated. To tackle the impact of price surge of rice in the domestic market, the Government of Bangladesh does take some urgent measures. These measures in line with the national food policy intend to make food-grain (especially rice) available to the poor households in order to enable them to acquire staple food, and to stabilise price by distributing food-grain in urban and rural areas; thus preventing excessive food-grain price increase. Ministry of Food in Bangladesh has been maintaining food stocks of rice and wheat, and public food distribution system in the country. Government of Bangladesh distributes food through two major channels: monetised (sales) and non-monetised (targeted). Monetised channels include subsidised sales through essential priorities and other priorities, sales to the Ministry of Education for food for education programme, and Open Market Sale (OMS) where rice is sold in small lots at fixed prices whenever market price goes up at an abrupt rate. Targeted distribution channel includes Food for Works Programmes (rural infrastructure development and rural development), Vulnerable Group Development (targeted to the poor women), Relief programs (test relief, gratuitous relief, vulnerable group feeding, vulnerable group development).

Government of Bangladesh maintains its food stock to be distributed through public distribution system. This stock has been accumulated from the three sources which are private imports, food aids and domestic procurement. Besides, the Government of Bangladesh has already liberalised rice import for the private importers in order to increase the rice inflow in the country. Apart from the internal procurement of food-grains and imports, Bangladesh also receives food aids from donor countries every year. Accumulations of all these sources have been helping to maintain and to raise the food-grain stock in Bangladesh.

3.2 Food Security and the Logit Model

The estimated parameters of the Logit regression model have been presented in Table 5. Each slope coefficient in this regression is a partial slope coefficient and measures the change in the estimated Logit for a unit change in the value of the given regressors, holding other regressors constant. In general, the antilog of the j-th slope coefficient (if there is more than one regressor in the model), subtracting 1 from it, and multiplying the result by 100, will give the percent change in the odds for a unit increase in the j-th regressor (Gujarati, 2003).

Table 5. Estimated Parameters of the Logit Regression Model

Variable	Coefficient/ value	Standard error	Significance	Exp (β) Odds ratio
Constant	-24.735	22.744	0.277	0.000
Income (Tk)	0.005*	0.002	0.006	1.005
Price of rice (Tk/kg)	-0.078	0.454	0.864	0.924
Cultivable land (decimal)	0.041	0.099	0.680	1.042
Household size (No.)	-0.283	1.337	0.832	0.754
Per capita production (kg)	0.030**	0.014	0.026	1.031
Involvement in off farm activities	0.170	1.497	0.910	1.185
Model Chi-square	57.992*		0.000	
-2 Log likelihood	15.005			

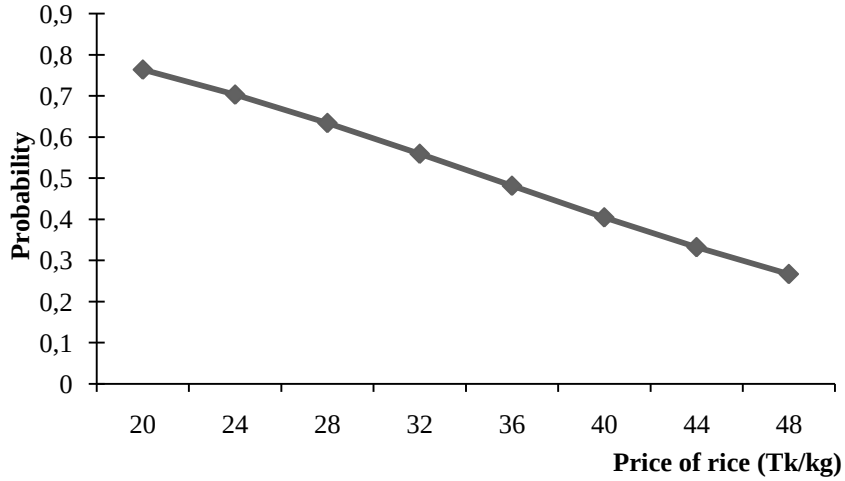
Source: Author's calculation * Significant at 1 percent ** Significant at 5 percent

Household income (X_1): Higher income leads to have greater accessibility to food whereas household having low income remains vulnerable during rising food prices in regard to access to food, because increase in food price reduces purchasing power of low income group. The income coefficient of 0.005 means, with other variable held constant, that if income increases by a unit, on an average the estimated Logit increases by 0.005 units, suggesting a positive relationship between household income and food security. It may be noted that $P_i = ln[p_i/(1-p_i)]$ therefore, the antilog of the estimated Logit, gives $p_i/(1-p_i)$, that is, the odds ratio. It can easily be verified that $e^{0.005} = 1.005$. This means that for a unit increase in income, the odds in favour of being food secured increases by 1.005 or about 0.5 percent.

Price of rice (X_2): Rising of the price of rice is expected to affect food security negatively. The price coefficient is -0.078, which means, with other variables held constant, if price of rice increases by a unit, on an average the estimated Logit decreases by 0.078 units, suggesting a negative relationship between price of rice and food security. The odds ratio was 0.924 $\approx e^{-0.078}$. This means that for a unit increase in price of rice, the odds in favour of being food secured decreases by 0.924 or about 7.6 percent. The conditional probability of food security at different prices of rice is presented in the Table 6 which has been calculated keeping the rest of the independent variables fixed at their mean values.

Table .6. Probability of Household Food Security at different Prices of Rice

Price of rice (Tk/kg)	Probability of food security	Rate of change of probability	Price of rice (Tk/kg)	Probability of food security	Rate of change of probability
24	0.703181	-0.01628	36	0.481631	-0.01947
26	0.669625	-0.01726	38	0.442873	-0.01925
28	0.634249	-0.01809	40	0.404799	-0.01879
30	0.597363	-0.01876	42	0.367836	-0.01814
32	0.559342	-0.01923	44	0.332365	-0.01731
34	0.520611	-0.01947	46	0.298697	-0.01634



Source: Author's calculation

Figure 4. Probability of Household Food Security at different Prices

Table 6 shows that household vulnerability to food security increases as price of rice increases, which has also shown in Figure 4. The rate or change in probability is the rate by which probability of food security decreases for a unit increase in price of rice. Households become more and more food insecure as price of rice increases. From Table 6 it can be seen that if rice price per kg raises one unit from Tk 24, probability of food security decreases 0.016 or 1.6 percent. This empirical result shows that household became food insecure when price of rice exceeded Tk 34 per kg. Any further increase of price bounds household to be food insecure. So impact of price hike on food security can be easily understood from this empirical result.

Cultivable land (X_3): The cultivable land coefficient of 0.041 means, with other variables held constant, if cultivable land increases by a unit, on an average the estimated Logit increases by 0.041 units, suggesting a positive relationship between cultivable land and food security. The odds ratio was 1.042 $\approx e^{0.041}$. This means that for a unit increase in cultivable land, the odds in favour of being food secure increases by 1.042 or about 4.2 percent.

Household size (X_4): The household size coefficient of -0.283 means, with other variables held constant, if household size increases by a unit, on an average the estimated Logit decreases by 0.283 units, suggesting a negative relationship between household size and food security. The odds ratio was 0.753 $\approx e^{-0.283}$. This means that for a unit increase in household size, the odds in favour of being food secure decreases by 0.753 or about 24.7 percent.

Per capita production (X_5): Per capita production coefficient of 0.030 means, with other variables held constant, that if per capita production increases by a unit, on an average the estimated Logit increases by 0.030 units, suggesting a positive relationship between per

capita production and food security. The odds ratio was 1.030 $\approx e^{1.030}$. This means that for a unit increase in per capita production, the odds in favour of being food secure increases by 1.030 or about 3 percent.

Involvement in off-farm activities (X_6): Engagement in off-farm and non-farm activities was measured by whether or not a household was involved in those activities i.e., a dichotomous variable was used. A household which was engaged in off-farm and non-farm activities took a value of one and households which did not engage in those activities took a value of zero. The coefficient of the variable was 0.170. Positive sign indicates a positive relationship between food security and involvement in non-farm activities. A more meaningful interpretation can be made in terms of odds ratio which was 1.185 $\approx e^{0.170}$. This suggests that households which were engaged in non-farm professions were nearly 1.18 times likely to be food secure than those households who were not engaged in non-farm activities, all else being unchanged.

4. Conclusion and Recommendation

This paper had the intention to explore how world market price affect local price of rice in Bangladeshi market as the country is a net food (rice) importing country, and further to this there was an attempt to quantify the impact of rising rice price on household food security. In achieving these objectives this paper passed through a variety of advanced econometric analysis: namely co-integration model, error correction model, and the Logit model. Price data for the analysis were collected from the most reliable on-line database of the government of Bangladesh. Time Series Modelling (TSM) version 4.34 and SPSS version 11.5 software were used to carry out the sophisticated econometric analyses.

The empirical results confirm that Bangladesh local market rice price is co-integrated with the world price of rice. Although the analysis reveals there is no short term or immediate impact of rising rice price in world market on Bangladesh local market, there is long term impact of such price shock. In the wake of rising rice price in the world market, domestic rice price in Bangladesh tend to rise too, but the government of Bangladesh has taken up a good many measures to combat the inevitable price hike situation in the country. These measures have proved to be effective to cope with the price hike situation in short term. Some of the most successful measures are open market sales, a variety of safety net programmes designed to benefit the most distressed part of the society, food for works, food for children enrolled in the primary schools. At the same time, a good many literatures suggested that there were evidences of allegation against those social safety net programmes meaning that they were not implemented properly. Therefore, there is, in fact little reason to assume that following social safety net programmes would be an effective tool to combat the rice price shock and the resulting food insecurity and hunger.

This paper had another extremely crucial objective relating to determining the price threshold beyond which household food security becomes unattainable for the poor households in Bangladesh. Eventually this has been achieved by using Logit model together with incorporating a few other important variables in the model. Per capita income of households and per capita production of rice are the proven determinants of household food security. Greater income leads to possess greater choice of food by households and also enables to acquire food according to households' preference and requirements. This statement has been backed by the empirical finding of the Logit model too.

The more is the per capita rice production, the more of it is available for consumption by households. Per capita production in excess of consumption also contributes in the

marketable surplus should they wish to sell rice. This has also been supported by the empirical results that there has been significant positive relationship between per capita rice productions with household food security which seems quite reasonable also.

The empirical results infer that household becomes vulnerable when rice price exceeds Tk. 34 per kilogram with regard to food security. It is to be noted here that with the given amount of income the sample households earns, they can merely maintain food consumption at such a level high enough to give at least 2,122 kilocalorie per person per day when price of rice remains below or up to Tk 34 per kilogram.

Based on the empirical findings of this research paper, it can be recommended that Bangladesh needs to reduce dependency on world market for food. Attaining self sufficiency in food-grain production should be the foremost priority of the country's agricultural policy.

Emphasis should be given to ensure that the rice farmers intend to increase rice production. Farmers should be provided with quality seeds of modern or high yielding varieties, timely credit, stable and accessible source of fertilizers, and irrigation.

In case of rice import, government should look forward to explore whether rice can be imported cheaply from other sources. Government of Bangladesh should also set mechanism to monitor rice production in rice exporting countries and to watch closely the price movement in the world market, so that it can take quick decisions as to decide when and where the import order needs to be placed.

Poor households become the first group of affected people from rice price shock whose food security is already in threat at present. The optimal solution would be for the government to take all possible steps in order to maintain price of rice at a stable level and within the purchasing capacity of majority of the population. Government has to be very tricky in this regard because such market intervention, if there any, may be hindrance to increasing rice production in the country as well.

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