

Poverty and Food Security in Rural Bangladesh

By

Pk. Md. Motiur Rahman (University of Dhaka)

Noriatsu Matsui (Yamaguchi University)

Yukio Ikemoto (University of Tokyo)

Poverty and Food Security in Rural Bangladesh

Introduction: Definition of Food Security

Food security is the basic human right. Therefore, every individual should have entitlement to food for all the times. The UN Food and Agricultural Organisation (UNFAO) defined food security as ‘having access to safe and nutritional food for all people at all times’ to maintain a healthy and active life in the society. Thus entitlement and safety are intrinsic elements of food security.

A survey of 1,282 households was conducted in 32 villages of 8 districts all over in Bangladesh. The total of 6,397 people were involved in this survey in which the chronically poor households are separated from other categories of economic groups: non-poor, descending non-poor, and ascending poor.

This paper reports the results of the survey concerning their food security, insecurity and the situation of diet. After examining these findings, some analytical conclusions are derived. This is a part of a larger study that tries to understand and analyse the concrete and more accurate characteristics of the chronically poor households in rural Bangladesh. The entire sketch and summary of the survey should be referred to in the previous reports.

The following section measures food security by a number of ways and different

variables.

1. Food Security

Perceived food security status was measured by asking question at the household level “whether you had food deficit or surplus in the last year”. They replied on a four point scale ranging from ‘always deficit’ to ‘always surplus’. The sample results are shown in Table 1. The highest percentage of *chronically poor* households (61%) reported that they had always food deficit, 35 percent said that they had sometimes food deficit and only 4 percent mentioned that they were in breakeven or vulnerable position. Conversely, nearly three-quarters of the *non-poor* households reported that they had always food surplus and one-quarter lived in breakeven situation. After the *chronically poor*, the *descending non-poor* households had problem in respect of food security and about 20 percent of them had always food deficit, 48 percent had sometimes deficit and 30 percent were in breakeven position. Majority of the *ascending poor* households reported that they had no problem meeting their food needs and only 22 (10%) households mentioned that they had sometimes food deficit.

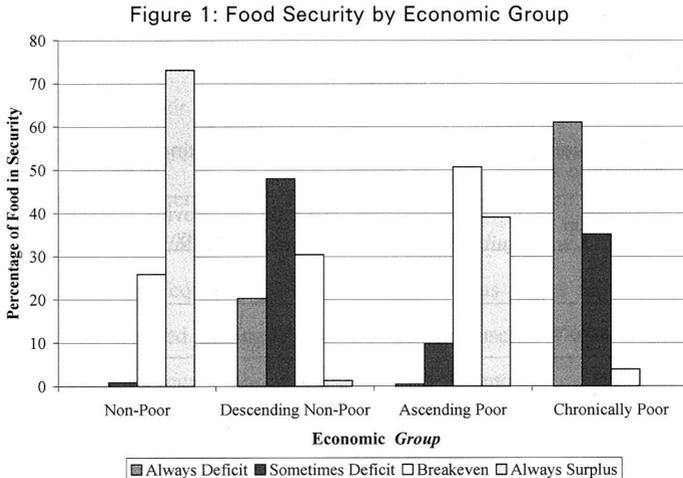
Thus, perceived food security appears to be directly related to economic group. Households that reported a much worse economic situation also reported always having trouble satisfying their food needs. Conversely, of those households reporting a much better economic situation also reported never having trouble meeting their food needs.

Table 1: Food Security Status by Economic Group.

Type of Food Insecurity	Economic Group				Total
	Non-Poor	Descending Non-Poor	Ascending Poor	Chronically Poor	
Always deficit	—	46 (20.3)	1 (0.4)	311 (61.0)	358 (27.9)
Sometimes deficit	3 (0.9)	109 (48.0)	22 (9.8)	179 (35.1)	313 (24.4)
Breakeven	83 (25.9)	69 (30.4)	114 (50.7)	20 (3.9)	286 (22.3)
Always surplus	234 (73.1)	3 (1.3)	88 (39.1)	-	325 (25.4)
Total	320 (100.0)	227 (100.0)	225 (100.0)	510 (100.0)	1282 (100.0)

Figure in the parenthesis in column percentage

According to the economic situation the *chronically poor* households severely suffer from food insecurity followed by the *descending non-poor* and the *ascending poor* while non-poor households had no food insecurity over the year.



2. Perception of Food Insecurity

The common practice of rural people of Bangladesh is to take three meals a day. But due to poverty some people take two meals a day during lean periods and some people take even one meal in some months, particularly in the pre-harvesting periods i.e. in the months of Ashar (mid-June - mid-July), Sraban (mid-July - mid-August) and Kartik (mid-October - mid-November).

Perceived food insecurity were measured by asking the question at the household level “whether they could furnish the adequate food (3 meals a day) to their all family members in the last year”. In response to that all *non-poor* households reported never having trouble meeting households’ food needs, while 92 percent of the *chronically poor*, 54 percent of the *descending non-poor* reported that they could not eat 3 meals every day in the last year and 11 percent of the *ascending poor* pointed out that they always had problems meeting adequate food to their family members. Thus, the most insecure are chronically poor households followed by descending non-poor households. The sample results by economic group are shown in Table 2.

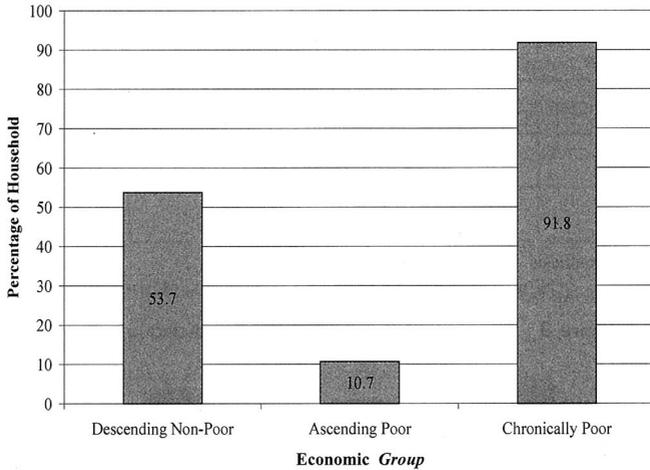
Table 2: Distribution of Households by Problems Meeting Adequate Food and Economic Group.

Economic Group	Could provide 3 meals/day	Could not provide 3 meals/day	Total
Non-Poor	320 (100.0)	—	320 (100.0)
Descending Non-Poor	105 (46.3)	122 (53.7)	227 (100.0)
Ascending Poor	201 (89.3)	24 (10.7)	225 (100.0)
Chronically Poor	42 (8.2)	468 (91.8)	510 (100.0)

Figure in the parenthesis is the row percentage

Figure 2 illustrates the severity of food deprivation among the sample households.

Figure 2: Percentage of Households that Could not Provide 3 meals/day



3. Duration of Food Insecurity

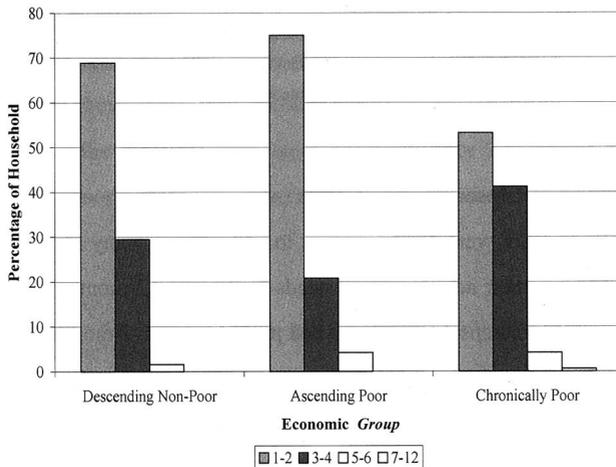
When the respondents were further asked to state “how many months they had problems satisfying their adequate food needs in the last 12 months”, 53.0 percent of the chronically poor reported that they had problems for 1-2 months, 41.0 percent for 3-4 months, 5.0 percent for 5-6 months and 0.6 percent for 7-12 months. Majority of the *descending non-poor* (69%) and *ascending poor* (75%) households had trouble meeting adequate food for 1-2 months. Thus severe food deprivation is remarkably concentrated among chronically poor households and some of them suffer from food insecurity for more than 7 to 12 months. These results are outlined in Table 3. Figure 3 shows the percentage of households facing problems in getting adequate food.

Table 3: Distribution of Households According to Duration of Problems Meeting Adequate Food by Economic Group.

Duration (in months)	Descending Non-Poor	Ascending Poor	Chronically Poor
1-2	84 (68.9)	18 (75.0)	249 (53.2)
3-4	36 (29.5)	5 (20.8)	193 (41.2)
5-6	2 (1.6)	1 (4.2)	23 (4.2)
7-12	—	—	3 (0.6)
Total	122 (100.0)	24 (100.0)	468 (100.0)

Figure in the parenthesis is column percentage.

Figure 3 : Duration of Problem in Getting Adequate Food.



4. Food Insecurity and Dietary Adjustment

Many households who suffer from food insecurity mentioned that they follow diet adjustment strategy during food crisis. About 4 percent of 468 *chronically poor* households reported that they took one meal a day, 88.5 percent took two meals and 7.5 percent took three meals a day. Similarly, about 3 percent of the 122 *descending*

non-poor households took one meal, 85 percent took two meals and 12 percent took three meals a day. Situation of *ascending poor* households is relatively better than the former two groups and no one took one meal a day. But nearly 67 percent of the 24 *ascending poor* households took two meals and the rest 33 percent took three meals a day. Deprivation in food among the *chronically poor* and *descending non-poor* households were huge and majority of them could not manage three meals a day throughout the year (Table 4). Figure 4 shows the deprivation of adequate food per day.

Figure 4: Adjustment of Diet for Food Insecurity

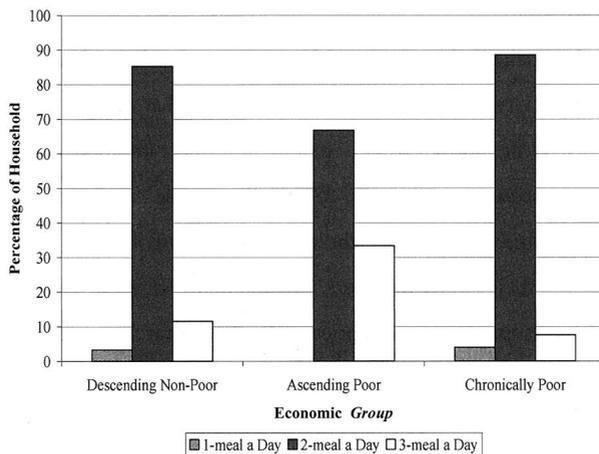


Table 4: Distribution of Households who Adjusted Diet by Economic Group.

Diet Modification Strategy	Descending Non-Poor	Ascending Poor	Chronically Poor
1-meal a day	4 (3.3)	—	19 (4.0)
2-meals a day	104 (85.2)	16 (66.7)	414 (88.5)
3-meals a day	14 (11.5)	8 (33.3)	35 (7.5)
Total	122 (100.0)	24 (100.0)	468 (100.0)

Figure in the parenthesis is the column percentage.

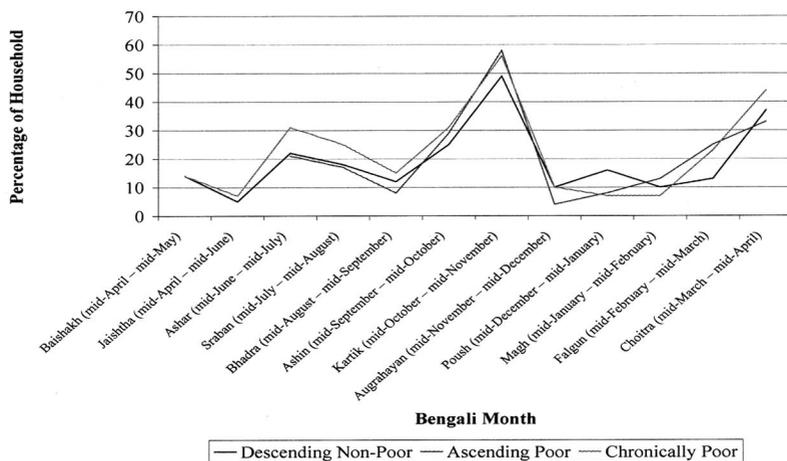
5. Seasonality in Food Insecurity

The ability of a household to provide adequate food to its household members in all months of a year is a good indicator of food security. But there are seasonal variations in food security which are mainly caused by change in crop seasons and these variations occur in a periodic manner. Poor households cannot furnish its members with adequate food in all months. The main causes for seasonal variations in food security are the prices of food such as rice, wheat etc. which fall after harvesting season and rise before sowing time. In Bangladesh, rural households endure an average of four months during which household members suffer from adequate food security. These months appear to be during the lean period that runs from Bhadra to Augrahyayan or roughly July to November. When the respondents were requested to make their assessment regarding most vulnerable month in respect of food security in twelve months, they mentioned that Kartik (mid-October - mid-November) is the most difficult month in respect to food security and 49 percent of the *descending non-poor*, 58 percent of the *ascending poor* and 56 percent of the *chronically poor* households could not provide adequate food in the month of Kartik to their family members. The month of Kartik is traditionally called “Mora Kartik (no employment, high price of food and scarcity of food)” thought to be one of the adverse lean seasons just before the “aman rice” harvest season. As a result there is a significant temporal variation in food consumption among the poorer people. The month of Choitra (mid-March - mid-April) is another adverse period for the poor people in respect of food security. Table 5 shows the percentage of households that can not provide food by month. We observe the gradual increase in food insecurity from November to May with a sharp rise in March and then dramatic fall in Augrahyayan to Magh. When examined by economic status, the seasonal variation in food security is more or less similar. Figure 5 shows the seasonal variations in percentage of households that can not provide adequate food by month.

Table 5: Percentage Distribution of Households According to Food Insecurity by Months and Economic Group.

Bengali Month	Descending Non-Poor	Ascending Poor	Chronically Poor
<i>Baishakh</i> (mid-April - mid-May)	14.0	—	14.0
<i>Jaishtha</i> (mid-April - mid-June)	5.0	—	7.0
<i>Ashar</i> (mid-June - mid-July)	22.0	21.0	31.0
<i>Sraban</i> (mid-July - mid-August)	18.0	17.0	25.0
<i>Bhadra</i> (mid-August - mid-September)	12.0	8.0	15.0
<i>Ashin</i> (mid-September - mid-October)	25.0	29.0	31.0
<i>Kartik</i> (mid-October - mid-November)	49.0	58.0	56.0
<i>Augrahayana</i> (mid-November - mid-December)	10.0	4.0	10.0
<i>Poush</i> (mid-December - mid-January)	16.0	8.0	7.0
<i>Magh</i> (mid-January - mid-February)	10.0	13.0	7.0
<i>Falgun</i> (mid-February - mid-March)	13.0	25.0	23.0
<i>Chaitra</i> (mid-March - mid-April)	37.0	33.0	44.0

Figure 5: Seasonality in Food Insecurity.



6. Intergenerational Mobility in Food Security

A simple cross tabulation of sample households according to food security of father and his son (respondents) by economic group is shown in Tables 6 - 9. Perceived food security was measured by asking the question to the household heads “what was the food security situation of his father and his own?” Food security was measured on four point scales “Always deficit”, “Sometimes deficit”, “Breakeven” and “Always surplus”. The first category indicates food insecurity at all the times of the year, while the second category indicates food insecurity at some times of the year. Breakeven category means households are vulnerable in respect of food security. Households which have always food surplus are said to be fully secured in respect of availability of food at all the times of the year. The mobility matrix has been prepared separately for non-poor, descending non-poor, ascending poor and chronically poor households. These mobility matrices explain intergenerational process of transformation in respect of food security from father to son. Table 6 highlights the process and direction of mobility of non-poor households in the form of matrix notation.

Table 6: Mobility Matrix of Food Security for Non-Poor Households

Food security status during father's time	Category	Food Security Status at Present Time				Total
		Always deficit	Some-times deficit	Break-even	Always surplus	
	Always deficit	—	—	1	—	1
	Sometimes deficit	—	—	9	9	18
	Breakeven	—	2	41	62	105
	Always surplus	—	1	32	163	196
	Total	—	3	83	234	320

From a comparison of marginal totals of row and column, it reveals that 25 percent of all non-poor households (above the diagonal) experienced upward mobility, while only 11 percent households (beneath the diagonal) experienced downward mobility. One household advanced from 'always deficit' condition of father to 'breakeven' condition of son, while 9 households moved from 'sometimes deficit' to their next higher group 'breakeven' and additional 9 households moved out from 'sometimes deficit' to higher category of security (always surplus). It is interesting to note that 204 (41 + 163) or 64 percent of all non-poor households remained in the same inherited groups and not a single household moved to the worst situation of food insecurity.

Table 7 illustrates the mobility matrix of descending non-poor households. It is observed that only 8 or 3.5 percent of all households could improve their position in respect of food security from the inherited category of which one household moved from always deficit to breakeven, 6 moved from sometimes deficit to breakeven and one household moved from breakeven to always surplus category. On the contrary, 78 percent of the descending poor households showed downward mobility from father's status. Food security status of 4 father's households were 'always deficit' but this status is now prevailing in 47 son's households. Conversely, food security status of 78 father's households was 'always surplus' but only 3 sons could maintain this status and 75 households slid down to always deficit (13 households), sometimes deficit (29 households) and breakeven category (34 households). In summary, about 81 percent of all descending non-poor households changed their inherited category to new categories of which 3.5 percent showed upward mobility (above the diagonal) and 78 percent experienced downward mobility (beneath the diagonal). This wide variation in degree of mobility between two periods may be mainly due to deterioration of socio-economic conditions of son.

Table 7: Mobility Matrix of Food Security for Descending Non-Poor Households

Food security status during father's time	Category	Food Security Status at Present Time				Total
		Always deficit	Some-times deficit	Break-even	Always surplus	
	Always deficit	4	—	1	—	5
	Sometimes deficit	12	9	6	—	27
	Breakeven	18	70	28	1	117
	Always surplus	13	29	34	2	78
	Total	47	108	69	3	227

The mobility in food security status in ascending poor households is quite opposite to that of descending non-poor households. The survey results indicate that about 86.3 percent of the total ascending poor households experienced upward mobility (above the diagonal), while 4.4 percent showed downward mobility (beneath the diagonal) in respect of food security (Table 8). A total of 55 father's household was in always deficit category but now only one household belongs to that category. On the contrary, 8 fathers were in 'Always surplus' category, now 69 households moved to that category and some households passed through all four categories. About 9.3 percent households have the same status as they inherited and 10 households moved from inherited higher category to lower category.

Table 8: Mobility Matrix of Food Security for Ascending Poor Households

Food security status during father's time	Category	Food Security Status at Present Time				Total
		Always deficit	Some-times deficit	Break-even	Always surplus	
	Always deficit	—	14	22	19	55
	Sometimes deficit	1	3	71	33	108
	Breakeven	—	2	17	35	54
	Always surplus	—	3	4	1	8
	Total	1	22	114	88	225

The mobility matrix of food security for chronically poor households shows more or less statistic condition and there is no distinct shift from lower categories to higher category. The main diagonal elements of mobility matrix (Table 9) indicate that a

household will remain in the same state of food security from one generation to the next. The 312 (210 + 87 + 15) or 61.2 percent of the chronically poor households stayed in the same inherited categories of food security, while 32.1 percent households showed downward mobility. Only 29 households moved from always deficit category to sometimes deficit category, while 5 households moved from sometimes deficit to breakeven category and non of the chronically poor could move to always surplus category. Out of 510 chronically poor households only 20 households were in the breakeven category and 490 households remain in the initial state and these households have been suffering from food insecurity from initial state (father's generation) to the present state. This is because the socio-economic conditions of the chronically poor have not been improved over the period.

Table 9: Mobility Matrix of Food Security for Chronically Poor Households

Food security status during father's time	Category	Food Security Status at Present Time				Total
		Always deficit	Some-times deficit	Break-even	Always surplus	
	Always deficit	210	29	—	—	239
	Sometimes deficit	83	87	5	—	175
	Breakeven	12	57	15	—	84
	Always surplus	8	4	—	—	12
	Total	313	177	20	—	510

There are large differences in food insecurity across economic groups. Food insecurity is very pervasive among the chronically poor households, with more than 60 percent of the chronically poor households are likely to have always food deficit and 35 percent suffered from time to time food deficit. These figures in previous generation (father's time) were 47 percent and 34 percent respectively. Thus the situation of food insecurity has further deteriorated over the period. Similar situation is observed for descending non-poor households.

Conclusions:

The food security perceived by people themselves was asked. More than sixty percent of the chronically poor households reported that they had been in 'Always deficit' in the past year. Non-poor did not have this type of food insecurity, and the ascending poor and the descending non-poor had 0.4 percent and 20 percent respectively. By including the two types of food insecurity: 'Always deficit' and 'Sometimes deficit', more than 96 percent of the chronically poor and 68 percent of the descending non-poor were in these types of insecurity, while these numbers were less than 1 percent and about 10 percent for the non-poor and the ascending poor, respectively. Thus, perceived food security/insecurity can be said to be directly related to economic group.

Food insecurity situation of the rural people in Bangladesh has been examined by (1) diet modification (number of meals a day), (2) seasonal variation, and (3) intergenerational mobility. The major findings from the survey are:

- (1) 93 percent of the chronically poor households have adjusted their diet, number of meals a day to 1 or 2 meals a day. This figure is striking particularly when compared with nil of the non-poor, 67 percent of the ascending poor, and 88 percent of the descending non-poor. Many of the chronically poor households endure 1 to 4 months of food insecurity.
- (2) In terms of the seasonality pattern of lean diet, there is no striking difference among the different economic groups. Three groups of the chronically poor, descending non-poor, and ascending poor all do suffer most during the period of mid-October to mid-November.
- (3) Examinations of the mobility matrixes revealed that the chronically poor households appeared to be most bounded by the father's generation. The intergenerational mobility seems to be an important factor for the determination of the fate of the current generation with respect to the poverty status in rural

Bangladesh.

References:

Pk. Md. Motiur Rahman, Noriatsu Matsui & Yukio Ikemoto, "Livelihood Struggles of the Chronic Poor in Rural Bangladesh (1)," *Yamaguchi Journal of Economics, Business Administrations and Laws*, 54(2), June 2005 (75-111)

_____, "Livelihood Struggles of the Chronic Poor in Rural Bangladesh (2)," *Yamaguchi Journal of Economics, Business Administrations and Laws*, 54(6), March 2006 (29-51)

_____, "Livelihood Struggles of the Chronic Poor in Rural Bangladesh (3)," *Yamaguchi Journal of Economics, Business Administrations and Laws*, 55(2), July 2006 (99-114)