

Food Security and the Ultra poor

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Abstract

This paper aims to derive some policy guidelines by analysing factors affecting food security of the ultra poor. Here more emphasis is given on the number of rice meals taken and the sources of rice consumed during the last 24 hours. Results show that only 17% of the ultra poor had the capacity to purchase rice for three meals a day. Twenty percent had to depend on help from others. One-fourth had only one rice meal, managed through any source. Food security was found to be highly correlated with household landholding, adult literacy, household asset base, per capita income and male female participation rate in the labour force. Differences in the level of economic development of specific region also had significant effect on food security. The disabled and elderly people are identified as a highly food insecure group. For ensuring food creation of wage employment opportunities can help those who are capable of working. For the elderly and disabled, there should be some provision of safety nets.

Introduction

Food security may be defined as access by all people at all times to enough food for an active, healthy life. The essential elements of the concept are availability of food and ability to acquire it from the market as well as food entitlement under the public food distribution system. Acquiring food from the market depends on an individual's purchasing power that results from his/her own source of income and employment opportunities. It also integrates the supply, distribution and consumption issues.

The supply or availability of food on an aggregate basis is important but not enough for food security, given the high inequality in the distribution of income. Availability of food at the national or community level does not ensure its equitable access to all. At the household level, an individual can obtain food from different sources: from own production, purchase it from the market, acquire it through food-for-work programmes or payment-in-food at firm level, receive it through feeding programme or get it as a subsidy. Acquisition of food from the market is mainly determined by the household income. To receive public grants requires fulfillment of certain eligibility criteria. In terms of food security, time is also given more emphasis, which also has taken into consideration disaster and lean seasons. Intra-household distribution of food and the quality of food itself are also parts of the subject.

This study focuses more on food insecurity, which can clearly demonstrate a range of severity. Data used in this report were collected in December 1998 from 1,250 ultra poor households residing in five districts under 25 BRAC's RDP Area Offices. These are the households who were eligible for NGO membership but not participated in the NGO activities. In sample selection the list of all ultra poor households living in the villages of all RDP working areas but not participating in NGO activities prepared by RDP local staff in 1997 was used. The five districts selected for this study were Comilla, Jamalpur, Faridpur, Rangpur and Bogra where concentrations of the non-participating ultra poor households were highest. From each selected region five Area Offices (AOs) were sampled based on the higher frequency of non-participating households.

Food insecurity denotes an experience of uncertainty in obtaining food in socially acceptable ways as a result of insufficient resources. It has four components: quantity, quality, certainty and acceptability of food. The first two are directly related to food. Certainty and acceptability of food are psychological and social in nature.

Availability of food

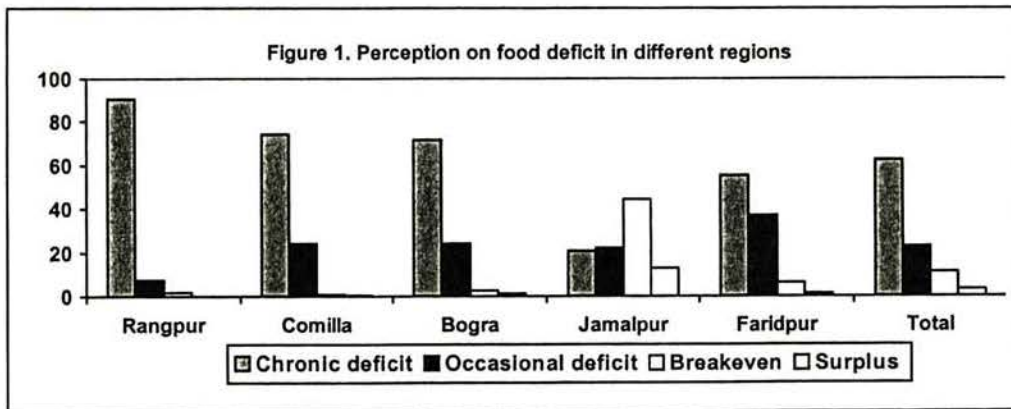
The availability of food at the household level is determined by analyzing the stock of foodgrain like rice, paddy and wheat. It was found that only 2.5% households had some stock of paddy and/or rice. The rest 97.5% did not have any stock. No stock of wheat could be identified. Those who had any kind of stock could feed their household members for a maximum of 44.7 days. However, after considering the entire sample population, the number of days came down to only 1.11 days. Land, as the main source of food accessibility was found to be highly correlated with food stock. It may be mentioned that among those who had any stock, only one was landless having other sources of regular income, the other 13 owned, on average, 78 decimals of cultivable land.

Types of food insecurity

Food insecurity may be chronic or occasional in nature. The respondents were asked to answer the question, whether they faced any food shortage during the last one year. In this question emphasis was given to cereal as a major source of calorie consumption. Based on their responses, all respondents were categorized into four different poverty groups. Results show that 63% of the households experienced chronic shortage of food, while 23.1% faced it occasionally. Another 11.1% reported that they were in a break-even position, having neither deficit nor surplus and only 3.1% stated that they had some surplus (See figure 1). Since land was the main source of food supply, the positive answer of the respondents was very much linked with households' landholding and vice versa. For example, while 70% of the landless experienced a chronic deficit of food, it was only 24% in the case of households owning agricultural land. On the other hand, 10% of the households owning cultivable land had a surplus, compared to 2.5% that of the landless. The female-headed households, households depending only on

female income earner and households with disabled heads and beggars were in the worst position facing chronic deficit. Education as a function of income growth was found to be negatively correlated with food deficit (Table 1). Those who were largely dependant on agriculture were relatively more secured. The old age population, living alone and depending on others' help, was the most insecure among the total population. The second most insecure households were those for whom wage employment was the main source of earning, followed by households with rural transport and non-agricultural self employment. Small business and salaried jobs ensured regular and continuous income. The negative relationship between food shortage and small business and services, compared to others, give an indication that continuity and regularity in the flow of income are two wings of food security (Table 2).

Considering the food deficit status, Rangpur was identified as the highest and Jamalpur as the lowest food insecure regions. In Rangpur, 91% of the respondents stated that they faced chronic deficit and no one had surplus. On the other hand, 12.8% respondents in Jamalpur reported that they had surplus in the last year. Higher prevalence of chronic deficit was also observed in the Comilla and Bogra regions (Figure 1).



Food consumption

Although calorie consumption best reflects the nutritional status of a household, the number of meals taken, especially rice and its accessibility, can be an alternative, since it is said that the poor who lack regular income can not afford three meals a day. For an average Bangladeshi individual, rice is the major source of his/her total calorie consumption, contributing 75% of the total. Rice is also the cheapest source of higher calorie consumption. For the ultra poor, in many cases it is the only source of calorie consumption. Usually the Bangladeshi people consume three meals a day. Intake of three rice meals a day is an indication of the household wealth, especially in our rural community.

As reported by the respondents, usually 24.4% of the households consume three and 74.8% consume two meals a day. Nearly one percent can afford only one meal. But in the last 24 hours, 13.4% had taken only one meal and were in a hungry situation, the most severe condition of food insecurity. Another 67.8% ate two meals. Three meals were consumed by only 18.9% of the population. On the other hand, three rice meals were eaten by only 11.4%. Sixty-three percent consumed rice twice and 25.6% consumed it once a day. Five respondents (0.4%) reported that they could not afford to have any rice (Table 3). The inconsistency in results between the number of meals usually consumed and the actual number of meals consumed in the last 24 hours can be explained by the adverse effect of flood '98, severely affecting the entire countryside.

It is important to note that the data were collected in the winter season - the period of paddy harvesting. During this time, majority of village dwellers are very much busy with different paddy processing activities. On the other hand, daytime in this season is short. That is why the village dwellers, irrespective of their socioeconomic condition, often eat two heavy meals a day, preferably rice. Taking all these factors into

consideration we found that 26% of the population were highly food insecure and could not afford to eat two rice meals a day.

The number of meals usually consumed and the number of meals consumed in the last 24 hours varied widely by region. Rangpur was identified as the most food insecure area considering both these indicators. On the other hand, no major variations between the usual consumption pattern and actual consumption in the last 24 hours were found in Bogra, and results of this region are the best among all regions. (Tables 4). In Faridpur 92% of the ultra poor stated that they usually consume two meals a day which is also reflected in their last 24 hours consumption.

In the Comilla region, results show a mixed picture. Based on responses on the usual trend in the number of meals consumed, Comilla would be the highly food secure region where usually 51% consume three meals, and 49% consume two meals. The proportion of respondents usually consuming one meal a day is only 0.4%. On the contrary, results, based on the responses regarding the actual number of meals consumed in the last 24 hours prior to the interview, show that 25% of the respondents in Comilla had been able of consuming only one meal a day. On the other hand, only 16% of the respondents were found who could afford three meals during our survey period instead of the 51% who usually consume three meals. The 1998 flood adversely affecting this area could be the explanation for such kind of variation in results.

The amount of landholding, as one of the determinants of food accessibility, contributed significantly to the number of meals consumed. Since education and occupation of the household heads and sex of the income earners are functions of income, they also influence the number of meals consumed. The number of households consuming one meal a day was significantly higher among the absolute landless, female-headed households, households with illiterate heads and households

depending only on female income. It was also higher among the beggars and the disabled (Table 5).

Sources of rice consumed

Eighty-five percent of those who consumed rice purchased it from the market. Another one percent borrowed it from others. Only 0.8% required it from their own production. A significant number (13.9%) depended on help from others. Higher dependency on others was prevalent in Bogra and Rangpur (about 20%). It was also quite high in Jamalpur. In Faridpur, 98% of the population purchased it from the market. The other two percent obtained it from their own production (0.4%) and charity (1.6%). Higher acquisition of food from the market and lower dependence on others' help in Faridpur indicate their relatively higher purchasing power, therefore, their higher income level (Table 6). Land as a major source of rural income contributed significantly in this respect. Sex and occupation of the household heads and the prevalence of other income earners and their literacy are also important factors (Table 7).

Determinants of food security

In order to understand the relationship between food security and other household variables, a logistic regression has been estimated. For this analysis, a dichotomous variable has been created based on the number of rice meals consumed in the last 24 hours. Value 1 is given for a household if it consumed three rice meals a day managed through its own production or purchased it in the market and 0 is given for otherwise. In this analysis, a number of socio-economic indicators such as adult literacy, per capita income and asset holding, participation rates of adult males and females in the labour market, amount of homestead and cultivable land, number of dependents per economically active population and attachment with any development interventions

are taken as control variables to capture the effect of all of these on food security. The role of credit and village level development were also taken into consideration. This analysis provides a better understanding of the types of households likely to be more secure in food and possible interventions to reduce food insecurity. Explanatory variables selected in this regression model could explain 83% of the variation in results.

Results of this analysis are presented in Table 8.8. Highest figure of Wald statistics and the highly significant beta coefficient on adult literacy indicate its higher contribution on the dependent variable. Per capita income and assets are also significantly correlated with food security. The role of both homestead and cultivable land is observed; for the latter, the effect is higher. For the ultra poor who lack access to land, direct participation of males and females in the labour force mattered significantly. Results show positive association of both of these two indicators whereas the effect of male participation is higher. The analysis also shows positive association between food security and the number of dependents per economically active population (results presented in different chapters of this report show that the poorer the household their economic participation was higher). The beggars and the disabled are identified as highly food insecure groups.

The multivariate analysis shows a significant positive association between food security and presence of development interventions. The positive beta coefficient of the amount of loan received and food security, which is not significant, indicates that only credit can not help the ultra poor to become self-sufficient in food.

Discussions and conclusions

Results of this study show severe food insecure condition of the sample households, of which 63% faced chronic and another 23% faced occasional deficit to food mainly cereal. Only 19% could afford to consume three meals a day and only 11.4% three rice meals. For about 14% cases, their source of procurement of rice consumed in the last

24 hours preceding to the interview was borrowing and donations. The vulnerability to food differs among region. It was highest in Rangpur.

It is evident from different statistics that the poor in Bangladesh can not afford to consume the required amount of kilocalories. Of the amount they consume nearly 90% comes from cereals and other starchy roots and sweeteners on the other hand. Consumption of fish, animal products, oils and fats and fruits and vegetable constitute only 9% of the total calories which is less than one-third of the desired level (BBS, 1997). To increase overall calorie consumption and reduce malnutrition, the poor will have to add more nutritionally rich food to their food basket since the amount of cereal consumption already exceeds the desired/required level. The chance for increasing their consumption level of those items by extracting from common property resources (CPRs), which was the major source for the ultra poor is shrinking due to agricultural intensification, commoditisation of CPRs, environmental degradation and population growth like in West Bengal¹ (Beck & Ghosh, 2000). Although availability of diversified food items is one of the prerequisites in the food security concept, poor income base of the ultra poor does not allow them to procure it.

Given the magnitude of the problem considering the number of food insecure poor and the extent of their insecurity a joint effort, from the government, private sectors, donors and NGOs, is necessary to ensure food security for people facing it. The government of Bangladesh has a national comprehensive food security policy for making access to food for all that includes both long and short-run strategies. Although food distribution programmes of the government like VGD, VGF, FFW and FFE had proven their positive role in increasing poor households' access to food, a declining trend of food aid to Bangladesh in recent years is observed. Moreover, food aid increasingly supports development activities including training that emerges new policy

¹ As estimated by Tony Beck and Madan G. Ghosh in the present days CPRs contribute some US\$ 5 billion a year to the income of poor rural households in India which is about 12% of the total household income of the rural poor households. This amount is more than twice of official development assistance. The share of CPRs to poor household's income was much higher even in 80-s – upto 23%.

agenda on what to do for the untrainable who constitutes a significant proportion of the total ultra poor.

Considering all these, the following can be some of the alternatives for development agencies specially for BRAC, to improve the present food security status of the ultra poor and make it sustainable:

1. Create wage employment opportunities for the ultra poor to ensure their regular income;
2. Target food and non-food interventions to food insecure people, particularly poor women and children, destitute, old and disabled individuals;
3. Promote a balanced diet by providing nutrition education;
4. Ensure access of diversified food items to them; and
5. Provide adequate incentives for sustained growth of domestic food production.

Table 1. Distribution of households by their perception on poverty by different indicators

Indicators	Chronic deficit n=783	Occasional deficit n=289	Break-even n=139	Surplus n=39
A. Landholding category				
Absolute landless	69.5	14.9	13.1	2.5
Only homestead	63.2	24.1	9.9	2.8
Homestead+cultivable	24.2	45.2	21.0	9.7
Significance level	P<.01	P<.01	P<.05	P<.01
B. Sex of the hh head				
Male	55.2	28.0	12.5	4.3
Female	76.3	14.1	8.7	0.9
Significance level	P<.01	P<.01	P<.05	P<.01
C. Education of the hh head				
Illiterate	64.5	21.8	11.1	2.6
Literate	49.5	32.4	11.4	6.7
Significance level	P<.01	P<.01	ns	P<.01
D. Sex of income earners				
HHs with female only earners	79.4	9.2	10.6	0.8
HHs with male & female earners	54.6	29.7	10.6	5.7
HHs with male only earners	56.6	28.4	11.6	3.3
Significance level	P<.01	P<.01	ns	P<.01
E. Occupation of the hh head				
Wage	65.8	21.7	10.9	1.6
Self	47.6	33.7	13.1	5.6
Begging/disabled/old age	82.7	8.9	6.7	1.7
Others	46.8	29.8	14.5	8.9
Significance level	P<.01	P<.01	ns	P<.01

Table 2. Distribution of households by main source of income and their food deficit status

Sources of income	Chronic deficit n=783	Occasional deficit n=289	Break-even n=139	Surplus n=39	Total
Agriculture	44.4	33.3	-	22.2	100
Wage employment	65.8	21.9	11.1	1.3	100
Rural transport	56.3	31.7	7.1	4.8	100
Begging/subsidy	87.2	3.5	9.0	-	100
Non-agri self employment	52.3	30.3	9.2	8.3	100
Small business	43.0	32.8	16.4	7.8	100
Service	33.3	35.9	23.1	7.7	100

Table 3. Distribution of households by number of meals taken usually and in the last 24 hours prior to the interview (%)

No of meals	Last 24 hours		Usually no of meals
	No of meals taken	No of rice meal taken	taken
No meal	-	0.4	-
One	13.4	25.6	0.8
Two	67.8	62.6	74.8
Three	18.9	11.4	24.4

Table 4. Region-wise distribution of households by number of meals usually consumed and the number of meals consumed in the last 24 hours

	One		Two		Three	
	Usualy	Last 24 hours	Usually	Last 24 hours	Usually	Last 24 hours
Average	0.8	13.4	74.8	67.8	24.4	18.9
Rangpur	2.4	30.0	95.2	67.6	2.4	2.4
Comilla	0.4	24.4	48.8	59.2	50.8	16.4
Bogra	0.8	5.6	53.2	35.6	46.0	58.8
Jamalpur	0.4	4.4	84.8	83.2	14.8	12.4
Faridpur	-	2.4	92.0	93.2	8.0	4.4
Significance level	P < .05	P < .01	P < .01	P < .01	P < .01	P < .01

Table 5. Distribution of households by number of meals taken in the 24 hours prior to the interview and other indicators

	One	Two	Three
<u>A. Landholding category</u>			
Absolute landless	12.4	66.9	20.7
Only homestead	14.3	69.7	16.0
Homestead + cultivable	3.2	43.5	53.2
Significance level	P < .05	P < .01	P < .01
<u>B. Sex of the Hh head</u>			
Male	10.9	69.8	19.4
Female	18.0	64.0	18.0
Significance level	P < .01	P < .05	ns
<u>C. Education of the Hh head</u>			
Illiterate	14.0	69.0	17.0
Literate	8.1	57.8	34.1
Significance level	P < .10	P < .01	P < .01
<u>D. Sex of income earners</u>			
HHs with female only	21.1	61.9	16.9
HHs with male & female	7.6	71.9	20.5
HHs with male only	11.3	69.4	19.3
Significance level	P < .01	P < .05	ns
<u>E. Occupation of the Hh head</u>			
Wage	12.1	69.4	18.6
Self	11.9	70.6	17.5
Begging/disables/old age	25.1	61.5	13.4
Others	6.5	62.1	31.5
Significance level	P < .01	P < .10	P < .01

Table 6. Regional distribution of households by sources of rice consumed (%)

	Purchase	Own production	Borrowing from others	Help/Gift
Average	84.5	0.8	0.9	13.9
Rangpur	78.4	0.4	1.6	19.6
Comilla	86.8	1.2	0.8	11.2
Bogra	79.5	0.4	0.4	19.7
Jamalpur	79.8	1.6	1.6	16.9
Faridpur	97.6	0.4	-	2.0
Significance level	P < .01	ns	ns	P < .01

Table 7. Distribution of households by sources of rice consumed by different household indicators

	Purchase	Own production	Borrowing from others	Help/Gift
<u>A. Landholding category</u>				
Absolute landless	78.5	-	1.1	20.4
Only homestead	86.5	0.2	0.9	12.4
Homestead + cultivable	80.6	12.9	-	6.5
Significance level	P < .01	P < .01	ns	P < .01
<u>B. Sex of the Hh head</u>				
Male	95.0	0.9	0.6	3.5
Female	64.8	0.7	1.4	33.1
Significance level	P < .01	ns	ns	P < .01
<u>C. Education of the Hh head</u>				
Illiterate	83.3	0.5	0.9	15.2
Literate	93.3	3.0	0.7	3.0
Significance level	P < .01	P < .01	ns	P < .01
<u>D. Sex of income earners</u>				
Hh with female earners only	59.1	0.6	1.4	39.0
Hh with male & female earners	89.7	0.4	0.8	9.1
Hh with male earners only	96.8	1.1	0.6	1.4
Significance level	P < .01	ns	ns	P < .01
<u>E. Occupation of the Hh head</u>				
Wage	94.1	-	0.6	5.4
Self	96.0	1.2	0.4	2.4
Begging/disabled/old age	32.4	-	2.8	64.8
Others	82.3	5.6	0.8	11.3
Significance level	P < .01	ns	ns	P < .01

Table 8. Determinants of food security: results of multivariate analysis

Explanatory Variables	EQUATION I		EQUATION II	
	Beta	Wald statistics	Beta	Wald statistics
Constant	-2.50***	31.90	-3.17***	63.80
ADULT_RA	0.01***	20.74	0.01***	19.82
DEPND_ACT	0.22*	3.68	0.24**	4.50
HOMELAND	0.03*	3.05	0.03*	3.42
CULTLAND	0.03***	8.59	0.03***	8.66
PARTN_FE	0.24**	2.58	0.31**	4.08
PARTN_MA	0.31**	5.29	0.33**	6.11
ASST_PC	0.001**	4.75	0.009**	4.68
INC_PC	0.01***	7.96	0.01***	7.88
OCP_BEGG	-0.74**	5.30	-0.78**	6.18
DIST	-0.11***	15.20	-0.12***	17.12
NGO_1	0.71***	13.13		
LOAN			0.004	1.87
Log likelihood	1011.85		1022.47	
Goodness of fit	1239.55		1226.46	
Predicted	83.68%		83.68%	
Chi-Square	119.91***		109.28***	

*** significant at 1% level, ** significant at 5% level, * significant at 10% level