SOCIO-DEMOGRAPHIC CORRELATES OF RURAL POVERTY IN BANGLADESH: A CASE STUDY OF GAIBANDHA SADAR AND TANORE UPAZILAS[1]

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Abstract

The main objective of this paper is to explore the relationship between poverty variables and eight socio-demographic correlates like location, gender, age, household size, marital status, occupation, land ownership and house ownership in one of the poorest regions of Bangladesh. Poverty is defined and measured by ten indicators, which incorporate multi-dimensionality of poverty - food, income, assets, consumption, capability and well-being. Data for this study come from an UNDP-assisted survey of two Upazilas of Bangladesh, Gaibandha Sadar and Tanore in Gaibandha and Rajshahi districts respectively, carried during April-May 2002 by Bangladesh Rural Development Board under Community Empowerment Project-2. A total of 5,180 heads of household, 3,158 in Gaibandha Sadar and 2,022 in Tanore, are surveyed through a multi-stage stratified sampling. Chi-square measure of association and Pearson's correlation is used to ascertain the degree and direction of relationship between poverty variables and factors of poverty. It is found that the incidence of rural poverty ranges between 46 per cent to 67 per cent and that income, capacity and well-being poverty is greater than food poverty. Furthermore, it is found that land ownership and occupation are the crucial correlates of poverty followed by marital status, age, geographic location and gender. Most of them are significantly related to multi-dimensionality of poverty at the significance level of α*=. 01.*

1 Introduction

Bangladesh is described as one of the poorest countries in the world with a GDP par capita of US$1,602 per annum; and a Human Development Index (HDI) rank of 145th out of 173 countries in 2002 (UNDP, 2002:151). Based on poverty line constructed as less than US$1 per day per person, 29 per cent of the population are found as income-poor, whereas the percentage increases to 78 if the poverty line is raised to less then US$2 per day per person (UNDP, 2003:158). Based on poverty line measured by direct calorie intake (DCI) method as less than 2,122 kcal per person per day, it is found that that 44.3 per cent of the total population of Bangladesh or 55.9 million are "absolute" poor in 2002; the corresponding figure for rural areas is 42.3 per cent or 42.6 million (Bangladesh Bureau of Statistics, 2002:T-6.2:38). Similarly, cost of basic needs (CBN) method constructs "upper poverty line" (a generous allowance for non-food items), and "lower poverty line" (a minimal allowance for non-food good for those who could just afford the food requirement). The upper poverty line is constructed at Tk.690 in 2000 for rural areas of Rajshahi region, whereas lower poverty line is estimated as Tk.586 for the same (Bangladesh Bureau of Statistics, 2002:T-A1:122). The upper poverty line shows that 49.8 per cent of the total population and 53.1 per cent of the rural population are income poor (Bangladesh Bureau of Statistics, 2002:T-6.7:43). Thus more than half of the rural population in Bangladesh is consumption poor. It is understandable why poverty research, especially the rural one, has become the focal point in Bangladesh social sciences.

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There is also a regional variation in the incidence of poverty measured by the CBN method, Rajshahi division shows the highest incidence of upper poverty line poor in 2002, 61 per cent as against 39.8 per cent in Barisal division. In the rural areas of Rajshahi, the figure is higher, 62.8 per cent (Bangladesh Bureau of Statistics, 2002:T-6.7:43). This is also reflected in the poverty gap and squared poverty gap for rural areas of Rajshahi division, 18.1 and 7 respectively (Bangladesh Bureau of Statistics, 2002:T-6.9:45).

Thus the serious researchers are mostly engaged in the fancy stuff like measurement of poverty, especially the poverty line. The trend of poverty based on head-count ratio is the key point of discussion. Studies concerned on the correlates of poverty, i.e., the major factors contributing to poverty situation, are neglected in Bangladesh poverty studies. At the backdrop of this research context, the present study focuses on socio-demographic correlates of poverty in the poorest region of Bangladesh, Rajshahi division. Specifically, the study explores the relationship between poverty and eight socio-demographic variables like location, gender, age, household size, marital status, occupation, land ownership and house ownership in two Upazilas, Gaibandaha Sadar and Tanore in Gaibandha and Rajshahi districts respectively.

2 Poverty Correlates

In his classical work on poverty at York, Rowntree (1902) distinguishes two types of poverty, primary poverty and secondary poverty, which later came to be known as absolute poverty and relative poverty respectively (Townsend, 1979). He attributes six causes for primary poverty: (1) death of chief wage-earner; (2) incapacity of chief wage-earner through accident, illness, or old age; (3) chief wage-earner out of work, (4) chronic irregularity of work; (5) largeness of family and (6) lowness of wage (Rowntree, 1902:119-20). He assigns two causes for secondary poverty: (1) habit -- drink, betting, and gambling and (2) careless housekeeping or improvident expenditure (Rowntree, 1902:142). In his famous notion of 'culture of poverty', Lewis (1965:xxiv; 1968:50) identifies a few cultural traits that are related to poverty: (a) unemployment and underemployment, (b) low wages, (c) unskilled labor, (d) child labor, (e) absence of savings, (f) chronic shortage of cash, (g) absence of food reserve, (h) the pawning of personal goods and (i) borrowing from local money lenders at usurious rates of interest and etc. His work is a good example of exploring poverty from a sociological perspective. Though a clear identification of poverty determinants is lacking in his work, it is possible to discern two important causes of poverty, unemployment and low income. Other major correlates of poverty in the western literature include gender (Millar and Glendinnings, 1989; Graham, 1987; Dex, 1985; Beechey, 1987; Lewis and Piachaud, 1992), race and ethnicity (Moore and Wallace, 1975; Cohen and Tarpey, 1986; Brown, 1984; Amin and Oppenheim, 1992), old age (Walker, 1986; Baldwin and Cooke, 1984; Falkingham and Victor, 1991) and disability (Oliver, 1991; Dalley, 1991; Groves, 1988; Topliss, 1979).

In spite of the abundance of poverty literature in Bangladesh, such studies are lacking. One of the reasons is the sponsorship of the research. In a climate of donor-driven poverty studies, rigorous empirical research has become a far cry. The macro level data analysis of poverty trends indicates the association of socio-demographic variables with poverty. Using household data from five successive national surveys, Wodon (1999) analyzes the micro-determinants of poverty in Bangladesh from 1983 to 1996 and finds education, household size, land ownership, occupation, and geographic location affecting poverty. The official survey on household income and expenditure in 2002 finds several factors related to poverty--household size, structure of dwelling unit, land ownership, age, gender, marital status, religion, education, occupation and geographic location (Bangladesh Bureau of Statistics, 2002). In this background, the present paper attempts to relate eight such variables to poverty characteristics in Bangladesh.

3 Methodology

3.1 *Definition and Measurement*

It is observed that the extent of poverty varies according to the definition and measurement of poverty. As stated earlier, there is a 5.5 and 10.8 percentage point difference in the incidence of national and rural poverty respectively due to measurement difference; CBN method yields more poverty than DCI method. As a result, it is important that caution is exercised in the measurement of poverty. However, poverty in Bangladesh is basically defined and measured by four indicators, food intake, income, capability and consumption. Khan (1976) measures poverty in terms of food intake and distinguishes two poverty lines, absolute poor (2,122 kcal per person per day) and hardcore poor (1,805 kcal per person per day). The profile of human deprivation for Bangladesh (UNDP, 1996) distinguishes two types of poverty, income (less than US$1.00 per day) and capability (lack of access to minimum health, reproduction and education). Based on the CBN method, both food and non-food bundles, **Household Income and Expenditure Survey (HIES) 2000** constructs both income and consumption poverty lines. Income poverty has two lines, upper and lower. The upper income poverty line refers to Tk.690 for rural Rajshahi. On the other hand, the lower income poverty line refers to Tk.586 for rural Rajshahi (Bangladesh Bureau of Statistics, 2002:T-A1:122). Similarly, consumption poverty also has two lines, upper and lower, though these lines are not precisely constructed. However, a rough estimate can be made from the par capita expenditure of the "poor." Thus, the upper consumption poverty line stands for Tk.487 for rural Rajshahi. On the other hand, lower consumption poverty line refers to Tk.438 for rural Rajshahi (Bangladesh Bureau of Statistics, 2002:T-6.16:51-52).

In this study, the dependent variable poverty is defined and measured by ten indicators, which incorporate food, income, consumption and capability. In addition, in the light of the recent shift of the meaning of poverty, the notion of well-being is also included. Thus food is measured by the calorie intake, income includes monthly income of the head of the household. Related to income, the concept of assets is also introduced and incorporates value of the total assets of the household. Consumption refers to the annual household expenditure on basic needs. Capability is measured by health status, educational level and reproductive control by women. The notion of well-being includes variables like use of electricity, access to safe water and access to sanitation. Thus, poverty is measured by ten variables: (i) food, (ii) income, (iii) assets, (iv) expenditure, (v) health status, (vi) education, (vii) reproductive control by women, (viii) access to electricity, (ix) access to safe water and (x) access to sanitary latrine. On the other hand, eight independent variables are used as socio-demographic correlates of poverty. They are: (1) geographic location, (2) gender, (3) age, (4) household size, (5) marital status, (6) occupation, (7) ownership of land and (8) ownership of house.

3.2 Data Source:

Data for this study come from an UNDP-assisted survey of two Upazilas of Bangladesh, Gaibandha Sadar and Tanore in Gaibandha and Rajshahi districts respectively, carried during April-May 2002 by Bangladesh Rural Development Board under Community Empowerment Project-2. A total of 5,180 heads of household, 3,158 in Gaibandha Sadar and 2,022 in Tanore, are surveyed through a multi-stage stratified sampling. In these two Upazilas, all 334 villages, 127 under Gaibandha Sadar and 207 under Tanore, are classified into developed, moderately developed and underdeveloped, based on available 8 developmental criteria like (i) sex ratio, (ii) dependency ratio, (iii) access to safe drinking water, (iv) access to sanitary toilet, (v) unemployment rate, (vi) literacy rate, (vii) incidence of landlessness, and (viii) access to electricity as reported in ***Bangladesh Population Census 1991, Community Series, Zilla Gaibandha*** (Bangladesh Bureau of Statistics, 1992a) and in ***Bangladesh Population Census 1991, Community Series, Zilla Rajshahi*** (Bangladesh Bureau of Statistics, 1992b).

In the second phase, by using simple random sampling (SRS) technique, 25 per cent or 84 villages, 32 in Gaibandha Sadar and 52 in Tanore Upazilas, are selected from the total list of 334 villages. In terms of developmental status, these 84 villages, which constitute our Primary Sampling Units (PSUs) for household survey, are spread as follows: 5 developed, 35 moderately

developed and 44 underdeveloped. From PSUs of 84 villages, 25 per cent or 21 villages, 8 in Gaibandha Sadar and 13 in Tanore, are finally selected for the household survey. These 21 villages constitute our Secondary Sampling Units (SSUs). The SSUs are selected based on a principle of ratio of 1:2:5. The proportion used is: (a) 10 per cent of developed villages, (b) 20 per cent of moderately developed villages and (c) 70 per cent of underdeveloped villages. Once SSUs are selected, the sampling problem for selecting households or Ultimate Sampling Units (USUs) for survey is minimized by covering all households within the villages. This gives us a figure of 5,180 households, which are surveyed during the summer of 2000.

The survey data are processed and analyzed by using SPSS software and chi-square measure of association and Pearson's correlation is used to ascertain the degree and direction of relationship between poverty variables and factors of poverty.

4 Characteristics of the Respondents

Most respondents are males though a substantial proportion, 34 per cent, are females. The gender ratio is almost equal in Gaibandha Sadar, whereas in Tanore only 9 per cent of the respondents are females. The majority of the respondents are in their middle age, 30-49, and have a household size having less than five members. Only 2 per cent of the respondents have a big household consisting of members ranging from 9 to 11. The overwhelming majority (92%) of them are married though 7 per cent respondents are found divorced and widowed, who are more numerous in Gaibandha Sadar (9.5%) than Tanore (3.2%). However, there is no unmarried respondent in Gaibandha Sadar.

It is found that the incidence of unemployment is greater in the study area, 36 per cent, and there is a significant locational difference, Gaibandha Sadar (50.9%) has far more unemployed compared to Tanore (13.5%). The occupational structure of the respondents show that the most of them, 27 per cent, are wage labor; Tanore has proportionately more of them, 43 per cent as against 17 per cent of Gaibandha Sadar. Next to wage labor is farming, which is the occupation of 21 per cent respondents. Again, Tanore has proportionately more of them, 32 per cent as against 14 per cent of Gaibandha Sadar. Among respondents, there are some self-employed (6.5%), petty-businessmen (6.4%) and service holders (3%). The regional difference is less striking with respect to these occupations.

The pattern of land ownership has a similarity with occupational structure, 40 per cent landless and another 45 per cent functionally landless (owning less than 50 decimals of land) with Gaibandha Sadar having an edge of 7 per cent. Thus an overwhelming 85 per cent are found to be de facto landless with little regional variation. This is also reflected in other categories; nearly 12 per cent respondents are marginal and small farmers (owning land between 0.5 acre to 2.5 acres), whereas only 3 per cent own land more than 2.5 acres.

Another indicator of landlessness is the ownership of shelter and homestead land. This creates a separate category of landless, and in the case of urban poor, is a crucial poverty indicator. In the rural situation, this may be one of the determinants of poverty. Broadly speaking, it is related to one's notion of entitlement (Sen, 1981). In the survey area, there are fewer respondents, a little more than 5 per cent, who are without rural shelter. This trend is prevalent across regions.

5 Poverty in Gaibandha Sadar and Tanore Upazilas

5.1 Food Poverty

The study area is officially identified as the poorest region of Bangladesh with rural poor in that region numbering nearly 63 per cent and 49 per cent, when upper and lower poverty lines by CBN method is used respectively (Bangladesh Bureau of Statistics, 2002:T-6.7:43). As given in Table-2, data on DCI method used by official HIES 2000 show that the rural poor constitute more than 46 per cent of the rural population. However, due to lack of regional data by DCI method,

HIES data are not strictly comparable with our survey data. The level of nutrition data collected from Gaibandha Sadar and Tanore Upazilas in our survey of 2000 also strengthen HIES data on the incidence of poverty. Our survey data report more poverty, 6.6 per cent for hardcore poor and 4.1 per cent for absolute poor compared to HIES data. But as said earlier, this is due to lack of regional data in HIES, otherwise, the difference would have been minimum. Thus, in the survey area nearly half of the population are food-poor, Gaibandha Sadar have more poor than Tanore both in terms of hardcore (+8%) and absolute (+15%) poverty. The recent agricultural intervention, Barind Irrigation Project, has probable impact on lowering the food poverty in Tanore, as plenty of fish at cheap price is available.

Table-1 Incidence of Food Poverty in Gaibandha Sadar and Tanore

	Number			Percent		
Calorie intake	Gaibandha	Tanore	Total	Gaibandha	Tanore	Total
<1805 kcl/hardcore poor	894	418	1,312	28.3	20.7	25.3
1805-2121 kcl/Absolute poor	760	335	1,095	24.1	16.6	21.1
2122 kcl/Non-poor	1,504	1,269	2,773	47.6	62.8	53.5
Total:	3,158	2,022	5,180	100.0	100.0	100.0

(Source: Field Survey)

Table-2 Comparison Between Survey Data and Government Data

	Survey Data 2002			Government	
Calorie intake	Gaibandha	Tanore	Total	data 2000	Variation
<1805 kcl/hardcore poor	28.3	20.7	25.3	18.7	6.6
<2122 kcl/Absolute poor	52.4	37.3	46.4	42.3	4.1

(Source: Field Survey and Bangladesh Bureau of Statistics, Household Income and Expenditure Survey 2000. Dhaka: Bangladesh Bureau of Statistics, 2002))

5.2 Income Poverty

The CBN measure of HIES is more comparable to income poverty than food poverty as indicated in Table-3. It is found that at least 36 per cent of the heads of household have no income and it increases to a staggering 50 per cent in the case of Gaibndha Sadar. A quarter of the respondents have monthly income below Tk.1,000 (which is approximately less than US$20). Thus together, nearly 62 per cent of the survey population, 48 per cent of Tanore and 70 per cent of Gaibandha Sadar, can be termed as income poor. This is close to 63 per cent upper poverty line poor by CBN method as reported in HIES. Moreover, it reports average per capita income of poor in rural Rajshahi region as TK.465 (Bangladesh Bureau of Statistics, 2002:T-6.16:51), which is far less than our survey findings. Furthermore, HIES reports average per capita rural income as TK.928 and that of per earner as Tk.3,368 (Bangladesh Bureau of Statistics, 2002:T-4.1:19). If this guideline is used, then the cumulative percentage for respondents earning even less than Tk.3,000 is 94 per cent. The relatively income rich (having monthly income of Tk.4,000 and more) are approximately 3 per cent only.

Table-3 Incidence of Income Poverty in Gaibandha Sadar and Tanore

Monthly Income (in Taka)	Number			Percent		
	Gaibandha	Tanore	Total	Gaibandha	Tanore	Total
Nothing	1,593	288	1,881	50.4	14.2	36.3
<Tk.1,000	631	690	1,321	20.0	34.1	25.5
Tk.1,000-Tk.1,999	576	710	1,286	18.2	35.1	24.8
Tk.2,000-Tk.2,999	202	180	382	6.4	8.9	7.4
Tk.3,000-Tk.3,999	83	88	171	2.6	4.4	3.3
Tk.4,000/+	73	66	139	2.3	3.3	2.7
Total:	3,158	2,022	5,180	100.0	100.0	100.0

(Source: Field Survey)

5.3 Assets Poverty

The income poverty is also corroborated by assets poverty. Table-4 shows that approximately 23 per cent of respondents have assets valued at less than Tk.1,000. The difference between two locations is striking; Gaibandha Sadar (28%) has almost double the percentage of assets-poor than Tanore (15%). Next, another 24 per cent have total assets valued at between Tk.1,000 and less than Tk.3,000. Together, small assets holders, who can be termed as poor, are nearly 47 per cent. It is interesting to note that there is more inequality in terms of assets than income, nearly a quarter of the respondents have assets valued at Tk.11,000 and more, thus around 24 per cent are assets rich compared to 3 per cent income rich. Again the difference between Gaibandha Sadar and Tanore is conspicuous, the former has only 15 per cent assets-rich respondents compared to 36 per cent of the latter.

Table-4 Incidence of Assets Poverty in Gaibandha Sadar and Tanore

Value of total assets (in Taka)	Number			Per cent		
	Gaibandha	Tanore	Total	Gaibandha	Tanore	Total
<Tk1,000	892	297	1,189	28.3	14.7	22.9
Tk.1,000-Tk.2,999	871	367	1,238	27.6	18.2	23.9
Tk.3,000-Tk.4,999	368	286	654	11.7	14.1	12.6
Tk.5,000-Tk.10,999	540	337	877	17.1	16.7	16.9
Tk.11000/+	487	735	1,222	15.4	36.4	23.6
Total:	3,158	2,022	5,180	100.0	100.0	100.0

(Source: Field Survey)

5.4 Consumption Poverty

Table-5, which gives the incidence of consumption poverty, indicates how poorly the poor live. Nearly 53 per cent of the households in both locations, spend on an average, less than Tk.250 per month or less than Tk.3,000 per annum. If the monthly expenditure is raised to Tk.416 (or less than Tk.5,000 per annum), 75 per cent of the respondents appear to be consumption poor. The HIES reports Tk.487 as an average monthly per capita expenditure of the poor in rural areas of Rajshahi region (Bangladesh Bureau of Statistics, 2002:T-6.17:52). This would further raise the incidence of consumption poor in the survey area. Moreover, the HIES reports Tk.4,257 as an average monthly household expenditure for rural areas (Bangladesh Bureau of Statistics, 2002:T-4.4:23). If non-basic expenditure were subtracted from Tk.4,257, the expenditure on basic needs would be far above Tk.416, pushing the consumption poor as high as 92 per cent.

Table-5 Incidence of Consumption Poverty in Gaibandha Sadar and Tanore

Yearly household expenditure	Monthly household expenditure	Number			Per cent		
		Gaibandha	Tanore	Total	Gaibandha	Tanore	Total
<Tk1,000	<Tk.83.00	449	288	737	14.2	14.2	14.2
Tk.1,000-Tk.2,999	Tk.83.00-Tk.249.91	1,233	775	2,008	39.0	38.3	38.8
Tk.3,000-Tk.4,999	Tk.250.00-Tk.416.58	682	464	1,146	21.6	23.0	22.1
Tk.5,000-Tk.10,999	Tk.416.66-Tk.916.58	543	341	884	17.2	16.9	17.1
Tk.11000/+	Tk.916.66/+	251	154	405	8.0	7.6	7.8
Total:	Total:	3,158	2,022	5,180	100.00	100.0	100.0

(Source: Field Survey)

However, a caution must be exercised here as less money is spent by the rural poor on foods grown in fields and kitchen gardens. Therefore, consumption data may belie the poverty status unless rigorous monetization of the non-purchased food items is done. It is interesting to note that both Upazilas appear similar in this respect.

5.5 Capacity Poverty

The incidence of capacity poverty as measured by health status, education and reproductive control by women is given in Table-6. It shows that the health status of the majority of the respondents is normal. However, educational level of the respondents is low, 67 per cent of them are functionally illiterate, of which 43 per cent are totally illiterate. The gender situation is encouraging; nearly 50 per cent women in the respondents' household can exercise reproductive control, especially in the matter of adopting family planning device. However, except for health, respondents in survey area appear to be capacity poor.

5.6 Well-being Poverty

The well-being criteria given in Table-7 shows that access to safe water can not be used effectively as a criterion of poverty in rural Bangladesh as the use of tube-well is wide spread, only 5 per cent respondents have no access to safe water. Even though sanitary latrine has become more accessible now a day, still the majority of the respondents, 62 per cent, use open space for defecation. This could be more of a cultural construct than of a poverty function. However, access to electricity can be a solid well-being criterion. Given the rural electrification intervention by the government, the access to electricity would make life both cheaper and comfortable. The Table shows that only 94 per cent of the respondents have no access to electricity both in Gaibandha Sadar and Tanore. Though inconsistency exists among different criteria, respondents appear to be well being poor.

Table-6 Incidence of Capacity Poverty in Gaibandha Sadar and Tanore (in per cent)

	Gaibandha	Tanore	Total
I. Health Status:			
Sick	14.9	33.8	22.3
Non-sick	85.1	66.2	77.7
Total:	100.0	100.0	100.0
N=	3,158	2,022	5,180
II. Educational level:			

Illiterate	48.4	34.3	42.9
Some literacy	19.6	31.2	24.1
Primary	22.9	23.3	23.1
Secondary	5.2	8.5	6.5
Higher secondary	3.9	2.8	3.5
Total:	100.0	100.0	100.0
N=	3,158	2,022	5,180
III. Reproductive Control:			
No	52.2	45.5	49.6
Yes	40.8	49.8	44.3
Inapplicable	6.9	4.6	6.0
Total:	100.0	100.0	100.0
N=	3,158	2,022	5,180

(Source: Field Survey)

Table-7 Incidence of Well-being Poverty in Gaibandha Sadar and Tanore (in per cent)

Well-being criterion	Yes			No		
	Gaibandha	Tanore	Total	Gaibandha	Tanore	Total
1. Access to electricity	6.0	5.6	5.9	94.0	94.4	94.1
2. Access to safe water	93.6	96.8	94.8	6.4	3.2	5.2
3. Access to sanitary latrine	42.8	30.4	38.0	57.2	69.6	62.0
N=	3,158	2,022	5,180	3,158	2,022	5,180

(Source: Field Survey)

6 Socio-Demographic Correlates of Poverty in Gaibandha Sadar and Tanore

Table-8, which gives ranking of factors of poverty at chi-square and Pearson's correlation, shows that among all 8 independent variables, occupation and land ownership are the most stable factor of poverty, influencing all 10 poverty variables each both at chi-square test and Pearson's correlation coefficient. The Table further shows that in some cases, the significant relationships found at Chi-square test disappear at Pearson's correlation, for example, income by household size, reproduction by location, reproduction by gender, reproduction by age and toilet by marital status. Moreover, three new significant relationships are established such as calorie by marital status, electricity by age and toilet by age. Thus ranking of poverty factors varies from chi-square to Pearson's correlation, except for marital status; the rank usually diminishes at Pearson's correlation coefficient. From Tables 9-10, which give summary of significant chi-square values and Pearson's correlation coefficients respectively, it is to be noted that at chi-square test, most relationships are found significant at the level of □=.001, whereas at Pearson's correlation coefficient, most relationships are found significant at the level of □=.01.

Table-8 Ranking of Factors of Poverty at Chi-square and Pearson Correlation

FACTORS OF POVERTY	POVERTY VARIABLES										Rank at Chi-Square	Rank at Pearson's correlation
	Calorie		Assets	Expend	Health	Educ	Reprd	Elct	water	Toilet		

Location	C/P	C/P	C/P	-	C/P	C/P	C	-	C/P	C/P	2	3
Gender	C/P	C/P	C/P	C/P	C/P	C/P	C	-	-	-	3	4
Age	C/P	C/P	C/P	C/P	-	C/P	C	P	-	P	4	3
HH Size	C/P	C	C/P	C/P	C/P	-	-	-	-	C/P	4	5
Marital Status	P	C/P	C/P	C/P	-	C/P	C/P	C/P	C/P	C	3	2
Occupation	C/P	C/P	C/P	C/P	C/P	C/P	C/P	C/P	C/P	C/P	1	1
Land owned	C/P	C/P	C/P	C/P	C/P	C/P	C/P	C/P	C/P	C/P	1	1
House owned	-	C/P	C/P	C/P	-	-	-	-	-	-	5	6

C= Chi-Square; P=Pearson's Correlation

Table-9 Summary Table of Chi-Square Values of Selected Variables

Dependent variable		Independent variable	Chi-square value	Degree of freedom	Level of Significance
Calorie	by	Location	113.913	2	□=.001
Calorie	by	Gender	93.114	2	□=.001
Calorie	by	Age	30.607	8	□=.001
Calorie	by	Household size	95.058	4	□=.001
Calorie	by	Occupation	96.588	10	□=.001
Calorie	by	Land ownership	32.425	8	□=.001
Income	by	Location	708.701	5	□=.001
Income	by	Gender	1756.923	5	□=.001
Income	by	Age	72.258	20	□=.001
Income	by	Household size	86.895	10	□=.001
Income	by	Marital Status	135.914	15	□=.001
Income	by	Occupation	5803.555	25	□=.001
Income	by	Land ownership	188.469	20	□=.001
Income	by	House ownership	21.847	5	□=.01
Asset	by	Location	379.663	4	□=.001
Asset	by	Gender	218.000	4	□=.001
Asset	by	Age	66.531	16	□=.001
Asset	by	Household size	25.927	8	□=.001
Asset	by	Marital Status	119.626	12	□=.001
Asset	by	Occupation	351.540	20	□=.001
Asset	by	Land ownership	582.859	16	□=.001
Asset	by	House ownership	39.041	4	□=.001
Expenditure	by	Gender	26.214	4	□=.001
Expenditure	by	Age	110.637	16	□=.001
Expenditure	by	Household size	189.970	8	□=.001
Expenditure	by	Marital Status	86.368	12	□=.001
Expenditure	by	Occupation	267.812	20	□=.001
Expenditure	by	Land ownership	508.958	16	□=.001
Expenditure	by	House ownership	52.206	4	□=.001
Health	by	Location	253.507	1	□=.001
Health	by	Gender	90.501	1	□=.001
Health	by	Household size	8.322	2	□=.05

Health	by	Occupation	94.586	5	□=.001
Health	by	Land ownership	14.942	4	□=.01
Education	by	Location	151.182	4	□=.001
Education	by	Gender	169.27	4	□=.001
Education	by	Age	43.509	16	□=.001
Education	by	Marital Status	82.97	12	□=.001
Education	by	Occupation	818.733	20	□=.001
Education	by	Land ownership	266.974	16	□=.001
Reproduction	by	Location	43.992	2	□=.001
Reproduction	by	Gender	38.772	2	□=.001
Reproduction	by	Age	166.489	8	□=.001
Reproduction	by	Marital Status	170.141	6	□=.001
Reproduction	by	Occupation	80.781	10	□=.001
Reproduction	by	Land ownership	86.929	8	□=.001
Electricity	by	Occupation	94.415	5	□=.001
Electricity	by	Land ownership	124.849	4	□=.001
Safe water	by	Location	26.846	1	□=.001
Safe water	by	Marital Status	13.08	3	□=.001
Safe water	by	Occupation	77.816	5	□=.001
Safe water	by	Land ownership	45.901	4	□=.001
Toilet	by	Location	106.302	2	□=.001
Toilet	by	Household size	64.129	4	□=.001
Toilet	by	Marital Status	22.601	6	□=.001
Toilet	by	Occupation	281.888	10	□=.001
Toilet	by	Land ownership	194.046	8	□=.001

(Source: Field Survey)

Table-9, which gives significant chi-square values, shows that food poverty is associated with six independent variables, geographic location, gender, age, household size, occupation and land ownership. On the other hand, income poverty and assets poverty are influenced by all independent variables. Except for geographic location, consumption poverty is affected by all other factors. All three components of capacity poverty, health, education and reproductive control, are commonly influenced by four variables, geographic location, gender, occupation and land ownership. Education and reproductive control are further affected by age and marital status, which are common to both variables. Health is separately affected by household size. All three components of well-being poverty, access to electricity, access to safe water and access to sanitary latrine, are commonly influenced by occupation and land ownership. For water and latrine, location and marital status are common, whereas household size is singularly related to toilet.

Table-10 Summary of Pearson's Correlation on Selected Poverty Variables by Selected Socio-demographic Variables

	POVERTY VARIABLES									
	Food	Income	Assets	Consumption	Capacity			Well-being		
Factor of poverty	Calorie	Income	Assets	Expenditure	Health	Education	Reproduction	Electricity	Safe water	Toilet

Location	0.132**	0.261**	0.253**	-	-0.221**	0.064**	-	-	0.072**	-0.088**
Gender	0.133**	-0.463**	0.200**	0.067**	-0.132**	-0.164**	-	-	-	
Age	0.059**	0.058**	0.074**	0.104**	-	-0.042**	-	-0.034*	-	0.044**
HH Size	-0.127**	-	0.064**	0.162**	0.040**	-	-		-	0.107**
Marital Status	-0.035*	0.082**	0.085**	0.086**	-	0.059**	-0.035*	-0.030*	0.034*	-
Occupation	0.099**	0.670**	0.215**	0.168**	-0.041*	0.267**	-0.060**	-0.099**	0.085**	0.096**
Land owned	0.048**	0.121**	0.268**	0.257**	0.046*	0.171**	-0.049**	-0.127**	0.067**	0.135**
House owned	-	0.032*	0.082**	0.076**	-	-	-	-	-	-

(Source: Field Survey) □□□□=.01 * □=.05

6.1 Occupation and Land Ownership and Poverty

Table-10 above shows that though occupation and land ownership are significantly related to all poverty variables at the level of α=.01, their relationships with health status is inverse, relatively weak and appear significant at a lower level of significance, α=.05. Occupation has comparatively a strong coefficient with income (r=0.670; α=.01), education (r=0.267; α=.01) and assets (r=0.215; α=.01), whereas land ownership is strongly related to assets (r=0.268; α=.01) and consumption (r=0.257; α=.01). The coefficient with other poverty variables is not robust, though significantly related. Both occupation and land ownership has an inverse relationship with reproductive control (r= -0.060; α=.01 and r= 0.049; α=.01 respectively) and electricity (r= -0.099; α=.01 and r= -0.127; α=.01 respectively). Thus,

- Poverty is more prevalent among unemployed or low status occupation: they tend to be food poor, income poor, assets poor, consumption poor and partially capacity poor and well-being poor (except for electricity). Because of NGO interventions among poor women, their health statuses have substantially improved and they are not health poor. This is reflected in the inverse relationship of occupational status with health and reproductive control. In the case of reproductive control, the patriarchal cultural construct is more jealously guarded by the non-poor, and the NGO conscientization programs contributed to some extent in the empowerment of poor women rather than rich women. This is why they are less capacity poor than the high occupational status respondents in rural areas. Because of the NGO assistance, poor tend to have more access to rural electricity. This could be due to their concentration in periurban areas where they search for employment.

- Poverty is more prevalent among landless and marginal farmers: they tend to be food poor, income poor, assets poor, consumption poor and partially capacity poor and well-being poor. Except for health status, their situation is exactly like the unemployed and wage labor.

6.2 Marital Status and Poverty

Next in significance is marital status, which is significantly related to 8 poverty variables, consumption (r=0.086; α=.01), assets (r=0.085; α=.01), income (r=0.082; α=.01), education (r=0.059; α=.01), calorie intake (r= -0.035; α=.05), reproduction (r= -0.035; α=.05), water (r=0.034; α=.05) and electricity (r=-0.030; α=.05). As apparent, the coefficient with other poverty variables is not robust. Thus,

- Poverty is more prevalent among singles, either unmarried or divorced/widowed: they tend to be income poor, assets poor, consumption poor and partially capacity poor (education) and well-being poor (water). Moreover, married respondents tend to be food poor and partially capacity poor (reproductive control). The inverse relationship of marital status with reproductive control and calorie intake implies that among married respondents, the patriarchal values and other considerations prevent women to eat sufficiently and take decisions for themselves.

6.3 Geographic Location and Age and Poverty

Both geographic location and age are significantly related to 7 poverty variables. The coefficient of geographic location is stronger than age. Location is significantly related to income (r=0.261; □=.01), assets (r=0.253; □=.01), health (r= -0.221; □=.01), calorie intake (r= 0.132; □=.01), toilet (r=0.088; □=.01), water (r= 0.072; □=.01), education (r= 0.064; □=.01). Likewise, age is significantly related to consumption (r=0.104; □=.01), assets (r=0.074; □=.01), calorie intake (r= 0.059; □=.01), income (r=0.058; □=.01), toilet (r=0.044; □=.01), education (r= -0.042; □=.01) and electricity (r= -0.034; □=.05). Thus,

- Poverty is more prevalent among respondents of Gaibandha Sadar than Tanore: they tend to be food poor, income poor, assets poor, partially capacity poor (education) and well-being poor (water). Whereas respondents of Tanore tend to be partially capacity poor (health) and well-being poor (toilet). The more prevalence of open defecation in Tanore could be due to cultural practice (because of the notion of purity-pollution) and lack of NGO intervention (because of prevalence of indigenous Santal community).

- Poverty is more prevalent among young adults: they tend to be food poor, income poor, assets poor, consumption poor and partially well-being poor (toilet). Old adults tend to be more partially capacity poor (education) and well-being poor (electricity). This appears to be consistent with married having less access to electricity. The prevalence of illiteracy among old adults is normal in the society.

6.4 Gender and Poverty

Gender ranks fourth as a factor of poverty and is significantly related to 6 poverty variables, income (r=0.463; □=.01), assets (r=0.200; □=.01), education (r= -0.164; □=.01), calorie intake (r= 0.133; □=.01), health (r= -0.132; □=.01) and consumption (r=0.067; □=.01). Thus,

- Poverty is more prevalent among women than men: they tend to be food poor, assets poor and consumption poor. On the other hand, males appear to be income poor and capacity poor (health and education). Though strange, the reason for males having less cash income could be the access of women to micro-credit offered by streams of NGOs under poverty alleviation program. The association of gender with poverty is well-documented in the literature and the notion of “feminization of poverty” is conceptualized. But the empirical relationship is inconsistent and incongruent because of several factors. The decomposition of middle class both in urban and rural areas, and the NGO intervention for the poor, has complicated the gendered poverty relationships.

6.5 Household Size and Poverty

Next, household size is significantly related to 5 poverty variables, consumption (r=0.164; □=.01), calorie intake (r= -0.127; □=.01), toilet (r=0.107; □=.01), assets (r=0. 064; □=.01) and health (r= 0.040; □=.01). Thus,

- Contrary to popular expectation, poverty is more prevalent among small size households: they tend to be assets poor, consumption poor, capacity poor (health) and well-being poor (toilet). On the other hand, large households appear to be food poor. The small-size households consist of mostly singles, and therefore, tend to be poor as divorced and widowed respondents, especially women, inflate that category.

6.6 House Ownership and Poverty

House ownership is least related, and its coefficient is not robust. It is found to be significantly related to 3 poverty variables, assets (r=0.082; □=.01), consumption (r=0.076; □=.01) and income (r=0.032; □=.05). Thus,

- Poverty is more prevalent among non-owners of house: they tend to be income poor, assets poor and consumption poor. It is obvious that the ownership of house relates to income, assets and consumption. Furthermore, in the agrarian society, ownership of house is also related to ownership of land (r=0.112; α=.01) as the inter-item correlation matrix in Table-12 shows.

Therefore, consistent with the global findings and emerging social structure of Bangladesh, both social and demographic variables are found significant explanatory variables of poverty.

7 Multi-Dimensionality of Poverty

Table-11 clearly shows the multi-dimensionality of poverty and the variation in the incidence of different types of poverty. It is found that 46 per cent respondents of the survey area are in food poverty as against 62 per cent in income poverty, 67 per cent in capacity poverty, especially education and 62 per cent in well-being poverty, especially access to sanitary latrine. The decline of food-poverty is important. The comparative south Asian poverty statistics inflate Bangladesh food-poverty by arbitrarily setting a higher caloric requirement for the country. Otherwise, the food-poverty would have been much less. Apart from income, which is still the solid poverty measurement, other non-economic factors also play crucial roles in shaping the human dimension of poverty. Obviously, capacity poverty and well-being poverty require more attention in the conceptualization and measurement of poverty in Bangladesh. The incongruence and inconsistencies within among indicators of poverty can only be understood within the general context of Bangladesh society and economy, evolving in the wake of predatory capitalistic development.

Table-11 Incidence of Different Type of Poverty in Gaibandha Sadar and Tanore (in Per cent)

Type of Poverty	Gaibandha	Tanore	Total
I. Food Poor	52	37	46
2. Income Poor	70	50	62
3. Assets Poor	56	33	47
4. Consumption Poor	53	53	53
5. Capacity Poor:			
a. Health	15	34	22
b. Education	68	66	67
c. Reproductive control	52	46	50
6. Well-being Poor:			
a. Access to electricity	94	94	94
b. Access to safe water	6	3	5
c. Access to sanitary latrine	57	70	62

N=	3,158	2,022	5,180

(Source: Field Survey)

8 Hierarchy of Poverty Correlates

Table-12 which gives the inter-item correlation matrix of the factors of poverty, indicates the hierarchy within among independent variables. It shows that ownership of land is the most important variable not only for dependent variables (poverty variables) but also for independent variables (factors of poverty). It is interesting to note that four demographic variables are significantly related to each other, indicating multi-correlation. Next in importance is occupation followed by ownership of house.

Table-12 Inter-Item Correlation Matrix of Socio-Demographic Correlates

	Location	Gender	Age	Household size	Marital status	Occupation	Land owned	House owned
Location	-	0.432**	-	-0.241**	-	0.155**	-0.081**	-
Gender	0.432**	-	0.114**	-0.081**	0.094**	0.404**	0.046**	-
Age	-	0.114**	-	0.137**	-0.067**	0.097**	0.144**	0.053**
Household size	-0.241**	-0.081**	0.137**	-	0.045**	-	0.130**	0.032*
Marital status	-	0.094**	-0.067**	0.045**	-	0.070**	0.029*	0.071**
Occupation	0.155**	0.404**	0.097**	-	0.070**	-	0.164**	-
Land owned	-0.081**	0.046**	0.144**	0.130**	0.029*	0.164**	-	0.112**
House owned	-	-	0.053**	0.032*	0.071**	-	0.112**	-
N=5180 ** □=.01 * □=.05								

(Source: Field Survey)

Ownership of land is significantly related to all other 7 independent variables. Thus, ownership of land is found to be significantly related to location (r= -0.081; □=.01), gender (r=0.046; □=.01), age (r=0.144; □=.01), household size (r=0.130; □=.01), marital status (r=0.029; □=.05), occupation (r=0.164; □=.01) and house ownership (r=0.112; □=.01). Thus,

- Big and medium owners of land are more numerous in Gaibandha Sadar. They tend to be more males, mature adults, and married than landless and marginal peasants. They also have bigger household, high status occupation and own more houses. Thus, land ownership influences all other independent variables that are related to poverty. It wields direct and indirect influences in the poverty status and becomes the most significant correlate of poverty.

The demographic variables like gender, age, household size and marital status show strong network of relationship among independent variables. All of them are significantly related to 6 independent variables each. Gender is found to be related to location (r= 0.432; □=.01), age (r=0.144; □=.01), household size (r= -0.081; □=.01), marital status (r=0.094; □=.01), occupation (r=0.404; □=.01) and land ownership (r=0.046; □=.01). Thus,

- Males tend to be more numerous in Tanore than females. They tend to be more aged and married than women. They also have bigger household, high status occupation and more land. By influencing other independent variables that are related to poverty, i.e., occupation and land ownership, gender appears to exert both direct and indirect influences in the poverty situation and becomes a significant correlate of poverty.

Similarly, age is found to be related to gender (r= 0.114; α=.01), household size (r= 0.137; α=.01), marital status (r=0.067; α=.01), occupation (r=0.097; α=.01), land ownership (r=0.144; α=.01) and ownership of house (r=0.053; α=.01). Thus,

- Mature adults tend to be males and married than young adults. They also have bigger household, high status occupation and more ownership of house. Thus, age also influence other independent variables that are related to poverty, i.e., occupation and house ownership.

Related to gender and age, household size also affects poverty determinants and poverty itself. household size is found to be related to location (r= -0.241; □=.01), gender (r= -0.081; □=.01), age (r= 0.137; □=.01), marital status (r=0.045; □=.01), land ownership (r=0.130; □=.01) and ownership of house (r=0.032; □=.05). Thus,

- Large households tend to be more numerous in Gaibandha Sadar than small-size households. Respondents of large household tend to be more males, mature adults and married than respondents from small-size households. The large households also tend to be large landowners and owners of house. Through these influences, household size also become an important independent variable.

Marital status is found to be related to gender (r= 0.094; □=.01), age (r= -0.067; □=.01), household size (r= 0.045; □=.01), occupation (r=0.070; □=.01), land ownership (r=0.029; □=.05) and ownership of house (r=0.071; □=.01). Thus,

- Married respondents tend to be more males and young adults than single respondents. They also have bigger household, high status occupation, more land and houses. Thus, marital status also influences other independent variables that are related to poverty, i.e., occupation, land ownership and ownership of house.

Next, occupational status is found to be significantly related to 5 independent variables, location (r= -0.155; □=.01), gender (r=0.404; □=.01), age (r=0.097; □=.01), marital status (r=0.070; □=.01) and land ownership (r=0.164; □=.01). Its structural influence in a status-bound traditional society is paramount. Moreover, it is market-driven too and reflects the structural adjustment that is taking place in the agrarian sector of Bangladesh.

- High status occupation tend to be located more in Gaibandha Sadar than unemployed and low status occupation. Respondents from high status occupation tend to be more males, mature adults and married. They also have more land. Thus, occupation appears to influence other independent variables that are related to poverty.

Ownership of house is least important independent variable having inter-item correlation. It is found to be significantly related to 4 independent variables, age (r=0.053; □=.01), household size (r=0.032; □=.05), marital status (r=0.071; □=.01), and land ownership (r=0.112; □=.01).

- Owners of house tend to be more mature adults and married than non-owners of house. They also have bigger household and more land. Thus, ownership of house also influences other independent variables.

The inter-item correlation matrix of the independent variables shows how intractably socio-demographic variables are related and how the influence of one variable on another is mediated by other related variables. The significance of socio-economic and demographic factors for poverty characteristics can be empirically demonstrated at the micro level research. And these variables can be considered as important explanatory variables for Bangladesh poverty.

Conclusion

Unless there is a radical departure in the concept and measurement of poverty, the Bangladesh rural poverty ranges from 46 per cent to 62 per cent across different dimensions. Except for few indicators like health status, access to safe water and access to electricity, which produce wide

divergence, the survey findings are more or less similar to other surveys and official statistics. It is found that food poverty is far less than other types of poverty -- income, capacity, especially education and well-being, especially access to sanitary latrine.

The findings on factors of poverty are more or less consistent with the global findings. Moreover, they are reflective of Bangladesh agrarian socio-economic context, which is embedded with land ownership and occupational status as a continuation of traditional status-bound society. At the macro level, poverty in rural Bangladesh is related to gendered social stratification, rather than to a sudden fall from grace. Thus in Gaibandha Sadar and Tanore, landless and marginal farmers, unemployed and underemployed rural wage labor, women and people from backward regions would tend to be more poor. This is clearly evident from the inter-item correlation matrix as given in Table-12, which shows the relationship among factors of poverty. The lack of empirical rigour in the poverty analysis, which would translate the macro reality in micro-level research, is pervasive. This calls for the need for the paradigmatic shift in the poverty analysis. At the least, a definitional shift of poverty, from economic dimension to sociological dimension, is urgently required. This appears to be a starting point for the Bangladesh sociological research.

The foregoing analysis points to two important conclusions at the research and policy levels. First of all, there is a clear need for rigorous empirical studies to explore sociological causes of poverty and shift the attention of poverty researchers from pure economic analysis of poverty to sociological ones. .Secondly, there is a need for policy change concerning poverty reduction by the poverty stakeholders -- government, donors and NGOs. This would call for shift of poverty reduction strategies from present NGO-driven income generation activities through micro-credit to state-sponsored employment generation. In addition, the most effective means to poverty reduction would be entitlement, i.e., access to land, if not ownership. This can be implemented by redistributing the reclaimed (*char*) land from sea and river. This would require good governance where politically motivated power brokers would be prevented in having illegal access to *char* land. In fine, Bangladesh state should fulfill its constitutional obligation and change its role from being a minimal state to a welfare state.

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