

In general, expenditure inequalities are lower than the income inequalities for all consumption categories as shown by the Lorenz curve for four major categories of expenditure (Figures 9 and 10). According to the Lorenz curve, there is least inequality in the expenditures for food and beverages. The patterns are similar for Bogra and Tangail. Education expenditures show the highest level of inequality. Perhaps, the higher elasticities for education reflect the importance of education to the upper income groups.

The Gini coefficients (Table 9) show that expenditures are more unequal in Tangail relative to Bogra for rent, clothing, education and the residual category of others. Since Tangail has a higher mean income and higher mean expenditures than Bogra, the Gini may be reflecting the influence of the income and consumption of upper income groups. It could be speculated that as Tangail is closer to Dhaka, the average income for the top most income group is higher-approximately TK72,000 as compared to TK 62,000 in Bogra.

Table 14 shows Monthly expenditures for the four income groups. Each category is interpreted separately.

Figures 9 and 10 Expenditure Lorenz Curve for Bogra and Tangail

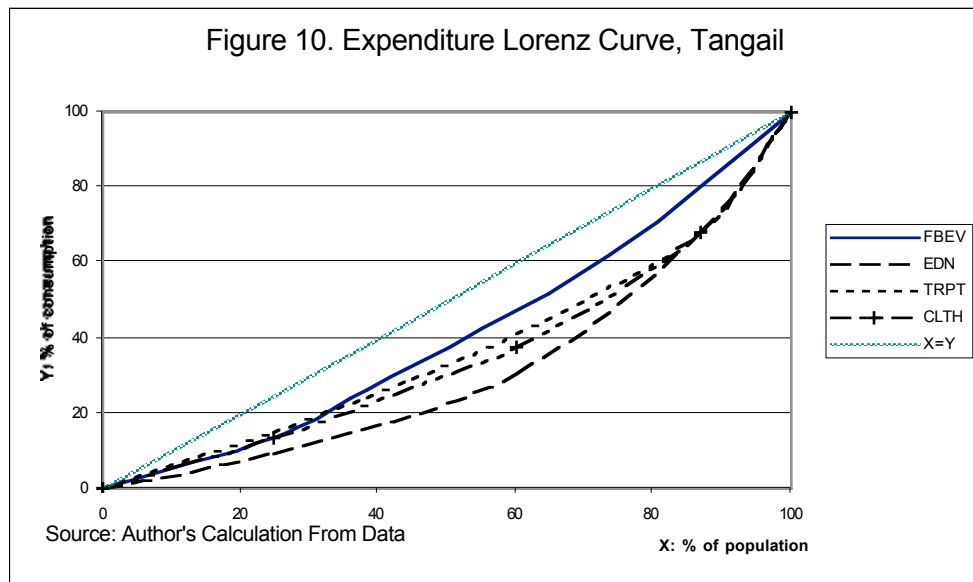
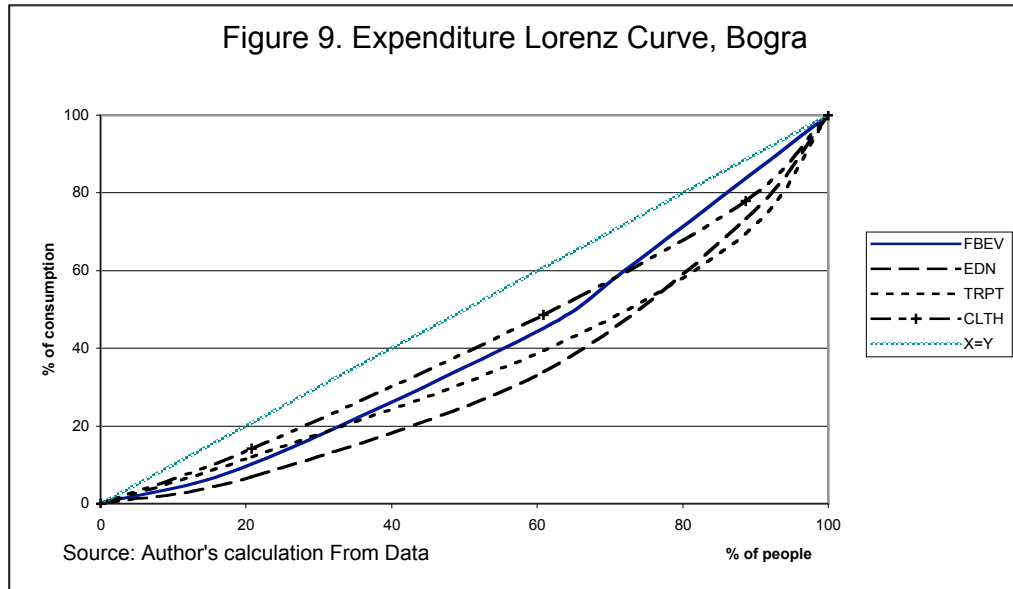


Table 14. Monthly Expenditures by Income & Expenditure Categories

BOGRA				
INCOME (counts)	<5000 (44)	5001-10000 (85)	10001-25000 (59)	>25000 (26)
EXPENDITURE	(Taka) %(a)	(Taka) %(a)	(Taka) %(a)	(Taka) %(a)
FBEV	1684 (28.2)	2971 (36.7)	4870 (41.6)	4221 (31.8)
CLTH	350 (5.9)	436 (5.4)	538 (4.6)	919 (6.9)
RENT	389 (6.5)	550 (6.8)	733 (6.3)	404 (3.0)
EDN	386 (6.5)	785 (9.7)	1653 (14.1)	2535 (19.1)
TRPT	350 (5.9)	414 (5.1)	653 (5.6)	1502 (11.3)
REMT	350 (5.9)	350 (4.3)	350 (3.0)	350 (2.6)
Average Income	3614	7500	17500	62019
TANGAIL				
INCOME(counts)	<5000 (41)	5001-10000 (58)	10001-25000 (44)	>25001 (22)
EXPENDITURE	(Taka) %(a)	(Taka) %(a)	(Taka) %(a)	(Taka) %(a)
FBEV	1996 (31.6)	3724 (43.0)	5258 (43.1)	3461 (25.1)
CLTH	350 (5.5)	459 (5.3)	738 (6.1)	1573 (11.4)
RENT	379 (6.0)	402 (4.6)	830 (6.8)	911 (6.6)
EDN	399 (6.3)	657 (7.6)	1519 (12.5)	2600 (18.8)
TRPT	350 (5.5)	443 (5.1)	602 (4.9)	1407 (10.2)
REMT	350 (5.5)	357 (4.1)	359 (2.9)	350 (2.5)
Average Income	3677	7500	17500	71591

(a) as percentage of total expenditure

Source: World Bank Household Survey Data (Bogra & Tangail, Bangladesh), 2000

Food and Beverage Expenditures

Even though the actual amounts spent on food and beverages are low, the highest share of expenditure is devoted to food - as can be theoretically expected. The highest income group has the lowest percentage of its expenditure devoted to food and beverage – a pattern also theoretically expected. The Urban Poverty Task Force found that the hard core poor spent 63% of their income on Food expenditures which declined to 45% for the moderate poor. The lower figures in this survey warrant some explanation. The approximately 32% share of expenditure devoted to food consumption by the lowest income group is considerably lower than usual expectations in urban areas. This can be a data error or it can be partially explained by the fact that the NW region is agriculturally rich, the urban areas are small and relatively well connected to the rural hinterland. Food prices may be lower than other urban areas in the country and there may be now market food transaction between rural and urban households. These may be in the form of land rents paid in food crops. Poor farmers (with small plot sizes) often rent land from urban, non farming, land owing households with rent payments as a percentage of the

agricultural output. However, this observation cannot be corroborated as we have no price or land rent data for these two towns.

Mean expenditures for food range from a low of TK 1996 for the lowest income group to a high of TK 5258 for the middle income group; approximately three times that of the former. This is not surprising in that low-income groups lack sufficient purchasing power. In urban areas many of the items like shelter and clothing compete with food for allocation of the budget. In developing countries food expenses are positively correlated with income both in terms of amount of food consumed and the switch to more expensive superior food commodities such as fish and meat. The lower middle income group 5001-10,000 devote the highest share of income to food and beverages and this is consistent with the cultural norms where prosperity is symbolically related to food consumption. The mean expenditures at TK 3724 are, however, lower than the next higher income group.

Household behavior patterns are frequently closely correlated with the occupation and educational level of the head of household, family size and composition and household income. For example households with professional and managerial occupations, particularly in cases where the family income is relatively high, tend to spend a larger share of the income on durable goods and services, more recreation and so on thus competing with food. The highest income groups in both Tangail and Bogra devote the lowest percentages to food and beverage.

Education

Education is the second most important category of expenditure and accounts in the two cities for 11% and 12% share of the budget. Education expenditures are positively correlated with income; mean expenditures of TK 386 for the lowest income group can be compared with the mean TK 2535 for the highest income group in Bogra. The latter is approximately 8 times that of the former. This is reflected in the expenditure Lorenz curve showing that education expenditures have the highest level of inequality among the several expenditure categories (Figures 9 and 10). This probably explains the higher demand elasticities for education; a 1% increase in income causes .5% increase in educational expenditures. This can be expected in a country where the returns for good quality education are high in terms of life-time earnings; the middle and upper income groups have the resources to purchase higher quality education.

However, such large inequalities in education have negative implications for widespread human capital formation and a future likelihood of perpetuation on increasing income inequalities.

These observations are corroborated from the distribution of education expenditures by 6 occupational groups (Table 15). The business and service occupations incur the highest expenditures in both cities and they are also the highest income groups. If we assume as the "retired" belonging to the former two groups, we can make the observation that the greatest frequency, and the highest expenditures, are incurred by the already educated groups. This is consistent with both the standard theoretical and behavioral expectations.

Table 15. Education Expenditure by Occupations

Bogra

Occupation	Education Expenditure (taka)						
	up to 500	501 to 1000	1001 to 1501	1501 to 2000	2001 to 2500	2501 to 5000	more than 5000
"Business"	41	13	9	6	1	10	3
"Service"	25	10	5	7	0	4	0
"Housewife"	7	3	1	2	1	1	0
"Mason"	0	1	0	0	0	0	0
"Farmer"	1	0	0	1	0	0	0
"Retired"	11	1	1	2	0	0	0
Others	24	6	3	3	1	10	0
Total	109	34	19	21	3	25	3

Tangail

Occupation	Education Expenditure (taka)						
	up to 500	501 to 1000	1001 to 1501	1501 to 2000	2001 to 2500	2501 to 5000	more than 5000
"Business"	30	12	3	10	0	6	1
"Service"	21	4	2	2	0	5	0
"Housewife"	5	2	1	1	0	1	0
"Mason"	4	3	0	0	0	0	0
"Farmer"	3	0	0	0	0	0	0
"Retired"	11	4	2	0	0	1	0
Others	16	5	0	4	1	3	2
Total	90	30	8	17	1	16	3

Source: World Bank Household Survey Data (Bogra & Tangail, Bangladesh), 2000.

Wodon (1998) found returns to education were large, with statistically significant difference, with respect to consumption in urban areas. In 1995-96, heads of households who had completed secondary school had twice the consumption of those with households headed by illiterates. This suggests there is a need to address consumption inequalities in education as income and expenditure inequalities will widen in these towns due to the joint effect of higher income elasticities and larger returns to education expenditures.

Clothing

The highest income group spends the most on clothing in both monetary terms and as a share of their total expenditures. Clothing expenditures increase with income as can be theoretically expected. The elasticities for clothing range from .34 for Tangail to .22 for Bogra. This is consistent with the higher incomes for Tangail and the income inequalities for clothing expenditures as depicted in the Lorenz curve. The lowest income group spends on average TK 350 per month on clothing as compared to TK 1573 for the richest group, that is, the rich spend approximately 5 times more on clothing. Clothing expenditures can be expected to increase with growing purchasing power. This may have implications for the textile industry which is an important productive sector in the regional economy. This sector growth should be monitored in future surveys.

Housing Consumption and Expenditures.

The share of housing expenditures shows a peculiar pattern in that the percentage devoted to housing does not increase with income. Those earning an average income of TK 5000 spend the same six percent of their income as those households with mean incomes of TK 25,000. Mean expenditures of TK 380 for the lowest income group can be compared to TK 911 for the highest income group in Tangail. A similar pattern occurs in Bogra. The expenditure figures for the poor are consistent with the findings of the Urban Poverty Task Force. The report notes that the urban poor were paying an average of TK 366 at a national level and this increased to TK 432 in Dhaka. The small difference in actual rent expenditures between the rich and poor households warrant an explanation as this is neither theoretically nor culturally an expected pattern.

This unexpected pattern suggests two possible biases. First, the respondents reported contract rents. Since the majority of upper income households own their dwelling units, and few owners have access to housing finance, few incur monthly mortgage costs. Most pay for plot purchases and housing construction from personal or family savings (GOB-ADB, 1996). Thus imputed rents would have given a true picture of housing consumption. Second, a large percentage of households who are renters in the middle income categories construct dwelling units on an informal and incremental basis. Contract rents underestimate the true housing expenditures as an important share of expenditures is devoted to housing construction. Contract rents reported here are underestimating the true housing consumption for all but the lowest income group where the majority, though not all, are renters. Thus the demand elasticities for housing are low in both towns. So housing consumption should include contract rents plus expenditures for land and building materials incurred by households. Due to these biases in rent expenditures, the Gini coefficients and the Lorenz curve have been discarded from the analysis.

This sort of measurement error is to be found in other urban reports in Bangladesh. For example, the household survey in Dhaka, indicated that rents were usually below TK 100 per month, including services for the poor (GOB-ADB, 1996). Yet even families of modest means could afford dwellings of substantial value. For example, a three room apartment in 1996 was valued at TK 700,000 – a sum that could be afforded by only the top 5% of the income distribution. Yet housing of this type accounted for 66% of the growth in housing in the 1981-1991 period. For example, informal housing accommodated approximately 50% of the population of Dhaka and accounted for two thirds of the new growth between 1981-1991 (GOB-ADB, 1996).

Table 16 shows contract rent expenditures by occupation. As expected the highest expenditures are for the Business and Service categories. Nevertheless, the observation about understatement of housing consumption using expenditures, noted earlier, is borne out by this table.

Table 16. Rent Expenditure (Taka) by Occupations**Bogra**

Occupations	Rent Expenditure (Taka)							Total
	up to 500	501 to 1000	1001 to 1501	1501 to 2000	2001 to 2500	2501 to 5000	more than 5000	
"Business"	70	7	1	3	0	2	0	83
"Service"	43	1	4	3	0	0	0	51
"Housewife"	14	1	0	0	0	0	0	15
"Mason"	1	0	0	0	0	0	0	1
"Farmer"	1	0	1	0	0	0	0	2
"Retired"	14	0	0	0	0	1	0	15
Others	33	5	4	3	1	1	0	47
Total	176	14	10	9	1	4	0	214

Tangail

Occupations	Rent Expenditure (Taka)							Total
	up to 500	501 to 1000	1001 to 1501	1501 to 2000	2001 to 2500	2501 to 5000	more than 5000	
"Business"	54	4	0	0	0	4	0	62
"Service"	26	3	2	0	0	2	1	34
"Housewife"	10	0	0	0	0	0	0	10
"Mason"	7	0	0	0	0	0	0	7
"Farmer"	3	0	0	0	0	0	0	3
"Retired"	18	0	0	0	0	0	0	18
Others	26	2	0	2	1	0	0	31
Total	144	9	2	2	1	6	1	165

Source: World Bank Household Survey Data (Bogra & Tangail, Bangladesh), 2000.

Transportation

Mean transportation expenditures are around TK 600 for both towns accounting for approximately 7% of the total expenditures (Table 13). Mean expenditures range from TK 350 for the lowest income group to approximately TK 1500 for the highest income group. Transportation expenditures are positively correlated with income and the average for the highest income group is twice that of the next highest group. These patterns are theoretically expected and consistent with culturally influenced preference structures. The elasticities are statistically significant with .3% increase for every 1% increase in income. While there is not a significant difference between the towns, the mean expenditures are higher for the two higher income groups in Bogra relative to Tangail - contrary to the other patterns discussed thus far. A plausible explanation could be the difference in energy costs due to the peripheral location of the NW with respect to the energy sources located in the east, transshipment problems and higher

transportation costs. If this is so, the construction of the bridge may bring fuel prices more in balance across Bangladesh and benefit the motorized sector. However, we have no price data to support this plausible interpretation.

Table 17 shows transportation mode choice by income. For, slightly more than a third of the households, walking is the predominant form of travel. The majority of these are in the two lower income groups as can be expected. Another third use rickshaws. However, more than two thirds of those using rickshaws belong to the two middle income groups. This group account for the highest ridership in buses as an be expected due to their increased purchasing power. Cars are an insignificant mode of transportation. These are consistent with theoretically derived expectations. Tables 18 and 19 show that the transportation expenditure and mode choices by occupation. Business and service people have much higher expenditures and car uses, as can be expected.

Table 17. Transportation Mode Choices by Household Income (Taka)

Bogra

HH Income (taka)	Transportation Mode					Total
	1.Walkw	2.Ricksha	4.Bus	5.Car	6.Other	
under 5000	19	12	2	0	1	34
5001 to 10000	31	25	11	0	5	72
10001 to 25000	12	22	11	1	3	49
more than 25000	4	11	1	4	3	23
Total	66	70	25	5	12	178

Tangail

HH Income (taka)	Transportation Mode					Total
	1.Walkw	2.Ricksha	4.Bus	5.Car	6.Other	
under 5000	22	7	1	0	1	31
5001 to 10000	15	19	7	0	4	45
10001 to 25000	8	15	4	1	2	30
more than 25000	4	8	2	0	3	17
Total	49	49	14	1	10	123

Source: World Bank Household Survey Data (Bogra & Tangail, Bangladesh), 2000.

Table 18. Transportation Mode Choices by Occupations**Bogra**

Occupations	Transportation Mode					
	1. Walk	2. Rickshaw	4. Bus	5. Car	6. Other	Total
"Business"	37	30	5	4	6	82
"Service"	13	21	12	0	4	50
"Housewife"	2	0	0	1	0	3
"Mason"	0	1	0	0	0	1
"Farmer"	1	0	1	0	0	2
"Retired"	1	0	0	0	0	1
Others	12	18	7	0	2	39
Total	66	70	25	5	12	178

Tangail

Occupations	Transportation Mode					
	1. Walk	2. Rickshaw	4. Bus	5. Car	6. Other	Total
"Business"	26	25	5	0	3	59
"Service"	9	9	7	1	4	30
"Housewife"	0	0	0	0	0	0
"Mason"	3	3	0	0	0	6
"Farmer"	2	0	0	0	1	3
"Retired"	0	1	0	0	0	1
Others	9	11	2	0	2	24
Total	49	49	14	1	10	123

Source: World Bank Household Survey Data (Bogra & Tangail, Bangladesh), 2000.

V. ANALYSIS OF THE ESTABLISHMENTS

A major cause of the relative poverty of Bangladesh in general, and of the North-West in particular, is the heavy dependence of the labor force on the agricultural sector in a country where the per capita agricultural land is one of the lowest in the world. The economic health of the NW can benefit from industrialization and the expansion of non farm employment. Alternatives to agriculture as a basis of economic growth needs to be fostered for the sustainable development of the region,. Industrial and commercial enterprises in urban areas will provide higher valued added employment alternatives, improved access to education and health facilities to large segments of the rural population. Growth of these higher valued activities depends on cost efficient transport especially as it facilitates commodity procurement and marketing of the

intermediate, semiprocessed and finished outputs at more competitive rates, as discussed earlier in the theoretical section of this report. Moreover, the NW has lower wage rates and less labor problems relative to Dhaka and Chittagong regions (GOB-ADB 1997a: 26). It has lower land prices. In conjunction with improved transportation connectivity these comparative cost advantages *may act* as a magnet for manufacturing and commercial activities translating into higher inter-regional and international trade

This section, surveys the characteristics of existing manufacturing and commercial establishments in Bogra and Tangail. Only formal establishments were surveyed as these have the greatest potential of benefiting from the increased accessibility resulting from the construction of the Jamuna Bridge. The registration of the establishment with the Paurasava (municipality) was selected as the indicator for formality. We have divided the establishments into two broad classes based on a) size of establishment measured by the number of employees and b) sector of activity. The Annual Survey of Non Farm Economic Activities defines business activity by the size of employment. The NWADS classified small firms as those with 1-9 employees, medium with 10-49 employees and large with more than 50 employees (GOB-ADB, 1997c). The small establishment sector is important in developing economies characterized by low incomes, low skills and weak development of financial intermediaries. This sector, sometimes characterized as penny capitalism, is vibrant and important for household survival. While a large segment of this sector does not generate enough output for savings and capital formation they, nevertheless, provide earnings opportunities for the largest percentage of workers in small and medium sized towns. However, out of this small firm sector some establishments grow due to the entrepreneurial skill of their owners, productive efficiency, higher savings rate and reinvestment of capital. Some of these establishments grow larger and adopt a path of self-reinforcing sustainable growth. Moreover, with increasing industrial maturity and expanding international trade there is an emergence of medium (10-49) and large enterprises (more than 50 employees) in Bangladesh. The small establishment sector is also important for rural welfare as the bulk of the non-skilled migrants are absorbed here (and in the informal sector).

Most of the surveyed cases refer to the small establishment sector (employing 1-9 persons). This is consistent with the NWADS findings: 95.7% of the establishments engaged 1-9 persons per unit. Small establishments were common in a) trade, restaurant and hotel and b)

personal service sectors where 98.5% and 96.3% were small and micro establishments. In manufacturing and business service sectors the corresponding figures were 87.3 and 86.0% respectively. Together they accounted for 57% of employees engaged in these establishments. In manufacturing, 35% of the labor force worked in these establishments. Our results are consistent with this.

The establishments are divided into six sectors and the survey results are shown in Table 21. The majority of the establishments were registered with the municipality; only the larger establishments, very few in number, were registered with the Industry Ministry. Retail shops accounted for slightly less than two thirds of all establishments. This pattern can be expected in towns lacking a strong industrial base. Workshops, usually garages with mechanics or small tool and die works accounted for approximately 12% of all establishments. Industrial establishments accounted for 7%. These results are consistent with the NWADS reports.

Most of the enterprises are single owned - as can be expected (Table 22). Approximately, 50% of the retail shops in Bogra and more than 60% of those in Bogra are owned by single owners. This pattern is found in all the six sectors. Only two establishments are Public Limited - one each in Tangail and Bogra. In both cases these are wholesale establishments. The thirty industrial establishments (6% of the sample) are predominantly owned by single individuals indicating a weak development of other institutional alternatives.

The retail establishments are primarily small and family operated: more than 50% do not pay any wages (Table 23). Perhaps non wage family help is used as these are proprietor owned. In Tangail, the smaller town, 61% of the establishments are family run as compared to the 45% for Bogra. This is reflected in the wage patterns – 36% for Bogra and 23% for Tangail incur monthly wages between TK 1000 to TK 5000. The retail and the industrial sectors differ as can be expected; 36% in Tangail and 53% in Bogra pay wages in excess of 5000 TK per month. The pattern varies by sector even though all sectors have examples of small firms that do not pay wages.

In Table 24 the Cost of Capital equipment is shown by sector. As can be expected approximately 85% of all retail establishments do not own any capital equipment. There may be a down ward bias in these statistics as furniture, shelving and operating capital do not seem to be considered as capital. More than three fourths of the wholesale establishments also reported as not owning capital equipment, which does not seem intuitively correct. However, there is

considerable difference between Tangail and Bogra. Approximately 3% of the wholesale establishments reported owning capital equipment in excess of 10,000 TK. of which 14% incurred costs in excess of 50,000TK. This could imply that the wholesale establishments in Bogra are smaller catering to a regional population in contrast to Tangail on the eastern bank of Jamuna with better linkages to Dhaka. It is somewhat unexpected that 15% of service establishments in Bogra and 10% in Tangail had incurred capital expenses of more than 50,000TK. These could be hotels and restaurants and repair facilities noted in the NWADS study of Bogra. Approximately 12% of the workshops in Tangail reported capital expenditures in excess of 50,000TK. These could be truck and automobile repair shops. We have no way of corroborating the plausible interpretations.

More than 80% of the establishments do not pay interest (Table 25) implying the use of family owned savings. This pattern occurs across all categories. The highest amount of interest is paid in the industrial sector, as can be expected. However, only 35% pay interest. This partly reflects the scale of the enterprises and partly the character of business enterprises where credit is rarely used except under difficult circumstances. This may also reflect a weak development of the finance section as noted in the NWADS report (GOB-ADB, 1997b). With increased modernization and maturity of capitalism, this pattern may change in order to facilitate the expansion of enterprises. Patterns of credit availability is an aspect which calls for additional data.

A similar pattern is to be found in the data on cost of land and buildings, where across all categories approximately three quarters do not report any cost. Only the industrial establishments vary from this pattern where more than 80% incur costs for land and buildings (Table 26). In fact, 80% of the industrial establishments have incurred more than 50,000TK for Land and Buildings. Thus it is not surprising that more than 80% of the establishments do not pay rent which implies that they operate on proprietor owned land and premises. These figures underestimate the true rent costs, since the concept of imputed rent is unfamiliar. They reflect only the contract rents (Table 27).

The data by size of establishment is shown in Table 28. It reinforces the findings noted above in that there is a preponderance of small establishments in both towns. There are only 4 large establishments employing more than 50 workers of which three are in Bogra. These are all industrial establishments – as can be expected. Bogra, also has three quarters the medium sized

firms. Approximately 3% (16 out of a total of 479 establishments) belong to the medium category, however, they are distributed across all the sectors. Additional tables are not provided since the patterns do not change if we analyze the rent, interest payments or capital investment data by size of firm. The comments will be merely repetitive.

In summary, it is important to emphasize that only 20 out of a total of 479 establishments employ more than 10 workers for both towns combined. This pattern is not surprising as the NW accounts for only 5.2% of the large scale industries of Bangladesh - an observation made about the NW region in an earlier section. The construction of the bridge and better linkages with the rest of the country has the potential to change this underdeveloped pattern of non farm, commercial and manufacturing establishments in the future.