Version: 24-06-2020

Poverty in the Time of Corona: Trends, Drivers, Vulnerability and Policy Responses in Bangladesh

Binayak Sen, Zulfiqar Ali, and Muntasir Murshed

Alfred Marshall's *Principles of Economics* (the first great text in neoclassical economics) opens up with these lines: "Now at last we are setting ourselves seriously to inquire whether it is necessary that there should be any so called "lower classes" at all: that is whether there need be large numbers of people doomed from their birth to hard work in order to provide for others the requisites of a refined and cultured life, while they themselves are prevented by their poverty and toil from having any share or part in that life…The answer depends in a great measure upon facts and inferences, which are within the provinces of economics; and this is it which gives to economics studies their chief and their highest interest" (as quoted in Bowles 2004).[1] This remark by Marshall reverberates with even more alarming urgency in the time of COVID-19. The global pandemic threatens to destroy the lives and livelihoods of all, but it reveals underlying racial and income divides across the developed and developing countries. The poor are likely to be affected much more than the rich because of twin pressure of economic lockdown and pre-exiting vulnerabilities that comes with extreme income and non-income deprivations.

With stunning pace, the current pandemic has inflicted disproportionate suffering on poor communities. Even in developed countries, many families have become suddenly vulnerable to shocks as unemployment mounts and savings are eroded. The COVID-19 pandemic signals an even more disaster for developing countries confronted with unprecedented rise in food insecurity and poverty. UN predicts that "biblical famines" have become a distinct possibility for the Third World. As Thomas Piketty (2020) warns in a recent interview, "this is a crisis that illustrates a virulent inequality" and much would depend

*This is a background paper commissioned by the GED and prepared for the 8th Five Year Plan. The authors are grateful to Sadiq Ahmed and Shamsul Alam for their comments and suggestions on successive drafts. The paper is an outcome of a team-effort. Binayak Sen was responsible for the overall conceptual framework, assessment of income-poverty trends and drivers, analysis of pre-existing vulnerabilities, poverty simulations under COVID-19, poverty projections for reaching the SDG target of 'zero poverty' under alternative growth scenarios, and policy conclusions; Zulfiqar Ali was responsible for the analysis of non-income dimensions of poverty as well as regional dimensions of poverty; Muntasir Murshed was responsible for the analysis of social protection. In addition, the authors are grateful to Tanima Ahmed, Rizwana Islam and Sania Akter for their generous help in data analysis during the lockdown.

[1] Alfred Marshall had "two selves"—a calm head of a mathematical economist influenced by Marginal Revolution not easily clouded by emotional judgments and a warm soul influenced by John Stuart Mill's liberal ideas about equity and justice not easily swayed away by cold calculated market rationalism alone (on Marshall's double inspirations, Reisman 2011).

on the effectiveness, timeliness and sequencing of strategic policy responses. [2]A central motivation for this paper is whether the present pandemic crisis will turn out to be a catalyst for the long-awaited much-needed policy changes for *sustainable poverty reduction*—from a well-endowed universal public health system and universal social protection to a reordering of the public spending (and taxing) priorities and effective local state. In all of this, arguably, the focus needs to be on encompassing and safeguarding the interest of the poorest first.

The paper has three central messages. First, the country achieved many celebratory successes in the sphere of poverty reduction, food security, human development and job creation. Past successes signal enormous potentials to reach still higher goals and tackle new challenges of reaching the core SDG targets by 2030 in a post-COVID world. Second, these successes however have been marked by some distinct vulnerabilities that are discernible in poverty reduction process even before the COVID-19 shock hit the country in 2020. The latter has only made these inherent vulnerabilities even more salient. Third, the COVID-19 shock is likely to be damaging for wellbeing of the poor in the short run. Clearly, a large segment of the poor will be affected that will demand urgent policy attention . As regards the medium-term impact of Covid-19 on poverty much would depend on the gravity of the shock itself (which is still evolving) as well as on the strategic policy responses to economic recovery and mitigating adverse health consequences.

Structure of the Paper

The rest of the paper has organized into two parts. The **first part** discusses the **past achievements and drivers of success** in the 2010s. It has three distinct sub-sections. **Section 1.1** captures the past trends in income (consumption) dimension of poverty in the 2010s with special focus of changes between 2010 and 2016, the latest available HIES. It also checks the consistency of real wage trends with poverty trends. **Section 1.2** assesses the past trends in non-income dimensions of poverty based on DHS and MICS data with focus on the poor-rich ration as the measure of inequality in health, nutrition, and education indicators. **Section 1.3** discusses the key attributes of regional poverty differences. **Section 1.4** analyzes the drivers of poverty reductions through the prism of different groups of poor and non-poor, namely, extreme poor, moderate poor, vulnerable non-poor and comfortable non-poor.

The **second part** discusses the **vulnerabilities and challenges** facing the country's poverty reduction prospects. It has three distinct sub-sections. **Section 2.1** pinpoints the revealed vulnerabilities in the poverty reduction process that became more prominent with the passage of time. It focuses on the increasing bundling of the near-poor crowding just above the poverty line and assesses the risks of slippages of moderate poor into extreme poverty. **Section 2.2** carries out poverty simulations to assess the likely effects of Covid-19 on poverty outcomes under different scenarios—from the doomsday scenario to more likely public action driven scenario. **Section 2.3** discusses the effectiveness of the current practices of social protection for different groups of the poor and vulnerable non-poor. **Section 2.4** presents poverty projections to examine the viability of reaching the SDG target of 'zero poverty' by 2031. **Section 2.5** presents the main conclusions of the paper and discusses some of the key elements of the strategic policy responses in the short and medium term.

[2] See, "Economist's warnings on inequality draw attention with virus" accessed on 20 June 2020 https://federalnewsnetwork.com/government-news/2020/04/covid-19-reinforces-an-economists-warnings-about-inequality/

I. Achievements and Drivers of Successes of Poverty Reduction in the Seventh Plan

Bangladesh has come a long way since it became independent in 1971. The most dramatic expression of its progress is, perhaps, revealed in impressive poverty reduction recorded over the last nearly 50 years of Independence. In 1973/74, about 71.3% of *rural* population lived in absolute poverty (as defined by the Cost-of-Basic-Needs approach); the matched figure has gone down to the estimated level of just 22% in the first quarter of 2020.[3] Bangladesh's development experience during this period can be summarized as the time of the ascent of the poor and the poorest. It can be seen in respect of both income and non-income indicators. From the employment point of view, it was an ascent underpinned primarily by the rise of the *relatively unskilled labor* through technology-intensive agricultural growth, rural non-farm sector development, export led industrialization, and direct and indirect effects of international migration of workers; the last two having important effects on the rapid pace of urbanization (on this, see Hossain et al 2016).

The ascent of the poor took place in a remarkably stable macro framework marked by growth acceleration, progressive shifts towards manufacturing and services, supported by rising investment rate, export-GDP ratio, and increased flow of remittances, while maintaining fiscal realism and relatively low inflation rate throughout the period between 1991 and 2019 (see, Table 1). There are, however, some visible signs of weaknesses in terms of falling export-GDP ratio, shrinking flow of foreign remittances and slightly increasing fiscal deficit in the recent years. Even though the inflation rate has been on decline, the above worrying features may not augur well for the sustainability of high economic growth and pace of poverty reduction in the medium term. In short, the economy was already experiencing some degree of macroeconomic vulnerability at the advent of the Covid-19 pandemic.

Table 1: Long Trends in Macro Indicators

(Percentage)

Five Yearly Average of Annual Data		Years					
		1991-95	**1996-00**	**2001-05**	**2006-10**	**2011-15**	**2016-19***
GDP Growth Rate		4.50	5.21	5.44	6.21	6.32	7.60
Share in GDP	**Agriculture**	29.23	25.68	25.03	19.65	16.93	14.73
	Industry	21.04	24.87	26.20	27.67	28.89	33.19
	Service	49.73	49.45	48.77	52.69	54.18	52.08
Investment (as percent of GDP)	**Overall**	18.75	21.50	23.62	24.81	28.32	30.75
	Public	6.65	6.78	6.44	5.15	6.22	7.56
	Private	12.10	14.74	17.18	19.65	22.10	23.19
Trade Ratio (as percent of GDP)	**Overall**	22.20	28.32	32.88	41.42	41.82	35.80
	Export	8.30	11.08	13.36	17.72	18.12	15.40
	Import	13.90	17.24	19.52	23.70	23.70	20.40
Remittance (in Million US $)		969.20	1574.40	2933.00	7874.20	13699.80	13637.75

[3] The estimate for 1973/74 is taken from Hossain and Sen (1992) and the 2020 (first quarter) estimate has been derived by the present study. For an early discussion of the Cost-of-Basic Needs (CBN) approach for monitoring long-term poverty trends, see Ravallion and Sen (1996).

Budget Deficit excluding Foreign Grants (as percent of GDP)	-5.20	-4.50	-4.52	-4.48	-4.34	-4.98
Public Expenditure-GDP Ratio	14.43	13.65	12.76	14.91	15.42	16.55
Tax Revenue-GDP Ratio	7.90	7.40	6.51	8.88	9.26	10.28
Inflation	6.10	5.83	3.12	7.66	8.03	5.65
Source: Bangladesh Economic Review 2019, 2014, 2012, 2005 *Provisional data for FY 2018-19						

1.1 Income-Poverty: Trends and Profiles

1.1.1 Trends in Poverty in Rural vs. Urban Areas

The ascent of the poor was evidenced in the rapidly falling poverty numbers (however measured), especially in the last 15 years. The incidence of national poverty has declined from 49% in 2000 to 24% in 2016 (the latest available year for HIES). However, the pace of reduction has apparently decelerated in the first half of the 2010s (see, Table 2). The pattern was similar for the extreme poor except in case of urban extreme poverty, which has paradoxically remained *virtually unchanged* between 2010 and 2016.[4] Thus, the World Bank report on poverty assessment mentions: "Even though average annual economic growth increased from 6.1 percent between 2005 and 2010 to 6.5 percent between 2010 and 2016, the pace of poverty reduction slowed. After falling 1.7 percentage points annually from 2005 to 2010, the national poverty rate dropped 1.2 percentage points annually from 2010 to 2016. The amount of poverty reduction each percentage point of growth per capita delivers (the elasticity of poverty reduction to growth) thus fell from 0.88 to 0.73" (Hill & Genoni 2019, p. 2). Similarly, the elasticity of extreme poverty reduction to GDP growth per capita has fallen by a third, from 1.24 to 0.86.

The fall in poverty elasticity to growth has been largely attributable to the *high initial level of income inequality* prevailing at the start of the 2010s. Thus, the level of income inequality, as measured by the Gini index, has been consistently above the 'high level' (compared to the international standard) of 0.45 since 2005. It has risen further to about 0.48 in 2016. While there is debate regarding the accuracy of the income data of HIES it is unmistakably a worrying trend. The level of income inequality is approaching the 'danger level' of 0.50 (and beyond) typically observed in Latin American countries marked by high land inequality.[5]

[4] Trends in urban extreme poverty in the 2010s remain shrouded in mystery to date, as they are inconsistent with the trends in real annual wage income computed from the last two HIES rounds. In addition, urban extreme "poverty incidence curves" (PIC) for 2010 and 2016 appear to be overlapping i.e. conclusion regarding rising or falling trend would be very sensitive to underlying prices informing the food and non-food components of urban poverty line.

[5] The divergence between consumption (remaining low and stable) and income inequalities (remaining high and gradually rising) is intriguing as the two trends should display similar pattern over the long-term. While this issue merits closer scrutiny, one immediate explanation is the highly unequal distribution of savings/ assets that fuels high income inequality.

Table 2: Comparison of Poverty and Inequality trends across HIES 2010 & HIES 2016

Indicators of Poverty and Inequality	HIES 2005	HIES 2010	HIES 2016
Poverty Head Count Rate (CBN Method)			
Using Lower Poverty Line			
Rural	28.60	21.10	14.90
Urban	14.70	7.70	7.60
National	25.10	17.60	12.90
Using Upper Poverty Line			
Rural	43.80	35.20	26.40
Urban	28.40	21.30	18.90
National	40.00	31.50	24.30
Poverty Gap			
Using Lower Poverty Line			
Rural	5.30	3.70	2.60
Urban	2.60	1.30	1.30
National	4.60	3.10	2.30
Using Upper Poverty Line			
Rural	9.80	7.40	5.40
Urban	6.50	4.30	3.90
National	9.00	6.50	5.00
Squared Poverty Gap			
Using Lower Poverty Line			
Rural	1.50	1.00	0.70
Urban	0.70	0.40	0.40
National	1.30	0.80	0.60
Using Upper Poverty Line			
Rural	3.10	2.20	1.70
Urban	2.10	1.30	1.20
National	2.90	2.00	1.50
Consumption Gini			
Rural	0.28	0.27	0.29
Urban	0.35	0.33	0.32
National	0.31	0.30	0.31
Income Gini			
Rural	0.43	0.43	0.45
Urban	0.50	0.45	0.50
National	0.47	0.46	0.48

Source: Compiled from HIES Reports of BBS. See also, Hill and Genoni (2019) for inequality trends.

1.1.2 Consistency with the Real Wage Trends

Real wage trends are good yardsticks to check for the robustness of poverty trends, especially extreme poverty trends.[6] Entry of landless households into the tenancy market gave further stimulus to the tightening of the rural labor market and positively influenced the growth of farm wages. The sign of tightening of the rural labor market was already visible by the early 2010s (Zhang et al 2013).

Development of rural non-farm sector combined with rural-urban migration were the primary factors behind this upbeat trend in farm wages. Analysis of the newly available data from the HIES 2016 shows that such trend continued unabated in the 2010s (see, Table 3). This is true of both rural and urban areas.

Four features of wage trends are noteworthy. First, rural agricultural wages have registered a 41% increase between 2010 and 2016. This pattern can be seen in all six divisions of the country. However, there is considerable regional variation in this respect. Farm wages are considerably lower in Rajshahi, Khulna and Sylhet divisions compared to Dhaka, Chittagong and Barisal divisions. The lowest farm wage is reported in the Western region such as Rajshahi division in both 2010 and 2016. The highest farm wage is reported in the Eastern region such as Chittagong and Dhaka. Strikingly, the Barisal division witnessed the fastest growth in farm wages (an increase by a margin of 50%), possibly aided by rapid rural-urban migration. Second, non-farm wages are higher than farm wages in rural areas, indicating the incentive for transition from the rural farm to non-farm sectors. Third, the level of urban wage is highest in the Chittagong division, followed by Dhaka and Sylhet divisions. This shows why the most rural-urban domestic migration movements are restricted to these three divisional centers. Fourth, the empirical regularity of the Harris-Todaro model of rural-urban migration based on wage differentials is clearly discernible in the spatial wage data. The urban wages are higher than the rural wages for all the divisions. At the national level, the urban-rural wage gap has increased in the 2010s—from 24% to 33%. This is consistent with the pattern of declining poverty amidst rising inequality trends.

[6] The discussion in this section is based on Sen (2019).

Table 3: Trends in Nominal and Real Agricultural Wages between 2010 and 2016 for Agricultural Laborers by Division (Taka per day)

Division	Nominal Wage 2010						Nominal Wage 2016					
	Rural Agricultural Wage	Urban Agricultural Wage	Rural Non-Agricultural Wage	Urban Non-Agricultural Wage	Rural Wage	Urban Wage	Rural Agricultural Wage	Urban Agricultural Wage	Rural Non-Agricultural Wage	Urban Non-Agricultural Wage	Rural Wage	Urban Wage
Barisal	161	169	179	198	173	198	318	340	353	392	339	390
Chittagong	176	163	211	229	191	223	312	292	422	473	357	462
Dhaka	149	171	191	196	171	194	313	359	382	464	344	458
Khulna	114	140	130	157	120	155	232	241	294	328	256	324
Rajshahi	121	123	127	162	123	155	227	237	273	300	243	294
Sylhet	136	137	123	222	128	204	262	303	329	425	293	412
Bangladesh	**136**	**142**	**160**	**189**	**147**	**183**	**264**	**290**	**338**	**399**	**295**	**392**
	Wage 2010 in 2016 Value						**Wage 2016 in 2016 Value**					
Barisal	212	222	235	261	227	260	318	340	353	392	339	390
Chittagong	246	228	295	320	267	312	312	292	422	473	357	462
Dhaka	211	242	270	278	242	275	313	359	382	464	344	458
Khulna	156	191	178	214	164	212	232	241	294	328	256	324
Rajshahi	163	165	171	219	165	208	227	237	273	300	243	294
Sylhet	191	191	172	310	179	284	262	303	329	425	293	412
Bangladesh	**187**	**195**	**219**	**259**	**202**	**251**	**264**	**290**	**338**	**399**	**295**	**392**

Note and Source: Divisional real wages have been derived by using the spatial deflators based on the 'lower poverty line'. Estimated from the unit-record data of 2010 and 2016. See, Sen (2019).

This negates the often-heard claims about falling real wages in rural and urban areas in the 2010s. Such claims were based on deflating nominal wage rate series published by BBS with rural CPI. The latter method does not capture the complexities of ground reality on three counts. Firstly, the focus should be on the *real wage annual income* rather than the daily wage rate. This is because the concept of daily wage rate is no longer a valid description of agricultural wage labor market. The daily wage rate was earlier used to be defined as a workday of 8 to 10 hours duration. In recent years, we see the preponderance of a workday of 4-6 hours duration. Thus, in infrastructurally backward areas, a daily wage rate of 8-10 hours duration is equivalent to the daily wage rate of 4-6 hours duration in advanced areas (usually 500-700 Taka). In that case, a computation on the hourly basis would be a more appropriate method to allow valid comparisons of wages over time and across space. Second, half-day work duration means that rural workers are having a space of extra 2-4 hours to work either in self-employment or in non-farm wage employment. Hence, a computation of annual wage income over time and across space would have given a more correct assessment of the well-being situation of the poor (which is what we have done in Table 3). Third, urban wages have increased in all administrative divisions in real terms between 2010 and 2016 as per our calculations. This would surely suggest a significant drop in urban extreme poverty as most of the urban extreme poor are wage earners. Why, then, BBS data on urban extreme poverty shows stagnating trend during this period? We surmise that this may be due to statistical deficiencies with the collection of consumption data of the urban very poor.

1.1.3 Profile of the Poor and Non-Poor

As Amartya Sen (1981) pointed out many years ago, poverty incidence is useful, but it does not put a human face on poverty. Different heterogenous groups are "huddled together" under the rubric of income-poor or consumption-poor using the poverty line cut-off. This is justified to assess the trends in poverty but hardly qualify as a guide to policy action attuned to the different needs of diverse poverty groups. However, this heterogeneity marks not only the poor but also the non-poor. The latter issue has become increasingly important in the context of a pandemic shock, which affects not just the poor but also the non-poor. Operating on the J. C. Jack's (1916/ 1975) definition of distinguishing the "comfort line" from the "indigence line" , we identify the 4 layers poor and non-poor groups. These are—extreme poor, moderate poor, vulnerable non-poor, and comfortable non-poor.[7] These groups have been quantified with the help of 2016 HIES (Table 4). The results show that *vulnerable non-poor* (VNP) who live below the "comfort line" but above the (upper) poverty line constitute about 22% of urban households and 26% of rural households. The category of VNP is likely to be susceptible to downward economic pressure in times of pandemic shock as layoffs mount and savings are drained. In contrast, *comfortable non-poor* (CNP) households live above the comfort line and may be viewed as the richer segment of the non-poor, comprising of middle class and rich. They constitute about 48% of rural households and 58% of urban households.

[7] For an early discussion of J. C. Jack's contribution to the development of the survey instrument using household-level income/ consumption data in colonial Bengal (Faridpur), and for his pioneering use of the concept of "comfort line" as opposed to poverty line, see Begum and Sen (2010).

Table 4: Distribution of HH across different poverty cohorts

	Rural		Urban	
Household Categories	**No.**	**% of all HH**	**No.**	**% of all HH**
Extreme Poor HH (EP)	4660	14.68%	1105	7.97%
Moderate Poor HH (MP)	3641	11.47%	1709	12.32%
Vulnerable Non-Poor HH (VNP)	6078	19.14%	1291	15.80%
Comfortable Non-Poor HH (CNP)	17373	54.71%	8863	63.91%
All Poor	8301	26.14%	2814	20.29%
All Non-Poor	23451	73.86%	11054	79.71%
All HH	31752	100.00%	13868	100.00%

Source: Estimated from unit-record data of HIES 2016. For definitions of the poverty groups, see Annex Table 1.1 and 1.2. VNP and CNP are defined with respect to the 1.25*poverty line cut-off.

The cut-off points among these groups are simply statistical constructions. The profile of these groups show they are markedly different from each other (see Annex Tables 1 and 2). Some salient differences can be noted. As expected, the proportion of VNP and CNP are more educated than extreme and moderate poor. However, educational disadvantage of VNP is clearly revealed in the very low proportion of 'HSC and above' household heads compared to the CNP category (2.8% as against 7.4% in rural areas, and 6.3% vs. 23.6% in urban areas).

The VNP is like extreme and moderate poor groups in their reliance on microcredit (about a third have reported such access in both rural and urban areas). In contrast to the poor, however, the VNP has much higher access to financial assets (51% as against 42% reported for the moderate poor). However, they are relatively poorly served by the formal banking system: the matched access is 5% for VNP and 12% for CNP in rural areas.[8] The poor relies more on the safety net than the non-poor. In that respect, there is a sign of progressive social protection incidence and this is valid for both rural and urban areas. Thus, in rural areas, 35% of poor have access to safety net, while it is 26% for the non-poor. About 31% of VNP households have access to safety net as opposed to 23% for CNPO category. However, the targeting can be much improved, and leakages can be greatly reduced, in case of safety net programs (as discussed later in Section 2.3).

VNP seems to be less prone to migration—domestic or foreign—compared to CNP households. The contrast is striking for international migration (4% as against 13% in rural areas, and 3% vs. 8% in urban areas). The poor especially extreme poor has very low access to international migration. Even domestic migration from rural areas favors the richer households more than the extreme poor, suggesting that the link between urbanization and domestic migration may have disequalizing effects. We also divided the rural households into 3 categories: pure farm (where all household members are engaged in farm jobs only), pure non-farm (where all household members are engaged in non-farm jobs only) and mixed (where household members diversify into both farm and non-farm jobs). In rural areas, the share of pure farm

[8] The urban access to formal banking system has possibly an underreporting bias, the matched figures for VNP and CNP being 6% and 10% respectively. This is possibly a reflection of low coverage of the urban rich category in the sample population.

households is the highest in case of extreme poor (46%) closely followed by moderate poor (45%). The contrast between VNP and CNP in this respect is noteworthy. VNP seem to be agriculturalists than non-farm jobseekers (41% vs. 35%) while CNP has a reverse preference (29% as against 40%). For the overall poor, the share of pure farm households is 46% as opposed to 33% recorded for the non-poor.

Lastly, some signs of technology catch-up is already visible in 2016 data. In terms of mobile phone access in rural areas, the poor (including extreme poor) have fast caught up with the non-poor (81% as opposed to 89%). The similar catching up trend can be noticed in case of access to mechanized service markets for farm cultivation and harvesting (28% as against 33%). This combined with the higher share of farm households among the poor indicates the paramount importance of protecting the farm sector both from jobs point of view and poverty/ social protection point of view. Farm sector seems to be managed by the poor household. VNP is also comparatively more engaged in the farm sector but their chances to graduate into the category of CNP would much depend on investment in human capital, greater links with the formal finance, and getting access to salaried jobs. In short, the poor and VNP both suffer from vulnerability, but of different kinds, as they strategize to climb up the income ladder.

1.2 Trends in Non-Income Poverty

1.2.1 Health, Nutrition and Childhood Mortality in Bangladesh

Nutritional status in general and of children and mothers, are among the important dimensions of human wellbeing in any country. Three indicators of child nutritional status are usually taken into consideration to assess the nutritional status of children. They include stunting, wasting and underweight. Bangladesh had made good progress in improving nutritional status of children in respect of all the nutritional indicators over the past decades. While the moderate underweight was 41 per cent in 2007, it has come down to 21.9 per cent in 2017-18. Similarly, the proportion of children stunted has come down from 43.2 per cent in 2007 to 30.8 per cent in 2017-18. As observed from the Bangladesh Demographic and Health Survey (BDHS) reports, the improvement has been faster recently (over the past few years) compared to that of the previous periods (Table 5).

Table 5: Nutritional Status of Children in Bangladesh, 2007-2017/18

Year	Height-for-age (stunting)		Weight-for-height (Wasting)		Weight-for-age (Underweight)	
	Severe	Moderate	Severe	Moderate	Severe	Moderate
2007	16.1	43.2	2.9	17.4	11.8	41.0
2011	15.3	41.3	4.0	15.6	10.4	36.4
2014	11.6	36.1	3.1	14.3	7.7	32.6
2017-18	8.9	30.8	1.5	8.4	4.1	21.9

Source: BDHS 2007, 2011, 2014 and 2017-18.

However, there are noticeable differences between the rich and the poor in respect of nutritional status of children in Bangladesh. In the BDHS reports, estimates are provided by wealth quintiles and we observe significant differences between the children of the richest and the poorest quintiles. As the data shows, even after having faster progress in recent years, children of the poorest quintile are 2.3 times more likely to be underweight than that of the children in the richest quintile as reflected by the poorest quintile – richest quintile ratio according to BDHS 2017-18 (Table 6). The corresponding figure for stunting is even higher, 2.4, which indicates that the children in the poorest families are 2.4 times more likely to be stunted compared to that of the richest families. Another important point to note here is that between 'moderate' and 'severe' malnutrition', the disparities are higher for 'severe malnutrition' than moderate; and it is true for all the nutritional indicators and in all years. For example, while the poorest-richest ratio for 'moderate stunting' is 2.4 in 2017-18, it is 3.1 for 'severe stunting'. This clearly indicates that the children in the poorest families are more likely to be severely malnourished than that of the children in the richest families. If we see across years, we do not observe any sign of convergence in nutritional status of children between the poorest and the richest families. The disparities in these respects remained either at the same level (severe stunting for example), or even deteriorated in some respects (severe underweight for example) (Table 6).

Table 6: Disparities in Child Nutrition between the Richest and the Poorest, 2007-2017/18

Year	Ratio of the Poorest Quintile over the Richest	Height-for-age (stunting)		Weight-for-height (Wasting)		Weight-for-age (Underweight)	
		Severe	Moderate	Severe	Moderate	Severe	Moderate
2007	Poorest-Richest Ratio	3.1	2.1	1.9	1.6	2.3	1.9
2011	Poorest-Richest Ratio	3.8	2.1	1.2	1.4	4.3	2.4
2014	Poorest-Richest Ratio	3.5	2.5	1.3	1.5	3.7	2.6
2017/18	Poorest-Richest Ratio	3.1	2.4	1.1	1.4	2.6	2.3

Source: Author's calculation based on BDHS 2007, 2011, 2014 and 2017-18.

In order to understand the mothers' nutritional status in Bangladesh, we have used here the Body Mass Index (BMI) for several years as estimated by the BDHS. Based on the index values, three types of maternal nutritional situation have been reported here. If the index value of BMI is less than 18.5, then it is considered as malnourished/thin; if the index value lies in between 18.5 and 24.9, then it is considered as normal; and if the index value is more than or equal to 25.0, then it is considered as overweight. As we observed from data, at the aggregate level, proportion of mothers with normal BMI remained almost at the same level over the past several years. While 58.5 per cent of the mothers had normal BMI in 2007, it was 59.3 per cent in 2011, and 57.6 per cent in 2014 (Table 7). However, proportion of malnourished/thin mothers has gone down during the same period – from 29.7 per cent in 2007 to 24.2 per cent in 2011 and 18.6 per cent in 2014. And, at the same time, proportion of overweight mothers has gone up – from 11.8 per cent in 2007 to 16.5 per cent in 2011 and 23.8 per cent in 2014. This clearly indicates that the overall

maternal nutritional status has not improved; 'normal' remained almost at the same level, but the distribution between 'malnourished/thin' and 'overweight' has changed – thin has reduced and overweight has increased by almost the same proportion.

Table 7: Nutritional Status of Mothers: The Body Mass Index (BMI), 2007-2004

Year	<18.5 (Thin)	18.5-24.9 (Normal)	≥25.0 (Overweight)
2007	29.7	58.5	11.8
2011	24.2	59.3	16.5
2014	18.6	57.6	23.8

Source: BDHS 2007, 2011, and 2014. Note: Full report on BDHS 2017-18 has not yet been published, and hence data on the indicators used in this Table is not available for 2017-18.

What we have observed above is the situation at the aggregate level. If we investigate the situation through poverty lens, we see a different situation. Relatively high proportion of mothers from the poorest families (as presented here by the lowest quintile) is malnourished compared to that of the richest families (as presented by the highest quintile). As the data shows, mothers in the poorest families are 4.6 times more likely to be malnourished than that of the mothers in the richest families (Table 8). On the other hand, relatively high proportion of the mothers form the richest families are overweight compared to that of the poorest families. As observed from Table 8, mothers in the richest families are 5 times more likely to be overweight than that of the mothers form the poorest families. If we see the situation across years, we observe increase in inequality between the poorest and the richest in respect of maternal malnutrition in the country. On the other hand, inequalities between the richest and the poorest in respect of 'overweight' have reduced. These two together indicate that the inequalities in maternal malnutrition between the poorest and the richest are on the rise over the years.

Table 8: Disparities in Maternal Nutrition between the Richest and the Poorest, 2007-2014

Year	Ratio of the Poorest Quintile over the Richest	Nutritional Status of Mothers: The BMI		
		<18.5 (Thin)	18.5-24.9 (Normal)	≥25.0 (Overweight)
2007	Poorest-Richest Ratio	3.2	1	0.1
2011	Poorest-Richest Ratio	4.8	1	0.1
2014	Poorest-Richest Ratio	4.6	1.3	0.2

Source: Author's calculation based on BDHS 2007, 2011, and 2014. Note: Full report on BDHS 2017-18 has not yet been published, and hence data on the indicators used in this Table is not available for 2017-18.

In order to understand the situation related to childhood mortality in Bangladesh, four mortality indicators have been taken into consideration. They include neonatal mortality (deaths within the first 28 days of births), infant mortality (deaths before the age of 1 year), child mortality (deaths for 1-4 years), and under-five mortality (deaths before reaching the age of five years). Bangladesh has made descent progress in reducing childhood mortality (in respect of all the indicators) over the past decades though the rates are still high (Table 9). As we observe from Table 9, under-five mortality is still at 45.0 per thousand live births (in 2014) though it has come down from 72.4 in 2007 and 53.4 in 2011. Of all the mortality indicators, improvement has been rather slow for the infant mortality rates compared to that of the other indicators (Table 9).

Table 9: Childhood Mortality in Bangladesh, 2007-2014

Year	Neonatal mortality	Infant mortality	Child mortality	Under-five mortality
2007	38.36	56.0	17.0	72.4
2011	32.67	42.7	10.7	53.4
2014	27.7	38.0	7.7	45.0

Source: BDHS 2007, 2011, and 2014. Note: Full report on BDHS 2017-18 has not yet been published, and hence data on the indicators used in this Table is not available for 2017-18.

Despite the progress made at the aggregate level, there exist sharp disparities between the children of the poorest and the richest families. As observed from data (Table 10), probability of dying before the age of 1 month is almost double (1.8 times) for the children in the poorest families compares to that of the children in the richest families. It is also true for the cases of infant and child mortalities. But, for neonatal mortality, the situation is even worse for the poorest families. New-born babies of the poorest families are 2.5 times more likely to die within the 28 days of their birth compared to that of the newborn babies of the richest families. The situation in this respect (i.e., regarding the neonatal mortality), has even deteriorated over the years (Table 10). Regarding the other indicators, especially for the infant and under-five mortality rates, we hardly see any sign of improvement in terms of reducing the inequality between the poorest and the richest families. There are, however, some improvement noted for child mortality rates where the inequality has come down over the same period. So, what we observe here is the poorest families are still in a disadvantaged situation in respect of childhood mortality of their children, and more work needs to be done to help the poorest families to tackle the neonatal mortality.

Table 10: Disparities in Childhood Mortality between the Richest and the Poorest, 2007-2014

Year	Ratio of the Poorest Quintile over the Richest	Early Childhood mortality rates			
		Neonatal mortality	Infant mortality	Child mortality	Under-five mortality
2007	Poorest-Richest Ratio	1.8	1.8	2.8	2.0
2011	Poorest-Richest Ratio	1.5	1.7	1.9	1.7
2014	Poorest-Richest Ratio	2.5	1.8	1.7	1.8

Source: Author's calculation based on BDHS 2007, 2011, and 2014. Note: Full report on BDHS 2017-18 has not yet been published, and hence data on the indicators used in this Table is not available for 2017-18.

Regarding health, we have tried to investigate the issues related to maternal health and delivery care in this report. For maternal health, antenatal care has been taken into consideration. And, for delivery care, place of delivery and delivery assistance have been taken into consideration. Antenatal care coverage has been improved significantly over the past decades or so. While the 43.8 per cent of the mothers did not receive any antenatal care in 2006, the figure has come down to 33.9 in 2012-13 and 17.2 in 2018. Proportion of deliveries that do not take place in the health facilities has also declined significantly during the same period. While about 84.0 per cent of the deliveries took place outside the health facilities in 2006, it has declined to 69.0 per cent in 2012-13 and 46.6.4 per cent in 2018 (Table 11). However, the institutional deliveries remain at a relatively low level compared to what is expected in this respect. About half of the deliveries still take place at home and about two-third of them are assisted by traditional birth attendant. Regarding delivery assistance, we have taken two indicators into account – delivery assisted 'not by medical doctor' and delivery assisted by 'traditional birth attendant'. We have observed improvement in respect of both the indicators over the period between 2006 and 2018. Deliveries assisted 'not by medical doctors' have gone down from 84.5 per cent in 2006 to 56.7 per cent in 2018. And, at the same time, deliveries assisted by traditional birth attendant have also gone down from 66.0 per cent in 2006 to 35.6 per cent in 2018 (Table 11). However, it is still a matter of concern that over one-third of total deliveries are still assisted by the traditional birth attendants (not the trained birth attendants).

Table 11: Status of Maternal Health and Delivery Assistance in Bangladesh, 2006-2018

Year	Antenatal Care Coverage	Place of Delivery	Assistance during Delivery and Caesarean Section	
	No antenatal care	Not Delivered in Health Facility	Not by Medical Doctor	Traditional Birth Attendant
2006	43.8	84.0	84.5	66.0
2012-13	33.6	69.0	70.4	24.3
2018	17.2	46.6	56.7	35.6

Source: Authors calculation based on MICS 2006, 2012-13 and 2019.

What we discussed above represents the aggregate picture. We need to investigate these at the disaggregate level, especially by poverty category, in order to assess the situation of the poor mothers against their rich counterpart. We have tried to do this here through using the data disaggregated by wealth quintile where the bottom quintile, as above, is considered as the poorest and the top quintile as the richest. Data indicates substantial disparities between the poorest and the richest mothers in respect of receiving antenatal care. Poorest mothers are now almost 11 times more likely 'not to receive any antenatal care' compared to their richest counterpart. The situation in this respect has also deteriorated during the 2006-2018 period, i.e., disparities have increased during this period despite the fact that some improvements have also taken place for the poorest mothers, but the aggregated improvements that we have observed earlier have not been shared equally between the poorest and the richest mothers; it has skewed more towards the richest mothers (Table 12). There also exist significant disparities between the poorest and the richest mothers in respect of the deliveries assisted by traditional birth attendant. Deliveries of the poorest mothers are 4.4 times more likely to be assisted by traditional birth attendant compared to that of the richest mothers. Disparities in this respect have also increased during the same period. This is also probably the reason together with poor antenatal care for relatively higher neonatal mortality among the poorest families as observed earlier. Regarding deliveries in the health facilities and deliveries assisted by medical doctors, poorest mothers are also clearly in disadvantageous position compared to richest mothers. Poorest mothers are 3.7 times more likely to have their deliveries done outside the health facilities (i.e., at home), and 2.8 times more likely to be assisted 'not by medical doctors' compared to their richest counterpart. Important to note here is that the disparities in all respects related to maternal health and delivery have decreased over the same period (Table 12). So, in order to help the poor mothers, we need to intensity our efforts to substantially increase the antenatal care services for them. Also, more support needs to be extended to the poorest mothers for them to have deliveries either in the health facilities or assisted at least by medically trained professionals.

Table 12: Disparities in Maternal Health and Delivery Assistance between the Richest and the Poorest in Bangladesh, 2006-2018

Year	Ratio of the Poorest Quintile over the Richest	Antenatal Care Coverage	Place of Delivery	Assistance during Delivery and Caesarean Section	
		No Antenatal Care	Not Delivered in Health Facility	Not by Medical Doctor	Traditional Birth Attendant
2006	Poorest-Richest Ratio	4.5	1.8	1.7	1.9
2012-13	Poorest-Richest Ratio	6.5	2.5	2.4	2.1
2018	Poorest-Richest Ratio	10.9	3.7	2.8	4.4

Source: Authors calculation based on MICS 2006, 2012-13 and 2019.

3.2 School Attendance and Quality of Education

Access to schooling, not only at the primary level, but also at the secondary and higher levels, is extremely important for human capital development in any country. It is also important for both the individuals and the families for their own personal and cognitive development and to develop themselves as skilled workforce, which in turn is expected to give them the descent living and prospective future. It is particularly important for the poor and the poorest in order to break the cycle of intergenerational transmission of poverty. Schooling itself is not enough, being able to have quality education is also equally important, if not more. In this sub-section we will discuss the trends in school attendance and out of school children at primary and secondary levels using MICS data. Inequalities in schooling between the poorest and richest will also be discussed using the same data set. Age specific school attendance and disparities between the poor and non-poor will also be discussed using HIES data. Finally, some discussion on the quality of education and disparities between the poorest and richest on this will also be made using MICS data.

At the aggregate level, 'non attending school' at primary is estimated at 14.1 per cent and out of school is estimated at 6.4 per cent in 2018 (Table 13)[9]. This indicates that even at the primary level where school enrollment is claimed to be almost universal, household level information does not quite corroborate this. And, we see a good proportion of children (over 6 per cent) are completely out of school even at the primary level. At the secondary level, children 'not attending school' is even higher (42.2 per cent for lower secondary and 51.9 per cent for upper secondary), and so is proportion of children out of school (13.1 per cent for lower secondary and 31.5 per cent for upper secondary). The overall situation in

[9] The net enrollment at primary is claimed to be as high as 98 per cent according to the official statistics of the Directorate of Primary Education. Difference between 'enrolment' and 'attendance' is that when the information on schooling is collected from school register, it is called the school enrollment; but when the information is collected directly from household, then it is called school attendance.

respects of school attendance and out of school children has, however, improved over the past decades as observed from Table 13.

Table 13: School Attendance and Out of School Children in Bangladesh, 2006-2018

Year	Primary school attendance and out of school children		Lower Secondary School attendance and out of school children		Upper secondary school attendance and out of school children	
	Not attending	Out of school	Not attending	Out of school	Not attending	Out of school
2006	18.7	n.a.	n.a.	n.a.	61.2*	n.a.
2012-13	26.8	26.8	n.a.	n.a.	53.9*	20.2*
2018	14.1	6.4	42.2	13.1	51.9	31.5

"n.a." indicates data not available. * Figures represent for the entire secondary level.
Source: Authors calculation based on MICS 2006, 2012-13 and 2019.

Despite improvements in school attendance and out of school children, there still exist disparities between the children of the poorest and the richest families. This is reflected in the data disaggregated by wealth quintile. While the disparities are much less for school attendance at the primary level, it is high for lower secondary and even higher for upper secondary. At the primary level, while the poorest children are 1.7 times more likely to 'not attend' schools compared to the children of the richest families, it is 2.2 times for lower secondary and 2.1 times for upper secondary (Table 14). Regarding children out of school at all levels, understandably, there also exist significant disparities between the children of the poorest and the richest families. Children in the poorest families are about 2.5 times more likely to be out of school at all levels compared to that of the children in the richest families (Table 14). In respect of changes in inequalities, we see mixed situation regarding the schooling indicators. While inequality has reduced in respect of school attendance at primary, it has increased for out of school children. For upper secondary, disparities in school attendance remained at around the same level, but for out of schoolchildren, it has reduced.

Table 14: Disparities in School Attendance and Out of School Children between the Richest and the Poorest in Bangladesh, 2006-2018

Year	Ratio of the Poorest Quintile over the Richest	Primary school attendance and out of school children		Lower Secondary School attendance and out of school children		Upper secondary school attendance and out of school children	
		Not attending	Out of school	Not attending	Out of school	Not attending	Out of school
2006	Poorest-Richest Ratio	2.0	n.a.	n.a.	n.a.	2.0*	n.a.
2012-13	Poorest-Richest Ratio	1.9	1.9	n.a.	n.a.	2.3*	3.1
2018	Poorest-Richest Ratio	1.7	2.5	2.2	2.6	2.1	2.4

"n.a." indicates data not available. * Figures represent for the entire secondary level.
Source: Authors calculation based on MICS 2006, 2012-13 and 2019.

As mentioned earlier, we have also tried to investigate the school attendance using HIES data. Here, we have estimated the age-specific attendance for three age groups: 6-11 years (proxy for primary), 12-18 years (proxy for secondary), and 19-24 years (proxy for higher levels of education). The results are presented in Table 15. What we observe from Table is the following: children not attending school is lower for primary and higher for higher levels of education; there have been improvements in school attendants at all levels over the years as evident from the HIES data of 2010 and 2016; there exist disparities between the poor and the non-poor at all levels with relatively higher disparities for lower levels of education; and, as observed earlier as well, there is hardly any sign of improvements in respect of disparities being reduced between the poor and non-poor in school attendance at all levels (Table 15).

Table 15: School Attendance of Children of Different Age Group by Poverty Status, 2010-2016

Year	Poverty status	Children Not Attending School		
		Children aged 6-11 years	Children aged 12-18 years	Youth Aged 19-24 years
2010	Poor	24.7	38.8	60.9
	Non-poor	12.0	24.5	33.3
	Total	**16.2**	**35.2**	**48.8**
	Poor – Non-Poor Ratio	**2.1**	**1.6**	**1.8**
2016	Poor	10.8	28.5	49.2
	Non-poor	5.1	19.1	28.7
	Total	**7.9**	**22.6**	**31.3**
	Poor – Non-Poor Ratio	**2.1**	**1.5**	**1.7**

Source: author's calculation based on HIES 2010 and 2016.

Regarding the quality of education, reading and numeracy skills are taken into consideration for children aged 7-14 years as reported in MICS 2019. We have taken two indicators into consideration here to assess the reading skills and three indicators for numeracy skills. For reading, the indicators include 'not being able to correctly read 90 per cent of words in a story' and 'not being able to demonstrate foundational reading skills'. For numeracy, the indicators are 'not being able to read numbers', 'not being able to discriminate numbers' and 'not being able to recognize and complete patterns. Results in these respects are not encouraging. More than one-third of children couldn't correctly read words in a story and more than half of the children failed to demonstrate foundational reading skills. For numeracy, once again, more than one-third of the children couldn't successfully complete the tasks of number reading and number discrimination, and about two-third couldn't complete the task of pattern recognition (Table 16). These clearly indicate that the average competence level of the children is rather poor, and hence the quality of education is really a matter of concern.

Alongside quality concerns at the aggregate level, we also observe inequalities between the children of the poorest and richest families in the quality of education that they receive. As the data shows, children from the poorest families are more than 2 times more likely not to receive quality education (in respect of simple reading and numeracy tests) than that of the children from the richest families (Table 16). For relatively a bit more complicated tests (i.e., foundational skills for reading and pattern recognition and completion in numeracy), there still exist disparities (poorest children are about 1.5 times more likely not to complete the tasks compared to the richest children), but the magnitude is lower than the simple tests.

This may be because the quality of education is generally very poor which is manifested more through higher level tests and hence the inequality in these respects are little less than those manifested through simple tests. So, in short, quality of education is generally a matter of concern in the country, and obviously more so for the children in the poorest families.

Table 16: Quality of Education for Children Aged 6-14 Years in Bangladesh, 2018

Year	Wealth Quintile and Ratio of the Poorest Quintile over the Richest	Reading Skills*		Numeracy Skills**: Percentage of children who couldn't successfully complete tasks of		
		Percentage who couldn't correctly read 90% of words in a story	Percentage who couldn't demonstrate foundational reading skills	Number reading	Number discrimination	Pattern recognition and completion
2018	Lowest	52.3	64.6	52.3	49.5	73.3
	Second	43.0	56.1	42.1	38.8	67.3
	Middle	35.9	49.4	36.6	33.4	64.0
	Fourth	32.0	45.5	32.3	28.8	60.6
	Highest	23.4	36.4	23.8	18.9	52.9
	Total	**38.1**	**51.2**	**38.2**	**34.7**	**64.2**
	Poorest-Richest Ratio	**2.2**	**1.8**	**2.2**	**2.6**	**1.4**

* Percentage of children aged 7-14 who couldn't demonstrate foundational reading skills by not successfully completing foundational reading tasks in 2018.

** Percentage of children aged 7-14 who couldn't demonstrate foundational numeracy skills by not successfully completing foundational numeracy tasks in 2018.

Source: Author's calculation based on MICS 2019.

3.3 Access to Improved Sanitation Facilities

Having access to improved sanitation is an important indicator for the wellbeing of the people living in any country. It is also closely related to health as it influences health status of the people. Improved sanitation contributes to better health and vice-versa. We have tried to investigate the status on access to improved sanitation at both aggregate and disaggregate levels and its changes over time using MICS data. In the data there are different types of improved and unimproved sanitation facilities, and for the ease of comparison, we have added them together under each of the 'improved' and 'unimproved'

facilities separately. There are few other categories other than improved and unimproved facilities, figures against which are negligible and hence we haven't included then in this report.

As observed from data, significant improvement has been noted in respect of access to improved sanitation facilities in the country. While it was only 39.2 per cent in 2006, it has reached to 76.9 in 2012-13 and 84.7 in 2018 according to MICS data (Table 17). Consequently, use of unimproved toilet has also reduced significantly. However, one point to note here is that about 1.5 per cent of the people still use open defecation (as in 2019 according to MICS data, not included in the Table though).

Table 17: Access to Sanitation Facilities, 2006-2018

Year	Use of Improved and Unimproved Sanitation Facilities	
	Improved sanitation facility	**Unimproved sanitation facility**
2006	39.2	60.8
2012-13	76.9	19.3
2018	84.7	13.9

Source: Author's calculation based on MICS 2006, 2012-13 and 2019.

Improvements in the use of sanitation facilities have also been observed by all wealth quintile groups, but, in varying degrees. And, consequently, we observe substantial disparities between the poorest and the richest households in using the improved sanitation facilities. As the data shows, poorest households are now 8 times more likely to use unimproved facilities compared to that of the richest households. The situation has even deteriorated (disparities increased) during 2006-2018 (Table 18). And, for the open defecation, while the figure is 1.5 per cent for the entire population, it is 4.4 percent for the poorest quintile and 0.0 percent for the richest.

Table 18: Disparities in Access to Sanitation Facilities between the Richest and the Poorest in Bangladesh, 2006-2018

Year	Ratio of the Poorest Quintile over the Richest	Use of Unimproved Sanitation Facilities
2006	Poorest-Richest Ratio	4.9
2012-13	Poorest-Richest Ratio	12.9
2018	Poorest-Richest Ratio	8.1

Source: Author's calculation based on MICS 2006, 2012-13 and 2019.

3.4 Child Protection Issues: Child Labor and Early Childhood Marriage

Child protection issues have also been investigated here in order to see if there is any disparity between the children of the poorest and the richest families. We have taken three indicators into consideration here. These are proportion of children involved in child labor, proportion of child labor involved in hazardous work, and proportion of women married before the age of 15 years.

As we observe from Table 19, 6.8 per cent of the children are currently involved in child labor, of which 8.0 per cent involved in hazardous work. The situation has however improved over the past decades as it has come down from 12.8 per cent in 2006 to 6.8 per cent in 2018. Regarding proportion of women married before the age of 15, the figure is still very high (19.8 per cent in 2018) though the situation in this respect has improved over the past decades (it has come down from 33.1 per cent in 2006 to 23.8 per cent in 2012-13 and 19.8 per cent in 2018) (Table 19).

Table 19: Child Protection: Child Labor, Child in Hazardous Work, and Child Marriage, 2006-2018

Year	Proportion of Children involved in Child Labor	Proportion of Child Labor involved in Hazardous Work	Proportion Women Married before Age 15 (Women aged 15-49 years)
2006	12.8	-	33.1
2012-13	-	-	23.8
2018	6.8	8.0	19.8

Source: MICS 2006, 2012-13 and 2019.

There also exist disparities between the poorest and the richest in respect of child protection issues. As observed from Table 20, children in the poorest families are 3.8 times more likely to get involved in child labor, and 6.2 times more likely to get involved in hazardous work (in 2018). The situation has also deteriorated (i.e., disparities increased) in this respect over the years. Regarding child marriage before the age of 15 years, we also see disparities between the poorest and the richest families. Girls in the poorest families are now 1.5 times more likely to get married before the age of 15 compared to that of the richest families. As also observed from Table 20, after some initial improvement noted for 2006-2012/13, no further improvement is observed in recent years in respect of the disparities that exist between the poorest and the richest families.

Table 20: Disparities in Child Protection Issues (Child Labor, Child in Hazardous Work, and Child Marriage) between the Richest and the Poorest in Bangladesh, 2006-2018

Year	Ratio of the Poorest Quintile over the Richest	Proportion of Children involved in Child Labor	Proportion of Child Labor involved in Hazardous Work	Proportion Women Married before Age 15 (Women aged 15-49 years)
2006	Poorest-Richest Ratio	2.0	-	2.2
2012-13	Poorest-Richest Ratio	-	-	1.5
2018	Poorest-Richest Ratio	3.8	6.2	1.5

Source: Author's calculation based on MICS 2006, 2012-13 and 2019.

In order to see if there is any change between generations, we have estimated proportion of women married before the age of 15 years for two age groups: 20-24 years, and 20-49 years using HIES 2016 data. As we observe from data, there has been improvement over generations as proportion of women married before the age of 15 has come down from 15.8 per cent (for age group 20-49 years) to 13.0 per cent (for, age group 20-24 years). However, there were, and still are disparities that exist between the poor and the non-poor in this respect, and important to note here that the disparity has now even increased compared to that in the past (Table 21).

Table 21: Proportion of Women Married before the Age of 15 Years by Poverty Status, 2016

Poverty Status	% of women married before age 15 (women aged 20-24 years)		% of women married before age 15 (women aged 20-49 years)	
	Number	Percentage	Number	Percentage
Poor households	328	17.1	1,908	19.2
Non-poor households	555	11.4	4,443	15.0
Total	**883**	**13.0**	**6,351**	**15.8**
Poor-Rich Ratio	**-**	**1.5**	**-**	**1.3**

Source: Author's calculation based on HIES 2016.

1.3 Regional Differences in Income and Non-Income Dimensions of Poverty

1.3.1 Regional Poverty in Bangladesh: Evidence from HIES 2016 and Other Studies

According to HIES 2016, we observe substantial spatial differences in poverty reduction in Bangladesh. As we observe from data, while the average poverty of the country was 24.3 per cent in 2016, it was as high as 70.8 per cent in Kurigram and 64.3 percent in Dinajpur. Contrary to these high poverty-stricken districts, there are districts where poverty was only around 3 per cent.

Two points are clearly evident from the above figure: (i) Though Bangladesh has made significant progress in reducing poverty and extreme poverty over the past several decades and it has now come down to the level of 24.3 percent (in 2016), poverty is still pervasive in many districts; and (ii) There are significant disparities between districts in poverty reduction achievements. This is the situation when we investigate it through the spatial poverty lens. It can, therefore, be envisaged that similar situation will also occur if we look through the lens of poverty by social groups (i.e., by religion, ethnicity, occupation, etc.).

We also tried to see what the experiences of poverty reduction at the regional (district) level has been as we have seen significant decline at the national level (7.2 percentage points decline during 2010-2016). Based on the analysis, it appeared as a surprise to many that poverty has, in fact, increased in 23 out of 64 districts during the same period (2010-2016). This increase is also quite substantial (as high as around 25 percentage points) for some districts. This indicates that while poverty has declined substantially in some districts, it has, in fact, increased substantially in some other districts as well. This clearly indicates that spatial differences have also increased during this period.

Combining the level and increase in poverty at the district level, the list below (Table 22) gives the names of the districts where poverty headcount is high compare to the average poverty headcount in the country, and where it has also increased during 2010-2016. According to HIES 2016 data, these districts can, therefore, be considered as poverty 'hot-spots'.

Table 22: Poverty Hot-Spots: Districts with High and Increased Poverty, 2016

District	**Poverty headcount**	**Percentage point increase during 2010-2016**
Kurigram	70.8	7.10
Bandarban	63.2	23.10
Kishoreganj	53.5	23.20
Khagrachari	52.7	27.20
Jamalpur	52.5	1.40
Lalmonirhat	42.0	7.50

Source: Author's calculation based on HIES 2010 and 2016.

Given the data presented above, there are districts that are commonly understood as vulnerable to various adverse circumstances (e.g., natural shocks, adverse geography, etc.) and can, therefore, be of districts of 'poverty hot-spots'. Increase in poverty over time may also not be unlikely in these districts (e.g., Kurigram and Bandarban). But there are districts in the list where it is difficult to accept that poverty is so high and increasing in those districts (e.g., Dinajpur and Magura). In this context, BIDS carried out a

study in 2019 (Ali and Murshid 2019) to explore further the poverty situation at the regional (district) level, and more importantly to explore why is poverty increasing in some regions (districts) if it is so[10].

The study showed that the poverty situation in Kurigram is pervasive (about 77 per cent) as shown in Table 23. Depth and severity of poverty in Kurigram also indicate that the poverty situation in Kurigram is really the worst even in comparison to another district in the region. However, results for Dinajpur do not corroborate the poverty situation depicted in HIES 2016. According to BIDS study, poverty headcount in Dinajpur is relatively better (42.0 per cent) and so are the depth and severity of poverty.

Table 23: Incidence of poverty in the selected districts

Poverty category	Districts				National
	Kurigram	Gaibandha	Dinajpur	Thakurgaon	
Extreme Poor	66.3	37.0	26.3	19.7	12.9
Total Poor	77.3	53.0	42.0	36.7	24.3
Vulnerable Non-poor	18.3	33.7	44.3	48.0	-
Total Non-Poor	22.7	47.0	58.0	63.3	75.7
Depth of Poverty: Poverty Gap	35.4	18.3	12.3	10.5	5.0
Severity of Poverty: Squared Poverty Gap	20.4	9.2	5.4	5.0	1.6

Source: Ali and Murshid (2019).

The study also tried to assess the poverty situation in the selected districts through qualitative assessment. Respondents were asked to categorize themselves into four categories as follows: 'always in deficit', 'sometimes in deficit', 'neither deficit nor surplus', and 'surplus'. They were also asked to do this for 'now' and '10 years ago'. As the results show, about 55 per cent of the households in Kurigram are in 'deficit' category at present which was 67 per cent 10 years ago. The corresponding figures for Gaibandha, Dinajpur and Thakurgaon are about 12, 23 and 16 per cents respectively. The situation has improved significantly in these three districts also (Table 24). The results, thus, indicate the following: it goes in line

[10] In the BIDS study, Kurigram and Dinajpur were taken as two case study districts where poverty rates were the highest according to HIES 2016. However, the study also chose two other districts (Gaibandha and Thakurgaon) as comparison districts – Gaibandha for Kurigram, and Thakurgaon for Dinajpur. Gaibandha belongs to the same agro-ecological zone as Kurigram and a riverine and flood prone district but poverty headcount is not as bad as Kurigram. Similarly, Thakurgaon belongs to the same agro-ecological zones as Dinajpur and shares a similar topography and free from any major natural hazard as Dinajpur, but poverty headcount is much better than Dinajpur according to HIES 2016. Data were collected from these four districts to make a comparative analysis in order to judge: (a) whether poverty is really so high in Kurigram and Dinajpur; (b) whether poverty is also increasing in these districts; and (c) why is poverty increasing, if so, in these districts.

with the quantitative estimate that poverty situation is indeed worse in Kurigram, but not in Dinajpur; and, the situation has not deteriorated for either of the districts, and certainly not for Dinajpur.

Table 24: Poverty Status in the survey districts: Qualitative Assessment

Poverty Status	**Districts**			
	Kurigram	**Gaibandha**	**Dinajpur**	**Thakurgaon**
Now:				
Always in deficit	9.0	1.3	1.7	0.0
Sometimes in deficit	45.7	10.3	21.0	15.7
Neither deficit nor surplus	36.0	56.3	41.0	40.3
Surplus	9.3	52.0	36.3	44.0
10 Years Ago:				
Always in deficit	27.7	6.3	17.0	15.7
Sometimes in deficit	39.3	34.7	42.3	32.7
Neither deficit nor surplus	18.0	48.3	21.0	37.3
Surplus	15.0	10.7	19.7	14.3

Source: ibid.

The study also tried to assess the situation in the respective districts through using non-income indicators. The results are presented in Table 25. As observed from the Table, non-income indicators also confirm the income and perception-based findings that the poverty situation in Kurigram is worse, but not in Dinajpur.

Table 25: Non-income Dimensions of Wellbeing

Variables	District				National
	Kurigram	**Gaibandha**	**Dinajpur**	**Thakurgaon**	
Diversity in Food Intake:					
Egg	56.33	92.00	86.00	85.67	-
Fish	83.33	90.33	89.00	94.67	-
Meat	63.67	78.67	90.00	84.00	
Milk	38.67	60.67	68.33	44.67	
Literacy	50.40	55.00	64.80	57.20	63.30
Suffered from any illness during last 30 days	66.00	64.00	54.33	54.00	-
Asset ownership:					
Cow/Buffalo	46.33	57.33	79.67	78.67	-
Goat/Sheep	20.33	33.00	54.67	61.00	-
Colour TV	18.33	30.67	58.33	46.00	-
Mobile phone	91.33	92.67	91.67	92	-
Places to sleep:					
Wooden bed with *Toshok*	65.00	91.67	93.33	83.00	-
Wooden bed without *Toshok*	34.00	8.00	4.67	16.33	-
Use only *Kathas* during winter	28.67	6.33	1.67	10.33	-
Housing: wall materials - break/cement	7.67	23.31	46.00	37.33	20.24
% of households with access to tubewell for drinking water	78.33	88.00	96.67	97.00	94.94
% of households with access to sanitary/pucca toilet	36.00	56.00	81.00	45.00	53.27

Source: ibid.

So, in short, what we observe is that there do exist some pockets where poverty is very high and 'probably' increasing as well. Kurigram is certainly one such case as also confirmed by BIDS study, where both income

and non-income dimensions of wellbeing are worse. However, as data suggests, Dinajpur is certainly not one such case. It is therefore important to carry out further investigation in order to identify all probable poverty pockets in the country, as all high poverty districts identified by HIES may not necessarily be such cases. And, increase in poverty at the district levels also needs scrutiny.

So, in short, what we observe is that there do exist some pockets where poverty is so high and 'probably' increasing as well. Kurigram is certainly one such case as also confirmed by BIDS study, where both income and non-income dimensions of wellbeing are worse. However, as data suggests, Dinajpur is certainly not one such case. It is therefore important to carry out further investigation in order to identify all probable poverty pockets in the country, as all high poverty districts identified by HIESs may not necessarily be such cases. And, increase in poverty at the district levels also need scrutiny.

1.3.2. Pockets of Social Deprivation: Evidence from Equity Atlas 2013

The Child Equity Atlas 2013, a report prepared by the Bangladesh Institute of Development Studies (BIDS), the Bangladesh Bureau of Statistics and UNICEF Bangladesh, identified the pockets of social deprivation in Bangladesh by constructing a composite social deprivation index using the Population Census data of 2011. A total of eight indicators[11] were used to construct the index[12]. And, using the social deprivation index, pockets of social deprivation at both the district and upazilla levels were ascertained which are presented in Maps 1 and 2 in the Annex[13]. As the data shows, about 23 per cent of the districts (15 in total) are considered as the worst-off districts representing the most deprived categories. When it comes to sub-districts or upazillas, 29 per cent of the upazillas (140 in total) fall in the most deprived categories. As observed from the Maps, social deprivation is concentrated mostly in the northern, north-eastern, and south-eastern, and to a lesser extent south-central parts of Bangladesh.

When we compare poverty hot-spots based on income poverty (as indicated in Table-1 earlier) with that of the social poverty (as proxied by social deprivation), we do not see one-to-one correspondence in all respects. There are districts which are poorer in income dimension, but not in social dimension, and vice-versa. There are however some locations that are poorer in respect of both the dimensions and can therefore be considered as areas of multiple deprivations. Table 26 represents the districts of poverty hotspots based on either income, or social or both dimensions.

[11] Including population below 18 years; female teenage (15-19 years) married population; children (age 6-10 years) out of school in primary education; Children age 11-15 years) not attending secondary school; female (age 15 years and above) who are illiterate; child worker (age 11-14 years) who are not in school and engaging in paid work; household without access to sanitary toilet; and households without electricity connection.

[12] In constructing the composite deprivation index, the range of values for each of the indicators is categorized into five quintiles with one as the best and five as the worst in the first step. Then, by giving equal weight to all indicators, the points (quintile values) for all indicators are summed up. Finally, the areas with the most points are defined as the most deprived and vice-versa.

[13] Both the districts and the upazillas are categorized into five categories using the index value: If the index value is less than 18, then it is categorized as the best district or upazilla; if the index value lies in between 18 and 22, then it is considered as a good district or upazilla; if the value falls in the range of 23 to 26, then it is categorized as an average district or upazilla; if the value lies in between 27 and 31, then the respective districts or upazillas are categorized as poor; and finally, if the index value is more than 31, then they are considered the worst districts or upazillas in respect of social deprivation.

Table 26: Poverty hotspots based on income and social dimensions

Poverty hotspots based on income poverty	Poverty hotspots based on social deprivation	Poverty hotspots based on both income poverty and social deprivation
Dinajpur	Sunamganj	Bandarban
Magura	Cox's Bazar	Kurigram
Kishoreganj	Netrokona	Jamalpur
Khagrachari	Bhola	
Lalmonirhat	Habiganj	
	Chapai Nawabganj	
	Gaibandha	
	Sirajganj	
	Sherpur	
	Rangamati	
	Nilphamari	
	Mymensingh	

Source: Author's calculation based on HIES 2010, 2016 and Equity Atlas 2013.

So, the message here is that in order to identify the pockets of poverty or areas of deprivation, we need to explore this in a multi-dimensional space (i.e., from both income and non-income perspectives). In doing so, we can identify the locations that are deprived in both dimensions and the ones that are deprived in either of the dimensions. This will then help the policy makers in designing location specific strategies and allocating resources accordingly in order to ensure the deprived locations to also catch up.

The district level Map of social deprivation, as referred earlier, shows an interesting pattern: with few exceptions: the whole western and southern parts of the country fall within the 'good' category while the northern and eastern parts fall in the more deprived category. The best performing districts are located around Khulna and Barisal divisions, compared to Sylhet division which visibly lags behind.

The upazilla Map with its much greater geographic resolution features many other poorly performing areas indicating disparities within districts and between upazillas, which were obscured by district averages in the district Map. Overall district performance is often a combination of 'good' and 'poor' performance at the upazilla level. Data mapping at lower administrative levels allows us to recognize more important patterns and pockets of social deprivations.

The analysis reported in the Atlas also shows that there were elements of disparities and uniformities by different characteristics within diverse areas. The Noakhali district, for example, was home to both the best and the worst performing upazillas, showing great sign of disparity. In the same district of Noakhali,

Chatkhil was featured as one of the best performing upazillas, and Hatiya was among the worst. In respect of uniformity, seven upazillas in Dinajpur district had the same value for the deprivation index, an expression of homogeneity within a district.

Viewed from the east to the west of the country (that is from right to the left on the Map), the intensity of deprivation generally changes from highest deprivation to lowest deprivation. The high deprivation areas are mainly in the divisions of Chittagong and Sylhet, particularly in the hilly areas of Chittagong. The high deprivation areas are mostly associated with geographic remoteness.

The location of the 100 most deprived upazillas is presented in Map 3 in the Annex. The Map shows that the 100 most deprived upazillas are located near the borders of the country which are less assessable as well. This indicates how physical accessibility is related with deprivation of Basic social services.

The Atlas also pointed out that the progress has been least in the most deprived areas. In order to arrive at that conclusion, among others, the generational progress of literacy was examined by comparing the youth literacy rate with that of the adult literacy rates in Bangladesh. The average difference between the two rates was 23.9 per cent. It indicates that Bangladesh made a good progress within a generation in increasing the overall literacy rate. This remarkable national progress has, however, not been across the sub-national areas of Bangladesh, as the least progress has been recorded in the most deprived upazillas where more advancement is most needed to narrow the equity gap.

1.4 Drivers of Poverty Reduction

Textbooks of economics do not mention "drivers" of growth or poverty reduction—they refer to "sources" of growth and "determinants" of poverty reduction. However, the analysis of determinants requires a causal framework that can be tested with either the panel data or a carefully designed RCT study. We are however working with repeat cross-sections such as HIES, LFS, DHS, and MICS usually available at the national level. In the subsequent discussion, it may sound like that we are analyzing drivers of poverty reduction when, in fact, what we are revealing merely representative economic correlates or *attributes* of poverty reduction. But, pinpointing correlates or association of attributes is not be discounted, as they are useful in informing policy action in absence of the gold-standard alternatives. To this end, we conduct a multivariate analysis of variation in *per capita annual consumption expenditure*—as one key measure of well-being--within each of these groups considered separately (see, Tables 27 and 28). We additionally checked for the robustness of statistical results by considering (a) different cut-off points for the identification of VNP[14] and CNP, and (b) we run the basic regression model with and without district-level controls. Several results are noteworthy. We discuss the rural results first before turning to urban results (the latter show similar pattern).

Firstly, different levels of education have differing effects on different groups of poor and non-poor. Attaining post-Secondary education (HSC & above) helps to improve the well-being of the VNP, but it has no effect on moderate poor. Gaining access to primary (and secondary) education enables the extreme poor to increase their well-being. Education at all levels seems to have little traction with moderate poverty whereas it has substantial positive effect on the well-being of CNP. The quantum increase of the

[14] We present here the results as per the criterion of "1.25 times the poverty line" to identify the group of vulnerable non-poor. However, the results remain broadly the same even if we use the criterion of "1.35 times the poverty line" to identify the group of vulnerable non-poor (see annex Table 11 and 12).

human capital effects with each successive level of education is vividly realized only in case of CNP households. This may suggest that, when wealth and education are combined, the human capital effects get magnified. Informal education (which includes Madrassah education) has negative income effects for both extreme and moderate poor.

Second, asset access matters. Accumulation of non-land physical assets and financial assets (along with access to formal bank account) help increase the income (expenditure) level of extreme poor, VNP and CNP alike. However, microcredit does not have any direct income effect; it is indirectly helpful for the poor through its interface with land rental market and partly have been captured in the estimation of financial assets.

Third, access to technology has positive effects on poverty reduction. Access to mechanized service market (power tiller rental, use of power thrasher and use of harvester) reduces the bullock constraint, reduce production costs per acre of cultivable land, and enhances the well-being of the (extreme) poor who are engaged in land cultivation through the tenancy market.[15] Strikingly, such access to mechanized services does not have favorable effects possibly due to the greater non-farm orientation of the non-poor groups. The mobile phone access has income effects for the extreme poor but not for the other groups, possibly because of its ubiquitous presence.

Fourth, access to international migration has positive effects on the moderate poor and for CNP, but not for extreme poor and VNP. Strikingly, domestic migration has no welfare effect possibly because of the way information on domestic migration is collected under HIES.

Fifth, access to markets (as proxied by 'distance to Dhaka') matters, but it matters only for the CNP. In remote locations, per capita income of CNP goes down.

Lastly, safety net access (with or without stipend schemes) does not have any effect on increasing the income of the poor and the poorest. This is not surprising given the modest allocation per beneficiary. The real value of these programs lies in imparting minimalist food security and self-esteem to the poor on which the HIES instrument remains silent.

[15] On this aspect, see Sen (2019).

Table 27: Correlates of Different Categories of Poor and Non-Poor in Rural Areas

	Extreme Poor HH (n=4660)	Moderate Poor HH (n=3641)	Vulnerable Non-Poor HH (n=6078)	Comfortable Non-Poor HH (n=17373)
Age	58.91***	11.46	2.862	256.9
	(19.73)	(10.44)	(17.57)	(310.7)
Age2	-0.441**	-0.0480	0.0112	-0.967
	(0.194)	(0.118)	(0.191)	(3.577)
Gender (Male=1)	239.2	163.5	-115.1	-1,046
	(233.8)	(100.2)	(144.7)	(2,215)
HH Head's Education Reference Group: No Formal Education				
EDUC2(Class 1-5)	373.6***	109.2	-3.485	2,669**
	(113.7)	(85.10)	(65.79)	(1,249)
EDUC3 (Class 6-SSC)	316.6**	155.3	-3.059	5,322***
	(136.3)	(115.4)	(77.65)	(1,145)
EDUC4 (Class HSC & above)	901.2*	-256.5	132.8	10,287***
	(501.4)	(396.9)	(161.8)	(1,461)
EDUC5 (informal/Madrasa)	-926.3***	-1,390***	-850.9	-2,883
	(312.2)	(175.2)	(768.7)	(2,757)
Non-Land Asset Index	105.1***	7.167	7.179	860.8***
	(17.51)	(6.858)	(7.678)	(113.4)
Mobile (Yes=1)	771.4***	13.73	132.3	3,335**
	(111.7)	(73.78)	(182.1)	(1,635)
Microcredit access (Yes=1)	212.4	-49.96	-7.332	258.1
	(138.2)	(80.11)	(68.33)	(866.8)
Bank account (Yes=1)	1,110***	33.08	269.6**	8,582**
	(275.6)	(146.1)	(121.1)	(3,377)
Financial Asset (Yes==1)	277.0*	22.53	15.12	1,253
	(140.0)	(52.09)	(61.89)	(1,482)
Mechanized Service (Yes=1)	518.3***	107.8*	157.7**	1,525
	(115.8)	(55.61)	(64.72)	(1,120)
Safety Net (yes=1)	-135.7	-63.20	66.90	-3,144**
	(173.2)	(59.69)	(70.09)	(1,545)
Primary Stipend (Yes=1)	202.1	88.09	-147.0	374.7
	(139.9)	(105.7)	(113.3)	(1,519)
Secondary Stipend (Yes=1)	461.0*	132.6	-55.29	360.2
	(255.6)	(125.4)	(141.0)	(1,808)
HH_Job Classification Reference Group: Unemployed HH				
HH_Pure Farm	223.2	-25.67	-94.14	-1,205
	(237.9)	(116.5)	(138.1)	(2,128)
HH_Pure Non-Farm	70.94	11.41	33.85	-1,640
	(262.2)	(110.2)	(125.7)	(1,889)
HH_Mixed	201.6	29.99	-15.25	-1,165
	(268.8)	(148.0)	(151.4)	(2,612)
Distance to Dhaka	-0.0441	0.0160	0.0470	-27.81**

	(1.393)	(0.568)	(0.668)	(13.84)
Household size	-455.5***	-24.64	-70.85***	-4,822***
	(42.19)	(18.83)	(21.62)	(495.9)
Female Earners	-260.8	-8.463	107.8	1,156
	(194.0)	(80.80)	(174.2)	(1,467)
Male Earners	98.72	-50.07	61.83	1,615
	(107.0)	(56.41)	(70.10)	(1,009)
Migrating HH Reference: Non-Migrating HH				
Foreign Migrating HH	257.5	356.0***	36.79	7,694***
	(315.5)	(121.3)	(117.6)	(2,541)
Domestic Migrating HH	200.6	-87.22	139.6	3,907
	(419.5)	(210.8)	(162.6)	(3,010)
Natural Disaster Shock	301.0*	104.7	-12.86	4,227*
	(155.9)	(75.51)	(118.8)	(2,372)
Division reference: Barisal				
Chittagong	2,965***	3,840***	5,123***	3,977
	(388.4)	(89.06)	(177.8)	(3,089)
Dhaka	814.3*	864.6***	1,230***	-573.3
	(482.2)	(111.9)	(196.7)	(3,270)
Khulna	-643.6*	-798.3***	-584.9***	-4,794
	(365.3)	(80.54)	(157.2)	(3,248)
Mymensingh	1,149***	909.8***	1,418***	-9,316***
	(372.4)	(109.5)	(199.1)	(2,691)
Rajshahi	-489.3	-292.8***	2.554	-4,325**
	(347.7)	(79.26)	(154.9)	(2,126)
Rangpur	-985.4**	-416.7***	-256.6	964.5
	(373.1)	(73.05)	(168.7)	(2,225)
Sylhet	1,411***	-1,232***	-2,504***	1,274
	(453.5)	(54.95)	(198.8)	(2,272)
	15,075***	22,463***	27,665***	44,803***
Constant	(817.9)	(289.9)	(395.6)	(7,507)
Observations	4,660	3,641	6,078	17,373
R-squared	0.244	0.643	0.593	0.483

*Notes: Robust standard errors are reported within the parentheses; *** p<0.01, ** p<0.05, * p<0.1;* ***Extreme poor HH*** *is defined as HH whose annual per capita consumption expenditure is below the lower poverty line annual per capita consumption expenditure;* ***Moderate poor HH*** *is defined as the HH whose annual per capita consumption expenditure is above the lower poverty line but lower than the upper poverty line annual per capita consumption expenditure;* ***Vulnerable non-poor HH*** *is defined as the HH whose annual per capita consumption expenditure is more than the upper poverty line and less than 1.25 times (25% more than) the upper poverty line annual per capita consumption expenditure;* ***Comfortable non-poor HH*** *is defined as the HH whose annual per capita consumption expenditure is more than 1.25 times (25% more than) the upper poverty line annual per capita consumption expenditure. All regressions include district-level controls such as % of HH receiving foreign remittance, % of HH receiving domestic remittance, % of HH with credit access, % of HH with safety net access, and % of HH having access to secondary and post-secondary education*.

Table 28: Correlates of Different Categories of Poor and Non-Poor in Urban Areas

	Extreme Poor HH (n=1105)	Moderate Poor HH (n=1709)	Vulnerable Non-Poor HH (n=2191)	Comfortable Non-Poor HH (n=8863)
Age	57.20	-19.29	-27.62	2.790
	(43.81)	(20.71)	(27.44)	(315.7)
Age2	-0.411	0.0908	0.170	7.030*
	(0.438)	(0.236)	(0.306)	(4.156)
Gender (Male=1)	-115.4	430.3*	-297.7	-5,975***
	(374.2)	(223.3)	(239.4)	(2,102)
HH Head's Education Reference Group: No Formal Education				
EDUC2(Class 1-5)	349.4	-62.28	-224.2	5,174***
	(313.4)	(150.7)	(157.5)	(1,853)
EDUC3 (Class 6-SSC)	679.5*	282.7	-319.1	11,788***
	(392.0)	(373.5)	(240.1)	(2,111)
EDUC4 (Class HSC & above)	457.2	1,422*	-18.72	26,855***
	(449.7)	(745.9)	(286.2)	(3,250)
EDUC5 (informal/Madrasa)	911.3	3,585***	1,122	8,926
	(650.6)	(756.6)	(1,386)	(7,820)
Non-Land Asset Index	119.4***	55.46***	56.77***	1,608***
	(21.56)	(16.99)	(20.60)	(209.8)
Mobile (Yes=1)	1,101***	-117.4	115.0	2,574
	(275.9)	(488.5)	(286.3)	(2,094)
Microcredit access (Yes=1)	273.9	44.92	-311.7**	7,190*
	(279.8)	(139.9)	(145.4)	(3,791)
Bank account (Yes=1)	-530.3	116.9	417.5	15,842***
	(833.6)	(338.0)	(311.8)	(4,333)
Financial Asset (Yes==1)	112.5	-477.8***	-119.8	1,328
	(291.4)	(160.0)	(226.5)	(1,411)
Mechanized Service (Yes=1)	935.7**	-156.3	402.2	-527.8
	(417.7)	(238.0)	(241.2)	(2,697)
Safety Net (yes=1)	-758.8	239.8	328.8	-4,580**
	(499.3)	(249.0)	(207.9)	(2,268)
Primary Stipend (Yes=1)	1,073	-263.8	-550.9	7,544*
	(709.2)	(248.3)	(356.8)	(4,090)
Secondary Stipend (Yes=1)	1,459***	-498.9	-714.3**	6,989*
	(493.8)	(339.3)	(347.6)	(3,564)
HH_Job Classification Reference Group: Unemployed HH				
HH_Pure Farm	-211.5	-383.7	-592.7	8,628**
	(588.7)	(474.0)	(450.1)	(3,305)
HH_Pure Non-Farm	88.69	-514.4	14.90	7,107*
	(528.4)	(488.5)	(335.6)	(3,990)
HH_Mixed	-851.3	-570.3	98.78	14,922**
	(679.7)	(585.3)	(432.7)	(6,234)
Distance to Dhaka	-2.543	-3.699**	-2.677*	-23.19

	(2.242)	(1.680)	(1.397)	(24.84)
Household size	-435.7***	-209.8***	-194.8	-9,499***
	(81.91)	(51.88)	(129.4)	(646.7)
Female Earners	-109.7	479.4**	17.80	975.5
	(234.3)	(186.4)	(160.6)	(1,281)
Male Earners	292.4	418.1**	23.73	73.18
	(219.9)	(167.7)	(87.53)	(1,559)
Migrating HH Reference: Non-Migrating HH				
Foreign Migrating HH	-886.5	346.5	-444.6	14,987***
	(572.1)	(490.2)	(572.1)	(4,436)
Domestic Migrating HH	-994.2	1,089	63.84	5,672
	(715.3)	(683.8)	(548.6)	(4,262)
Natural Disaster Shock	795.4**	-165.5	239.1	-3,463
	(390.4)	(189.1)	(291.2)	(2,990)
Division reference: Barisal				
Chittagong	2,739***	-439.7	-1,897***	6,254
	(777.9)	(406.7)	(336.9)	(6,291)
Dhaka	1,440*	-1,199*	-790.4	7,420
	(778.4)	(612.6)	(589.5)	(7,448)
Khulna	-115.2	-3,330***	-4,758***	-7,236
	(727.3)	(336.0)	(383.9)	(5,731)
Mymensingh	397.2	-1,148**	-1,756***	-3,562
	(700.5)	(448.2)	(382.4)	(5,796)
Rajshahi	42.91	-4,395***	-6,733***	-7,225
	(577.4)	(374.1)	(353.7)	(5,886)
Rangpur	-543.2	-4,013***	-6,538***	2,852
	(781.8)	(388.4)	(424.7)	(6,631)
Sylhet	316.4	-2,905***	-5,726***	8,628
	(1,064)	(343.4)	(346.4)	(6,435)
Constant	16,413***	30,025***	38,723***	32,142***
	(1,451)	(884.0)	(703.0)	(9,739)
Observations	1,105	1,709	2,191	8,863
R-squared	0.264	0.411	0.547	0.222

*Notes: Robust standard errors are reported within the parentheses; *** p<0.01, ** p<0.05, * p<0.1; **Extreme poor HH** is defined as HH whose annual per capita consumption expenditure is below the lower poverty line annual per capita consumption expenditure; **Moderate poor HH** is defined as the HH whose annual per capita consumption expenditure is above the lower poverty line but lower than the upper poverty line annual per capita consumption expenditure; **Vulnerable non-poor HH** is defined as the HH whose annual per capita consumption expenditure is more than the upper poverty line and less than 1.25 times (25% more than) the upper poverty line annual per capita consumption expenditure; **Comfortable non-poor HH** is defined as the HH whose annual per capita consumption expenditure is more than 1.25 times (25% more than) the upper poverty line annual per capita consumption expenditure. All regressions include district-level controls such as % of HH receiving foreign remittance, % of HH receiving domestic remittance, % of HH with credit access, % of HH with safety net access, and % of HH having access to secondary and post-secondary education.*

II. Pre-Existing Vulnerabilities and Poverty Effects of Covid-19 Lockdown

A key omission in the past discourse on poverty reduction is the absence of adequate discussion of structural vulnerabilities in poverty reduction, "structural" in the sense of pre-existing distribution of a large segment of the poor and non-poor hovering just below and above the poverty line. Our analysis shows that the proportion of that segment living in the space near poverty has increased between 2010 and 2016.[16]

2.1 Bunching of the Near-Poor and Risks of Slippages

The first aspect of vulnerability is the bunching around the poverty line—a segment that may pushed down into poverty in times of sever shocks. We compute the share of vulnerable population in both 2010 and 2016 by calibrating the poverty line and assessing the commensurate effects on poverty in both rural and urban areas *compared to the baseline poverty rates* (Tables 29 and 30). The baseline poverty rate denotes the actual poverty rates reported for 2010 and 2016. The argument is that higher change of poverty ratios due to slight change in poverty line will indicate greater vulnerability of the population just living above the poverty line. They may fall below the line due to either price effects or due to income effects (or a combination of both, which is likely to be case during Covid-19). In times of crises marked by demand and supply shocks, prices of necessities go up (often combined with income shock). This is what one should keep in mind while interpreting the simulation results.[17]

Table 29: Bunching around the Poverty Line: Sensitivity of Headcount Poverty Rate with Respect to the Choice of Poverty Line in Rural Areas

	2010		**2016**	
	Poverty Headcount Rate	**Change from actual (%)**	**Poverty Headcount Rate**	**Change from actual (%)**
Upper Poverty line				
Actual	35.2	0.0	26.7	0.0
+5%	39.8	13.1	30.7	14.8
+10%	44.0	25.0	34.5	29.2
+20%	52.5	49.0	41.8	56.5
Lower Poverty line				
Actual	21.1	0.0	15.0	0.0
+5%	24.9	17.9	18.0	19.7
+10%	29.0	37.3	21.2	41.1
+20%	37.4	76.9	27.4	82.4

[16] There are also other weaknesses—or fault lines—in the experience of poverty reduction. It may be due to real complexities of ground reality, which is not fully understood yet, or they (or at least some of them) may be simply in the nature of statistical artefacts. This relates to the conflicting trends in real wages, persistence (or even increase) in the share of urban extreme poor households, and sharp differences in regional poverty.

[17] Please note that the "change from the actual" in Tables 29 and 30 shows *percent change from the baseline poverty headcount,* and not percentage change from the baseline.

Table 30: Bunching around the Poverty Line: Sensitivity of Headcount Poverty Rate with Respect to the Choice of Poverty Line in Urban Areas

	2010		2016	
	Poverty Headcount Rate	**Change from actual (%)**	**Poverty Headcount Rate**	**Change from actual (%)**
Upper Poverty line				
Actual	21.3	0.0	19.3	0.0
+5%	24.3	14.4	22.3	15.8
+10%	27.4	28.5	25.8	33.5
+20%	33.8	58.9	32.0	65.7
Lower Poverty line				
Actual	7.7	0.0	8.0	0.0
+5%	9.2	19.6	9.6	18.7
+10%	10.8	40.7	11.6	43.6
+20%	15.4	100.1	15.2	89.1

Three aspects emerge from this simulation. First, there is a huge sensitivity of the near-poor households to what happens to poverty line. Thus, as per the 2016 data, even a 10% increase in the poverty line can result about 29% increase in poverty in rural areas compared to the baseline (Table 29). The matched effect is greater for urban areas where a mere 10% rise in poverty line can yield about 34% increase in poverty compared to the baseline (Table 30). In short, even before the Covid-19 hit the country, there was a huge bunching of people living near the poverty line in both rural and urban areas. Second, what is worrying is that vulnerability of poverty to price movements seems to have increased over time. For the '10% increase in poverty line' scenario, quantum increase in poverty has magnified from 25% to 29% in rural areas, and from 28% to 33% in urban areas. In other words, near-poor households became more vulnerable to slippages into poverty during 2010-16. Third, while we worry more for the near-poor living just above the poverty line, it is important to consider the downward slippages of those already in poverty. We need to be equally concerned about *the fall of the moderate poor into extreme poverty*. Our simulation shows a 10% increase in the *lower poverty line* will result in 41% increase of extreme poverty in rural areas compared to the baseline (the matched effect is 44% in urban areas). It turns out, then, that vulnerability of moderate poor falling into extreme poverty is much higher than the vulnerability of the near-poor households into poverty. This is true of for both rural and urban areas.

To sum up, we have two kinds of vulnerability in poverty—one relates to the risk of slippages of the near-poor into poverty, and the other pertains to the risk of slippages of the moderate poor into extreme poverty. Both kinds of vulnerabilities need to be kept in view while designing programs and policies in times of crisis such as Covid-19 because they may demand different solutions and approaches.

2.2 Poverty Effects of Covid-19 Lockdown

Our approach to poverty simulations under Covid-19 is based on "the wealth plus labor status" approach. It consists of the following considerations. Firstly, while all income groups suffer during the Covid-19 lockdown, it is argued that *only the extreme poor, moderate poor and the VNP run the immediate risks* of

going down the spiral of poverty. The CNP category is wealthy enough to prevent fall into poverty or extreme poverty in the short run. This is not an unreasonable assumption if we recall the CNP category has much higher amount of land and nonland assets as well as financial assets with stronger links to the formal banking system and greater access to foreign remittance. This is true for CNP residing in both rural and urban areas (see, Annex 1 and Annex 2). In urban areas, the CNP category is more involved in salaried work comparted to other poverty categories as they are also better endowed with human capital. In other words, the assumption is that the less wealthy sections are more vulnerable to slippages into poverty under Covid-19.

Second, we also make a distinction between *types of labor* that are likely to be more vulnerable during the lockdown. *Specifically, we argue that those who are involved in casual work of all kinds, salaried work in non-public sectors, and those involved in non-agricultural self-employment (manufacturing, transport, trade, and services) run the greater risks of slippages into poverty.* Henceforth, we denote them as income of the laboring classes. If they were already in poverty prior to Covid-19, then they are likely to be more prone to slip into even greater depth of poverty.

Third, we not only assess the adverse poverty effects due to the descending vulnerable non-poor households, but also quantify the swelling of the ranks of the extreme poor triggered, in part, by the descent of the moderate poor into extreme poverty. Fourth, we present the results not only in relation to what happens to poverty headcounts (the usual headline-catching number) but also trace the Covid-19 effects on poverty gap and squared poverty gap ratios. This enables us to judge the effects on the poorest of the poor as well.

We run several scenarios under the above "wealth plus labor status" approach. They are: (1) "zero income" for laboring classes in urban areas, but rural income is assumed to be unaffected; (2) 80% drop in income for laboring class in urban areas and 5% drop in income for laboring class in rural areas; (3) 80% drop in income for laboring class in urban areas and 10% drop in income for laboring class in rural areas; (4) 80% drop in income for laboring class in urban areas and 20% drop in income for laboring class in rural areas; and (5) 70% drop in income for laboring class in urban areas and 30% drop in income for laboring class in rural areas. Please note that these simulations are based on "hard" i.e. *prolonged* and *draconian* lockdown having very adverse effects on the income of the poor. We shall also consider later the poverty effects of the possible "soft" i.e. *short-lived* and *humane* lockdown—currently underway--with a 50% income recovery in the 3rd quarter of 2020 and 80% income recovery in the 4th quarter of 2020 from the level of losses envisaged in the 2nd quarter of 2020.

Table 31: Poverty Effects of Covid-19 Lockdown—Simulation Results under "Hard" Lockdown

	Additional Population in Poverty (National; million)	Additional percentage points Increase in Headcount Index of Poverty (National)	Additional percentage points Increase in Headcount Index of Extreme (National)	Additional percentage points Increase in Poverty Gap (National)	Additional percentage points Increase in Squared Poverty Gap (National)
Scenario-1	9.36	5.2	7.4	7.9	8.4
Scenario-2	12.78	7.1	8.7	6.6	5.4
Scenario-3 (Reference Scenario)	16.38	9.1	10.4	7.2	5.6
Scenario-4	25.38	14.1	14.6	8.8	6.2
Scenario-5	35.46	19.7	20.2	10.2	6.0

Note: The "hard lockdown" scenarios are as follows: (1) zero income for laboring class in urban areas, but rural income unaffected; (2) 80% drop in income for laboring class in urban areas and 5% drop in income for laboring class in rural areas; (3) 80% drop in income for laboring class in urban areas and 10% drop in income for laboring class in rural areas (considered to be reference scenario in this exercise); (4) 80% drop in income for laboring class in urban areas and 20% drop in income for laboring class in rural areas; and (5) 70% drop in income for laboring class in urban areas and 30% drop in income for laboring class in rural areas. Estimated from the unit-record data of 2016. For details of the FGT class of poverty estimates due to Covid-19, see Annex Tables 3-8. Calculations are done using Adept program.

The summary results at the national level are presented in Table 31 (the separate results for rural and urban areas are shown in Annex Tables 3-8). The results show that the number of new poor—who are pushed into poverty due to inevitable lockdown effect owing to Covid-19—may rise from 9.4 million to 35.5 million. We consider Scenario-3 as the reference scenario—whereby there is an 80% drop in income for laboring class in urban areas and 10% drop in income for laboring class in rural areas--in the "hard lockdown" exercise. In this scenario, we would have 16.4 million new poor. Note that each of the successive cases represents different gradation of lockdown. Secondly, many are newly pushed not only into poverty, but also alarmingly into extreme poverty (see, Annex Tables 3-8). Thirdly, those who are already in poverty slide down the poverty ladder as Corona related lockdown removes the last remnants of livelihood options. As a result, poverty gap and squared poverty gap is likely to increase by additional 6-10 percentage points. It is also reflected in the greater propensity of increase in the headcount index of extreme poverty.

This shows that the 'total' or 'partial' (however implemented) *long-term lockdown* due to Covid-19 is not economically sustainable. It entails substantial increase in poverty and acute exacerbation of the hardship of people already living in poverty prior to Covid-19. It threatens to destroy the gains of years of efforts and initiatives in the area of poverty reduction. Note that we have assumed in our simulations that the entire agricultural self-employment is largely unaffected. But a prolonged lockdown can cause barriers to labor movement into the farm sector and, through that channel, can retard agricultural self-employment activities during the sowing and harvesting. In short, prolonged lockdown's poverty effects would be disastrous even in the short run.

2.3 Reach of Social Protection

Social transfers or social protection cannot compensate for the enormous welfare loss entailed by lockdown enforced by Covid-19. This is not just because of the paucity of safety net transfers. It is also because of the enormous non-targeting that seems to characterize social protection across the transfer modalities. We use both HIES 2016 and MICS 2018 data to conduct this analysis.[18] Here we present the MICS results. Arguably, the MICS 2018 data is better than the HIES 2016 data as it allows us to investigate the incidence of social protection programs by analytically more meaningful categories: (a) educational stipend schemes (primary and secondary); (b) allowance programs (old-age informal pension, widow allowance, etc.); (c) food-assisted programs (VGD, VGF, EGPP, TR, GR, etc.); (d) maternity allowance; (e) formal pension schemes; and (f) all 'other' social protection programs. However, we could not conduct disaggregated analysis by individual programs as the MICS 2018 data lack further disaggregation.

As may be seen from Table 32, notwithstanding the overall progressivity in the incidence of safety net benefits, a bulk of the transfers end up in 'non-deserving' non-poor groups. The share of Comfortable Non-Poor (CNP) is about 30% in case of allowance programs, 32% in case of food-supported programs, 44% in case of maternity allowance, 51% in vase of stipend schemes, and 33% in case of 'other' social protection programs in rural areas. In case of formal pension schemes, the matched share increases to 89%, which is expected. But formal pension schemes should not have been included in the category of routine social protection programs in the first place.

Secondly, one may also consider how the core extreme poor group fares in getting access to social protection programs in competition with other asset groups. After all, these programs have been initially conceived as safety net programs and largely designed for the poorest having in mind both in theory and in practice.[19] Our incidence analysis shows that, even when it comes to social protection, the extreme poor group constitutes a minority. For rural areas, their share in total beneficiaries of stipend schemes is only 9%; it is only 26% in allowance programs, 24% in food-assisted programs, 25% in maternity allowance and 24% in 'other programs'.

Third, what we observe from the rural MICS data that *roughly a quarter of social protection beneficiaries* are from Vulnerable Non-Poor (VNP) households. This is, of course, leakage in the narrow sense of the term but may be viewed as "permissive leakage" in times of in times of severe shocks (pandemic). This is an important attribute of Bangladesh's social protection programs that needs to be considered while designing transfers for mitigating distress from Covid-19. After all, in times of pandemic shocks, they too are in high risks of slippages into poverty and hence merit SP support. The moot policy point is whether the existing social protection programs can be rolled out with greater injection of resources to reach not

[18] For the incidence results based on HIES and MICS by expenditure/ asset deciles, see World Bank (2020). It is true that HIES allows us to conduct consumption expenditure-based ranking while MICS data permits only asset-based ranking. However, in terms of capturing the incidence of the social protection programs, MICS seems to be better than HIES in terms of providing broad snapshots, while the HIES is marked by low individual program-specific responses. In future, the HIES should use the MICS survey instrument for its social protection module.

[19] In practice, because it is the extreme poor who are more disadvantaged than others in getting market access or have less powerful voices to extract fiscal benefits to their benefits. In theory, because they constitute the ethically most deserving category in the overall distribution matrix of a society. It is for them a Rawlsian 'Maximin" principle has been devised as a way of progressing towards more equitable distributional outcomes.

just the poor but also the VNP (or the New poor) who are also in need of support in a post-lockdown scenario.

Fourth, what we observed for rural areas is a valid description of distribution of benefits in urban areas as well. The non-deserving CNP category prevails in urban SP schemes; VNP seek SP assistance; and the urban extreme poor are a minority voice as in rural areas. Two additional moments relate to overall low quantum of resources earmarked for urban areas and the pronounced presence of the moderate poor group in the urban setting. The low overall allocation of social protection benefits for urban areas—lower not only compared to the proportionate share of the urban population but also compared to relative incidence of urban vs. rural poverty--further reduces the compensatory access of the urban extreme poor to such transfers. It may have been one of the reasons for slow progress in urban extreme poverty reduction.

Table 32: Benefit Incidence for Broad category of SP Programs as per MICS 2018 Data

EDUCATION STIPEND PROGRAMME							
RURAL (n=1504)				URBAN (n=355)			
Poverty Quantiles of Per Capita Consumption Expenditure (annual)	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**	**Poverty Quantiles of Per Capita Consumption Expenditure (annual)**	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**
Extreme Poor	1.86	9.18	9.18	**Extreme Poor**	2.42	6.48	6.48
Moderate Poor	3.53	13.96	23.14	**Moderate Poor**	4.44	17.75	24.23
Vulnerable non-Poor	4.01	25.66	48.8	**Vulnerable non-Poor**	4.59	24.50	48.73
Comfortable Non-Poor	2.89	51.2	100	**Comfortable Non-Poor**	2.40	51.27	100.00

ALLOWANCE PROGRAMME							
RURAL (n=1576)				URBAN (n=149)			
Poverty Quantiles of Per Capita Consumption Expenditure (annual)	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**	**Poverty Quantiles of Per Capita Consumption Expenditure (annual)**	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**
Extreme Poor	5.61	26.4	26.4	**Extreme Poor**	3.58	22.82	22.82
Moderate Poor	5.12	19.29	45.69	**Moderate Poor**	3.17	30.20	53.02
Vulnerable non-Poor	4.02	24.55	70.24	**Vulnerable non-Poor**	1.95	24.83	77.85
Comfortable Non-Poor	1.76	29.76	100	**Comfortable Non-Poor**	0.44	22.15	100.00

FOOD SUPPORT PROGRAMME							
RURAL (n=7048)				URBAN (n=840)			
Poverty Quantiles of Per Capita Consumption Expenditure (annual)	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**	**Poverty Quantiles of Per Capita Consumption Expenditure (annual)**	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**
Extreme Poor	22.94	24.15	24.15	**Extreme Poor**	21.18	23.93	23.93
Moderate Poor	21.92	18.47	42.62	**Moderate Poor**	17.90	30.24	54.17
Vulnerable non-Poor	18.85	25.77	68.39	**Vulnerable non-Poor**	10.98	24.76	78.93
Comfortable Non-Poor	8.35	31.61	100	**Comfortable Non-Poor**	2.34	21.07	100.00

PENSION PROGRAMME							
RURAL (n=575)				URBAN (n=303)			
Poverty Quantiles of Per Capita Consumption Expenditure (annual)	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**	**Poverty Quantiles of Per Capita Consumption Expenditure (annual)**	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**
Extreme Poor	0.22	2.78	2.78	**Extreme Poor**	0.00	0.00	0.00
Moderate Poor	0.19	1.91	4.69	**Moderate Poor**	0.28	1.32	1.32
Vulnerable non-Poor	0.36	6.09	10.78	**Vulnerable non-Poor**	0.47	2.97	4.29
Comfortable Non-Poor	1.92	89.22	100	**Comfortable Non-Poor**	3.83	95.71	100.00

MATERNITY ALLOWANCE PROGRAMME							
RURAL (n=6209)				URBAN (n=906)			
Poverty Quantiles of Per Capita Consumption Expenditure (annual)	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**	**Poverty Quantiles of Per Capita Consumption Expenditure (annual)**	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**
Extreme Poor	21.16	25.29	25.29	**Extreme Poor**	16.75	17.55	17.55
Moderate Poor	11.55	11.05	36.34	**Moderate Poor**	11.70	18.32	35.87
Vulnerable non-Poor	12.33	19.13	55.47	**Vulnerable non-Poor**	10.50	21.96	57.83
Comfortable Non-Poor	10.36	44.53	100	**Comfortable Non-Poor**	5.04	42.16	99.99

OTHER PROGRAMMES							
RURAL (n=1293)				URBAN (n=138)			
Decile of Per Capita Consumption Expenditure (annual)	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**	**Decile of Per Capita Consumption Expenditure (annual)**	**% participating in the program**	**% distribution of participating members**	**Cumulative Distribution of participants**
Extreme Poor	4.10	23.51	23.51	**Extreme Poor**	3.16	21.74	21.74
Moderate Poor	3.77	17.32	40.83	**Moderate Poor**	2.96	30.43	52.17
Vulnerable non-Poor	3.53	26.3	67.13	**Vulnerable non-Poor**	1.48	20.29	72.46
Comfortable Non-Poor	1.59	32.87	100	**Comfortable Non-Poor**	0.50	27.54	100.00

Note: Vulnerable non-poor HH is defined as the HH whose annual per capita consumption expenditure is more than the upper poverty line and less than 1.25 times (25% more than) the upper poverty line annual per capita consumption expenditure; Comfortable non-poor HH is defined as the HH whose annual per capita consumption expenditure is more than 1.25 times (25% more than) the upper poverty line annual per capita consumption expenditure. Estimated from the unit-record data of MICS-2018.

2.4 Can Bangladesh Reach the Poverty SDG Target: Simulations with and without Covid-19 Effects

Bangladesh was well poised for reaching the SDG poverty target until the Covid-19 hit the country in March 2020. As we discussed in Section 2.2, the immediate economic impact of lockdown induced by efforts to mitigate the health impacts was disastrous from poverty point of view. This was expected but the extent of vulnerability to poverty due to shocks was not anticipated earlier. The trade-offs between lives and livelihoods were acutely felt in the early days of lockdown. Subsequently, the GoB rightly in our view shifted to a path of balancing economic and health wellbeing objectives of development and opted for a model of "humane lockdown" i.e. focusing on economic recovery but with an eye on health concerns. In this section, we pose the question—can Bangladesh aspire to achieve the SDG target of zero poverty by 2031?

We closely follow the methodology adopted by Gimenez et al (2014) and Sen and Ali (2016) to conduct poverty simulations under two main scenarios: (a) without Covid-19 (the counterfactual); (b) with Covd-19 (the reality today). The highlights of this method as applied to 2016 HIES data are discussed below.

2.4.1 Gross vs. Net Growth Elasticity of Poverty Reduction

We estimate the elasticity of poverty with respect to growth following the poverty decomposition approach explained in Datt and Ravallion (1992). The basic idea behind the decomposition is to separate the change in poverty headcount into its expenditure growth component and redistribution component. The overall change in poverty from period 0 to period 1 can be decomposed as follows:

$$\Delta^{p} = [P(\mu_1, L_0) - P(\mu_0, L_0)] - [P(\mu_0, L_1) - P(\mu_0, L_0)] + \varepsilon$$

Where p stands for poverty measures, μ stands for average consumption, and L represent the relative inequality measure.

The first component represents the change in poverty due to growth in the per-capita consumption expenditure holding distribution of the per-capita consumption expenditure constant, while the second component represents the change in poverty due to a change of distribution in the per-capita consumption expenditure holding income constant. Following the decomposition of poverty reduction into the growth component and the redistribution component, we will estimate net elasticity of poverty with respect to growth in the per-capita consumption expenditure to project poverty rates till 2031 based on upper poverty lines because our focus is on the viability of reaching the SDG target of zero poverty.

The relationship between net elasticity of poverty with respect to growth (λ) and gross elasticity of poverty (γ) with respect to growth can be presented as follows:

$$\lambda = \gamma + \beta \times \delta$$

Here γ is the gross elasticity of poverty to growth implying the percentage change in poverty due to percentage change in consumption expenditure holding the level of distribution of per-capita real expenditure unchanged. The second component, β×δ (a product of "elasticity of poverty to inequality" and "elasticity of inequality to growth"), captures the percentage change in poverty rates due to percentage change in the inequality keeping the level of per-capita real expenditure constant. While the first component is expected to be negative, the second component could be either positive or negative

depending on the effects of growth on inequality. For the 2010-2016 period, the impact of redistribution, or the indirect effect, was reflected in an increase in poverty.

Nationally, without any change in inequality, a one-percentage point increase in per-capita consumption would have been resulted in a 1.11 percentage point decline in the headcount ratio. Note that the gross growth elasticity of poverty has dropped from -1.55 in 2000-2010 to -1.11 in 2010-2016 suggesting a reduced poverty responsiveness of growth (Table 33). With a headcount of about 24.5% in 2016, this represents a 0.27 (24.5*-1.11/100=-0.27) percentage point decline in the share of population below the poverty line. During the period between 2010 and 2016, consumption inequality rose at the national level from 0.30 to 0.31. Rising inequality results in an increase in poverty- a one percentage point rise in the Gini coefficient of inequality increases the national headcount index by 0.29 percent.[20] This translates into 0.07 percentage point increase per annum at a base-year (2016) national poverty headcount index of 24.5 percent (24.5*0.29/100=0.07). This is the impact of redistribution, or the indirect effect of rising inequality during 2010-16. The net elasticity of poverty with respect to growth is thus -1.04 as compared to the gross elasticity of -1.11 (see, Table 33). Clearly, the trend of rising inequality in the 2010-16 period was not only harmful for social cohesion, but it also dampens further the poverty reducing effects of economic growth. It shows why inequality matters for poverty reduction.

Table 33: Growth Elasticity Estimates (2000-2010)- Datt and Ravallion (1992) Method

	Upper Poverty Line (Adept Based)	
Parameter	National (2000-10)	National (2010-16)
γ	-1.55	-1.11
β*δ	-0.09	0.07
λ	-1.64	-1.04

Note: Calculated from unit record data of 2010 and 2016 HIES.

2.4.2 Poverty Projections over 2011-2031: Assessing Long-term Implications of Covid-19

Using the net growth elasticities of poverty reduction as derived and discussed above, we estimate the poverty headcount index at the national level under different GDP growth scenarios with and without Covid-19 shock. The projections are grim. We first consider the "hard lockdown" related poverty shocks for attaining the SDG target of 'zero poverty' before turning to "soft lockdown" implications. Several aspects are noteworthy (see, Table 34).

First, *Bangladesh would have achieved the SDG target of zero poverty by 2031 under a 7% average growth scenario had there been no Covid-19*. Even a 6% average growth rate of GDP would have taken the country closer to achieving the SDG target (as it would be only 3.5% in 2030 under a 6% average growth scenario

[20] Please note that this is a product of β×δ whereby β represents the 'elasticity of poverty to inequality' (which is equal to 0.8--obtained from Datt-Ravallion (1992) decomposition of poverty changes between 2010 and 2016) and δ represents the 'elasticity of inequality to growth' (which is equal to 0.36—estimated from the observed changes in Gini index of inequality to observed changes in the real survey mean consumption expenditure).

compared to 'zero poverty' under a 7% average growth scenario). This is shown by the first vertical panel of Table 34 capturing poverty projections in absence of Covid-19 shock.

Second, for the poverty projection purposes under Covid-19 shock, we had to pick up one likely scenario that realistically portrays the possible impact of shocks on consumption/ income. The scenario we consider is the 3rd scenario discussed above whereby 80% drop is recorded in case of income of urban laboring classes (including the self-employed households engaged in non-agricultural sectors) and further 10% drop is recorded in case of income of rural laboring classes (including self-employed households engaged in non-agricultural sectors). In the 3rd scenario, the poverty headcount index rises from 24.5% in 2016 to 33.2% in 2020. The consequent rise in poverty is even sharper when compared to the likely poverty level prevailing in 2019 just before Covid-19 hit the country. Either way we are talking about 9 to 15 percentage points increase in poverty headcount due to Covid-19 shocks depending on the benchmark we choose. This is a huge income shock and it is unique in the Bangladesh history. None of the natural shocks that have visited the country before had such a dire consequence for poverty.

Third, it will take almost 9 years to reach the poverty level of 2019 and almost 5 years to reach the poverty level of 2016 under a more realistic 6% average growth scenario in the next two Five-Year Plans. Even that feat would be remarkable in the context of next decade marked by post-Covid market uncertainties. It would require marshalling an altogether new system of economic incentives and methods of economic management in order to sustain the growth momentum through faster accumulation of human capital and technological progress.

Fourth, even with very optimistic scenario of 8% growth rate sustained over the next decade the country would *not be able to reach the SDG target of 'zero poverty'* by 2031. *The poverty headcount rate will be at 11% in 2031* if present economic situation deteriorates under a prolonged Covid-19 lockdown scenario. It is unlikely that 8% growth on the average could be achieved and sustained in the 2020-2030 period in the context of post-Covid world.

Fifth, this shows the importance of strong economic recovery measures in the short and medium terms—livelihood generation and protection through safeguarding labor incomes must take precedence over other concerns. This does not mean that health concerns relating to Covid-19 need to be ignored but they are to be integrated within economic recovery packages to avoid the adverse pitfalls of a sharp rise of poverty already unfolding before our eyes. Pitfalls are many. Nutritional and ill-health consequences of an underfed and poverty-stricken population needs to be weighed more carefully with the uncertain gains that are to be gained from the unsustainable lockdown beyond a threshold point. This requires careful navigating in an unchartered water. The present inadequate state of public health and institutional capacities are suboptimal outcomes of many years of fiscal neglect and cannot be fixed overnight. But a beginning must be made without delay to complete the process of massive and radical restructuring of the public health system in course of the Eighth Five-Year Plan.

Table 34: Poverty Headcount Projections for 2011-2031 if the "Hard Lockdown" Option Persists throughout the Calendar Year of 2020

	National Poverty Headcount (with and without Covid-19)							
	Without Covid-19				With Covid-19			
Assumed GDP Growth Rates	**5.5**	**6**	**7**	**8**	**5.5**	**6**	**7**	**8**
Net Growth Elasticity	**1.04**	**1.04**	**1.04**	**1.04**	**1.04**	**1.04**	**1.04**	**1.04**
2016	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
2017	23.1	23.0	22.8	22.5	23.1	23.0	22.8	22.5
2018	21.8	21.5	21.0	20.5	21.8	21.5	21.0	20.5
2019	20.4	20.0	19.3	18.5	20.4	20.0	19.3	18.5
2020	**19.0**	**18.5**	**17.5**	**16.5**	**33.2**	**33.2**	**33.2**	**33.2**
2021	17.7	17.0	15.8	14.5	31.8	31.7	31.5	31.2
2022	16.3	15.5	14.0	12.5	30.5	30.2	29.7	29.2
2023	14.9	14.0	12.3	10.5	29.1	28.7	28.0	27.2
2024	13.7	12.5	10.5	8.5	27.7	27.2	26.2	25.2
2025	12.3	11.0	8.8	6.5	26.4	25.7	24.5	23.2
2026	11.0	9.5	7.0	4.5	25.0	24.2	22.7	21.2
2027	9.6	8.0	5.3	2.5	23.6	22.7	21.0	19.2
2028	8.2	6.5	3.5	0.5	22.2	21.2	19.2	17.2
2029	6.8	5.0	1.8	-1.5	20.9	19.7	17.5	15.2
2030	**5.5**	**3.5**	**0.0**	**-3.5**	**19.5**	**18.2**	**15.7**	**13.2**
2031	**4.1**	**2.0**	**-1.8**	**-5.5**	**18.1**	**16.7**	**14.0**	**11.2**

Note: The Covid-19 shock under "hard lockdown" corresponds to the 3rd scenario in Table 31 whereby 80% drop is recorded in case of income of urban laboring classes and 10% drop is recorded in case of income of rural laboring classes (as defined Section 2.2).

Does the above projection change if Bangladesh adopts a "soft lockdown" option involving partial and a more *humane* approach emphasizing economic recovery in the medium-term? This is tested in Tables 35 and 36. It takes cue from the highly optimistic assumption of 50% recovery of income losses during the 3rd Quarter and 80% recovery of income losses during the 4th Quarter. We present the poverty estimates for 2020 by quarter and then calculate the headcount estimate for the whole calendar year of 2020 under these scenarios of faster economic recovery during the first year of the Eighth Five Year Plan (see, Table 35).

The question is: can Bangladesh achieve the SDG target of 'zero poverty' with this modest shock, and if so, then under what growth conditions? As may be seen from Table 36, the country would be able to go back to the pre-Covid situation by the 4th year of the Eighth Five Year Plan. Moreover, an 8% average scenario over the next decade would take the country to the threshold of meeting SDG Zero Poverty target (as there would be only a *residual of 3% poverty* remaining in the country in 2031). However, meeting the 8% of average growth condition sustained over a decade in the context of an uncertain post-Covid world would be difficult though not impossible. It would be easier if the country finally finds a *more egalitarian growth strategy* whereby the poverty responsiveness of growth can be enhanced, i.e. net growth elasticity of poverty reduction can be increased (from the current level of 1.01 to a level of 2.00 which was prevailing in the 1990s), so that the pace of poverty reduction becomes faster for a given growth rate.[21]

Table 35: Projection of Poverty Headcount for the Calendar Year of 2020 by Quarter

Indicator	2020 (Q1)	2020 (Q2)	2020 (Q3)	2020 (Q4)	2020 (Overall)
Upper Poverty Line					
Urban	15.8	34.8	34.8	24.7	**27.52**
Rural	22.0	27.4	24.6	22.9	**24.23**
Total	20.3	29.4	27.4	23.4	**25.13**
Lower Poverty Line					
Urban	5.8	32.8	26.7	10.7	**19.0**
Rural	11.7	15.9	13.6	12.4	**13.4**
Total	10.1	20.5	17.2	11.9	**14.9**

Note: Based on Annex Tables 6, 9 and 10. The latter also provide estimates for poverty and squared poverty gap indices for the four quarters of 2020. The Q2 estimates refer to the reference scenario-3 for Covid-19 shock in Table 31; Q3 estimates assume 50% recovery for income losses observed in Q2; Q4 estimates assume 80% recovery for income losses observed in Q2.

[21] Ravallion and Sen (1996) finds the net growth elasticity in the order of 2 in the 1990s.

Table 36: Poverty Headcount Projections for 2011-2031 under "Soft Lockdown" and "Fast Recovery" Option as Envisaged in the Eighth Five Year Plan

	National (with and without Covid-19)							
	Without Covid-19				With Covid-19			
Assumed GDP Growth Rates	**5.5**	**6**	**7**	**8**	**5.5**	**6**	**7**	**8**
Net Elasticity	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
2016	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
2017	23.1	**23.0**	22.8	22.5	23.1	23.0	22.8	22.5
2018	21.8	**21.5**	21.0	20.5	21.8	21.5	21.0	20.5
2019	20.4	**20.0**	19.3	18.5	20.4	20.0	19.3	18.5
2020	19.0	**18.5**	17.5	16.5	**25.1**	**25.1**	**25.1**	**25.1**
2021	17.7	**17.0**	15.8	14.5	**23.7**	**23.6**	**23.4**	**23.1**
2022	16.3	**15.5**	14.0	12.5	**22.4**	**22.1**	**21.6**	**21.1**
2023	14.9	**14.0**	12.3	10.5	**21.0**	**20.6**	**19.9**	**19.1**
2024	13.7	**12.5**	10.5	8.5	**19.6**	**19.1**	**18.1**	**17.1**
2025	12.3	**11.0**	8.8	6.5	**18.3**	**17.6**	**16.4**	**15.1**
2026	11.0	**9.5**	7.0	4.5	**16.9**	**16.1**	**14.6**	**13.1**
2027	9.6	**8.0**	5.3	2.5	**15.5**	**14.6**	**12.9**	**11.1**
2028	8.2	**6.5**	3.5	0.5	**14.1**	**13.1**	**11.1**	**9.1**
2029	6.8	**5.0**	1.8	-1.5	**12.8**	**11.6**	**9.4**	**7.1**
2030	5.5	**3.5**	0.0	-3.5	**11.4**	**10.1**	**7.6**	**5.1**
2031	4.1	**2.0**	-1.8	-5.5	**10.0**	**8.6**	**5.9**	**3.1**

Note: The Covid-19 shock under "soft lockdown" and "fast recovery" is premised on an optimistic scenario that underpins the poverty estimate presented in Table 35 i.e. there will be a 50% of recovery of income losses in the 3rd quarter of 2020 and 80% recovery of the same in the 4th quarter. The projection for the remaining years uses the "net growth elasticity of poverty reduction" discussed earlier in Section 2.4.1.

2.5 Conclusions and Possible Policy Responses in the Eighth Plan

In this section, we discuss the main findings of the study and offer some policy alternatives.

2.5.1 Results of Poverty Diagnostics with and without Covid-19

Bangladesh has achieved impressive success in the past three decades in the area of growth acceleration, poverty reduction, human development and female advancement. Success in poverty reduction is expressed in the long-term sharp decline in the incidence of income-poverty from 56.8% in 1991/92 to 24.5% in 2016 as per HIES data, decreasing further to an estimated level of 20.3% in the first quarter of 2020. Similarly, the proportion of under-five children who are stunted has come down from 54.6% in 1996/97 to 30.8 per cent in 2017/18 as per DHS data. Equally impressive were improvements in terms of the non-income dimensions of poverty. It is important to protect the past economic gains and tackle the new challenges of development in terms of achieving the goal of 'zero poverty' in the shortest possible time and shared prosperity while maintaining the momentum of growth acceleration and the rapid pace

of structural transformation. One needs to address the pitfalls of poverty reduction process. These weaknesses were already discernible in the recent trends in poverty—a slow-down of the overall pace of poverty reduction rate (1.7 percentage point reduction per year in 2005-10 vs. 1.2 percentage point decline in 2010-16), emergence of hotspots of regional poverty, persistent asset-based inequality observed in educational and health outcomes, and, in general, rising tendencies of consumption and income inequalities.

While these successes and pitfalls were subjected to much discussions in the Bangladesh literature, one less-discussed dimension is the enhanced pre-existent vulnerability of the poverty reduction process itself even before the Covid-19 shock hit the country in March 2020. This is reflected in three dimensions: (a) susceptibility of falling into poverty due to price shocks from the pandemic; (b) increased bunching of the "near-poor" around the poverty line; and (c) greater chances of slippages into extreme poverty. The first dimension tells us that even a slight increase in the poverty line due to price shocks can push a large segment of population into poverty. Thus, even a 10% increase in the poverty line can result about 34% increase in poverty in urban areas compared to the baseline. The second dimension tells us that the *bunching around the poverty line has increased* during 2010-16. For the '10% increase in poverty line' scenario, quantum increase in poverty has magnified from 25% to 29% in rural areas, and from 28% to 33% in urban areas during this period. The third dimension indicates the higher risks of descending into greater poverty for households who are already in poverty. Our calculation shows a 10% increase in the lower poverty line will result in 41% increase of extreme poverty in rural areas compared to the baseline (the matched effect is 44% in urban areas). It turns out that vulnerability of moderate poor falling into extreme poverty is much higher than the vulnerability of the near-poor households slipping into poverty.

These pre-existent vulnerabilities have become more acute due to the Covid-19 shock in 2020. Our calculations show that the poverty impact of prolonged 'hard' lockdown—as opposed to short-duration 'soft' lockdowns—can be disastrous. Anything between 9 million to 35 million of the population may descend into poverty due to the Covid-19 shock depending on the assumptions we make about the quantum of income/employment loss. Taking a plausible scenario whereby there is a 80% drop in income of the urban laboring classes (including the self-employed who are engaged in non-agricultural sectors) and additional 10% drop in income of the rural laboring classes (including self-employed who are engaged in non-agricultural sectors), we find that the poverty headcount index would rise from 20.3% in 2019 to 29.4% in the 2nd quarter of 2020 corresponding to the *addition of 25 million of new poor*. This segment of vulnerable population requires a new kind of policy support as they were not the usual target group of the traditional social protection programs.

If we conduct poverty projections to 2031 from the derailment caused by the Covid-19 shock in 2020, grim realities emerge inescapably. Bangladesh was on track in meeting the SDG goal of 'zero poverty' by 2031 comfortably under a 7% average growth scenario. Even a 6% average growth rate of GDP would have taken the country closer to achieving the SDG target (poverty headcount projected as being only 2% in 2031). Covid-19 has altered this comfortable on-track situation altogether. Now it appears that, with a sharp rise in poverty from the projected 20.3% in 2019 to 25.1% in 2020 due to Covid-19 shock, Bangladesh's GDP needs to grow at an average 8% per year over the next decade in order to meet the SDG target of zero poverty by 2031. Even that feat would be remarkable in the context of post-Covid market uncertainties at home and in the world.

2.5.2 Policy Implications for Addressing Poverty in the Backdrop of Covid-19

The explosive combination of pre-existing vulnerabilities combined with the onslaught of a massive pandemic shock is threatening presently to wipe out most of the gains in poverty reduction accumulated over the years. But crisis also provides scope for new opportunities. As Dostoevsky once remarked, epidemics show who we really are. We can foster our creative potentials to look for new and innovative solutions to some long neglected pro-poor investment strategies and institutional reforms. Several policy points are noteworthy. We group these into two broad categories: (a) short-term measures, and (b) medium-term measures.

Short-term measures

Short-term measures include ways to mitigate the adverse effects of lockdown pertaining to Covid-19 shocks and to undertake immediate health sector capacity-building measures to prevent the spread of the corona virus and provide cure to the needy. The strategy here is to *focus on economy with an eye on* the *health situation* to prevent further spread and to mitigate the humanitarian distress. A quick check with the ground reality shows us that a strategy of a prolonged lockdown in order to bring down the 'infection curve' in line with the country's 'health system capacity' will work only for a temporary period. Beyond a few weeks down the line, this model turns to be economically and politically unsustainable. In course of analysis of the drivers of wellbeing in various groups of poor and non-poor, we have noticed that only few urban poor households have access to non-land physical assets (16%), financial assets (39%), and account with the formal banking system (4%). The access to such financial assets is even more limited for rural poor households. The situation is only slightly better in case of VNP households in these respects (see, Annex Table 1 and 2). This indirectly indicates the very low incidence of financial savings in a typically poor household in Bangladesh. A sizable amount of financial savings could have supported them in times of severe distress. After all, most of the working poor in Bangladesh rely heavily on daily or monthly wage incomes for their survival. If there are no labor earnings even for two consecutive weeks, the scarcity of food and other daily necessities emerges as a real possibility. If the stalemate on the earnings front stretches about 3 to 4 weeks, a food crisis breaks out. This suggests that a prolonged economic lockdown based on the Western model of 'social distancing' is not feasible from purely economic livelihood point of view even if we discount the population density factor in a country such as Bangladesh. This has prompted many governments in the developing world (including Bangladesh) to opt for a 'soft' (more *humane* as opposed to *draconian*) lockdown model so that the poor and the vulnerable can get access to labor income opportunities and can prevent slippage into dire poverty and food insecurity through their own initiatives. Seen from this perspective, a relatively steady flow of labor income is the best social protection for the poor in developing countries with limited social transfer capacities to which Bangladesh is no exception.

Granting access to labor income opportunities however limited to economically important sectors such as export-oriented ready-made garments, agriculture, transport, marketing, and essential service sectors, does not mean that we should be oblivious of the pandemic context within which the economy now operates. This requires integration of heath safety measures with the participation of workers in the above labor income activities—not only in their workplaces i.e. inside the factories but also outside the factories. The experience of initial months of Covid-19 suggests that such an integration is a difficult feat to achieve. Firstly, there is stark *capacity deficit* in the public health sector—accumulated due to severe underinvestment in public health system over the successive years. This has resulted in a few hospitals in

the country with adequate ICU facilities; even in Dhaka, only a handful of public and private hospitals have such facilities. To aggravate the problem of regional inequality in health care, only a few districts have designated "district hospitals", and only a few district hospitals have ICU facilities with ventilators, trained nurse and experienced doctors to provide ICU-based treatments to severely Covid-19 affected patients. Secondly, it is not clear how the WHO catch-all slogan "test, test and test" can be operationalized in Bangladesh with a few testing facilities available even in urban areas.[22] Such an ambitious program of testing cannot be accomplished just relying on imports of PCRs for Covid-19 test. Domestic production of PCRs and Antibody test kits are necessary in order to meet the emergency need for Covid-19 testing in the coming months. It is important to make these testing facilities widely available. Thirdly, the present pandemic shock also underscores the need for more trained nurses, doctors, and medical technologists in the overall public health system.

Not everyone can immediately benefit from the opening of labor income opportunities as lockdown is still broadly enforced and it will only gradually be lifted. Many are informal workers who fall outside the purview of export-oriented manufacturing units or registered trading enterprises. After all, 70% of the workers in urban areas correspond to the informal sector employment as per the Labor Force Survey data. Those workers who are going to be affected by partial lockdown will need some forms of social assistance or formal social protection. We have noted earlier—based on MICS 2018 data-- that many of the existing social protection programs while showing 'progressive benefit incidence' still suffer from the problems of non-targeting so much so that about 50% of the benefits end up in the non-deserving CNP group. The same pattern can be observed with respect to the HIES 2016 evidence as well. In short, the idea of compensatory social protection transfer is fine, but the system requires repairing to be effective in aiding poor people in times of pandemic shock. This brings us to a range of medium-term issues.

Medium-term measures

The experience of Covid-19 suggests two empirical regularities. First, health inequalities reveal severe economic divides within a society. The Covid-19 shows high variance in mortalities and hospitalization rates by economic classes and racial divides. While the hard data is not presently unavailable for Bangladesh, we suspect that the poor are placed in a much more disadvantaged position than the non-poor with respect to accessing the Covid-19 diagnosis tests as well as the associated treatment facilities. In any case, their access to formal health care (not exceeding 25% for major diseases) was much limited even before the pandemic shock hit the country and they are more likely to be rationed out now more than ever in the health market where there is an acute competition for scarce health resources. Thus, in a resource-constrained situation with limited Covid-19 testing facility, limited hospital beds for Covid patients, and limited ICU facilities, the health system tends to favor the non-poor than the relatively deserving poor. These health inequalities cannot be addressed by growth-mediated health security strategies alone. Access to basic and emergency public health care needs to be recognized as *essential non-negotiable inalienable right* of every citizen of Bangladesh irrespective of the economic divides and social markers. Such a right should get adequate fiscal and institutional expressions in terms of producing a radically altered universal public health system.

[22] Admittedly, the testing capacity has increased in recent months—from just 1 PCR Lab in March 2020 to 66 Labs in June 2020. But, the inadequacy of testing facility--compared to the demand in the health market--persists.

Second, initial experience suggests countries that performed well in *reducing the number deaths* from Covid-19 represent countries with developed or universal public health coverage of their population. The list includes diverse regime types: Vietnam, the Indian State of Kerala, Sri Lanka, Taiwan, Cuba, South Korea, Singapore, New Zealand, Norway, Denmark, Finland, Slovenia, etc. *It is not the form of the government but the broad-based system of universal or near-universal public health coverage that these countries had established made the difference.* Bangladesh is constitutionally committed to "ensure health for all" and it should take this commitment to practice. It is well-known that the public health expenditure-GDP ratio has been well below 1% in the past two decades; it was already at a low of 0.8% in 2014 and has dropped further to a paltry 0.7% in 2019. For universal health system, we need to raise the matched ratio to 3% of the GDP. Such a system needs to be backed up by a carefully designed employer-supported micro health insurance system especially in formal public and private entities/enterprises.[23]

Third, initial experience also suggests countries with *developed social protection system* performed well in helping the poor and vulnerable in times of pandemic shocks. This is much more than the issue of raising adequate funds for social protection. Our analysis shows that the problem of non-targeting is high in case of most social protection programs. Linking the beneficiary participation in social protection programs with the NID cards digitally—as has been done in case of *Aadhar card* in India—can facilitate the transfer to the deserving poor in times of distress as well as help minimize the extent of leakage and non-targeting errors of transfers. The same principle of digital linking may be introduced in case of disbursing industrial incentives to small and micro enterprises who currently lack access to formal bank accounts. The 'household data base for identification of the poor' developed by BBS (based on the PMT score method) can be used for the initial identification of the beneficiaries of the SP programs. But, Covid-19 shock possibly changed the relative ranking of these households especially that of the VNP households, many of whom are now likely to be among the ranks of the poor. In order to draw an updated list of the SP beneficiaries, one needs to cross-check with the local government functionaries (i.e. UP Chairman and the Ward Members). In short, while digital technology based on prior survey information will help but there is a need for constant engagement with the local governments for updating the list of the SP beneficiaries.[24]

Fourth, technology access can play an important role in times of crisis. Widespread use of power threshers and combined harvesters have been put to good use in recent *Boro* harvesting season in the *Haor* areas of Bangladesh at a time when the labor movement was relatively restricted due to Covid-19 lockdown. Such use of technology needs to be encouraged further. However, unequal access to technology has become a new source of economic inequality between the poor and non-poor. The rich people's kids had access to internet-based platforms for pursuing uninterrupted educational activities during lockdown while the poor people's kids were cut-off from that facility. It is true that 80% of poor households have

[23] It is not clear why the foreign buyers and employers in the RMG sector would be concerned only with health compliance inside the factories in order to ensure workers' occupational health and ignore the general health concerns of the same workers outside the factories. The least they could do is to come up with a system of employer-supported micro health insurance to aid mitigation against health shocks in times of pandemic crisis.

[24] The other option is to go for massive income transfer to the poor and the new-poor as observed in case of redistributive policies in developed welfare-state countries during Covid-19. In that case, Bangladesh could have achieved better results in terms of reducing Covid-19 infection rate to the minimum. However, this broad entitlement-based option is not practically available for Bangladesh in the short-term due to limited fiscal capacity and institutional rigidities.

access to mobile phone technology but only a few of them have smart-phone access with internet facility (for Bangladesh as a whole, the smart-phone penetration does not exceed 25%). This aspect of distant education of e-learning needs to be encouraged further by making internet-technology widely available, and at subsidized costs, among the more disadvantaged groups.

Fifth, resourcing the system of universal public health and development of a poverty-focused social protection system will require some creative thinking about fiscal strengthening. Introduction of wealth tax is one option; the instrument of inheritance tax may also be an important option in the next decade provided the dismal state of revenue sourced from the income taxes still prevails.

Lastly, the poverty responsiveness of growth–represented by *gross* and *net* elasticities of growth—have been declining in the 2010s compared to 2000s even before the Covid-19 shock hit the country. This disturbing trend needs to be reversed in the 8th Five Year Plan—both to reach the SDG goal-10 on mitigating inequality and for achieving the SDG target of 'zero poverty'. Rising income inequality (Bangladesh has already entered the high-inequality club at a relatively low level of income) is neither economically inevitable nor ethically acceptable. Acceleration of agricultural/rural growth, expansion of job creating MSMEs in urban areas, development of secondary towns, greater female participation in high-end labor markets, broad-based access to human and financial capital--backed up by progressive income and wealth taxation--will help to restore the poverty responsiveness of growth and stop the rising trends of inequality in Bangladesh.

References

Ahsan, S. M. and S. Q. Ahsan (2018). “One Sunshine Doth Not a Harvest Make: An Examination of the Growth Momentum in Bangladesh”, **Bangladesh Development Studies**, No. 4, December.

Ali, Z. and K. A. S. Murshid (2019). **Why is Poverty so Pervasive and Increasing in Some Districts in Bangladesh**, a study carried out by the Bangladesh Institute of Development Studies (BIDS), Dhaka, December (draft).

Begum, S. and B. Sen (2010). "Identifying and Targeting the Extreme Poor: A Methodology for Rural Bangladesh". In: D. Lawson, D. Hulme, I. Matin, and K. Moore (Eds.), **What Works for the Poorest? Poverty Reduction Programmes for the World's Extreme Poor**, Practical Action Publishing Ltd, Warwickshire, UK.

Bowles, S. (2004**). Economic Institutions and Behavior: An Evolutionary Approach to Microeconomics**, Princeton: Princeton University Press.

Datt, G. & M. Ravallion (1992). “Growth and Redistribution Components of Changes in Poverty Measures: A Decomposition with Applications to Brazil and India in the 1980s”. **Journal of Development Economics**, 38(2).

Giménez, L., Jolliffe, D. & Sharif, I. (2014). “Bangladesh, a Middle Income Country by 2021: What Will It Take in terms of Poverty Reduction?” **Bangladesh Development Studies,** No. 1&2.

Hill, R. and Genoni, M. E. (2019). **Bangladesh Poverty Assessment : Facing Old and New Frontiers in Poverty Reduction**. Washington, D.C. : World Bank Group.

Hossain, M. and B. Sen (1992). "Rural Poverty in Bangladesh: Trends and Determinants", **Asian Development Review**, Vol. 10, No. 1, January, pp. 1-31

Hossain, M., B. Sen and Y. Sawada (2016). "Bangladesh: Jobs and Growth in an Urbanizing Economy" in G. Betcherman and M. Rama (eds.), **Jobs for Development: Challenges and Solutions in Different Country Settings**, Oxford University Press: New York, pp. 62-101.

Jack, J. C. (1916/ 1975). **The Economic Life of a Bengal District: A Study** (with an introduction of Shahid Amin), Oxford: London.

Ravallion, M. and B. Sen (1996), "When Method Matters: Monitoring Poverty in Bangladesh", **Economic Development and Cultural Change,** Vol. 44, No. 4, July 1996, pp. 761-792.

Reisman, D. (2011). **Alfred Marshall: Progress and Politics**, Routledge: London.

Sen, A. (1981). **Poverty and Famines**, Oxford: London.

Sen, B. (2019). "Rural Transformation and Poverty Reduction in Bangladesh: Analysis of Recent Evidence from the Household Income and Expenditure Survey 2016." In: Hill, R. and Genoni, M. E. (2019). Eds. **Bangladesh Poverty Assessment : Facing Old and New Frontiers in Poverty Reduction, Vol. 2**, pp. 175-200.

Sen, B. and Z. Ali (2016). “Ending Extreme Poverty in Bangladesh: Trends, Drivers, and Policies” in J. Devine, G. D. Wood, Z. Ali and S. Alam (eds.), **Extreme Poverty, Growth and Inequality in Bangladesh**, Practical Action Publishing: Warwickshire, U.K.

World Bank (2020). **Bangladesh Social Protection Public Expenditure Review** (Draft for consultations). Social Protection and Jobs, Washington, D.C. : World Bank Group.

Zhang, X., S. Rashid, K. Ahmad, V. Mueller, H. L. Lee, S. Lemma, S. Belal, and A. U. Ahmed (2013). **Rising Wages in Bangladesh**. Washington, DC: International Food Policy Research Institute.

Annex Tables

Annex Table 1: Descriptive Statistics for Different Groups of Rural Households (HIES 2016)

Variable	All HH	All Poor HH	All Non-Poor HH	Extreme Poor HH	Moderate Poor HH	Vulnerable Non-Poor HH	Comfortable Non-Poor HH
HH Head's age	45.0	42.99	45.81	42.71	43.35	44.28	46.35
HH's Gender							
Female	12.59%	9.61%	13.65%	9.61%	9.61%	9.43%	15.13%
Male	87.41%	90.39%	86.35%	90.39%	90.39%	90.57%	84.87%
HH Head's Education							
No Formal	46.39%	58.44%	41.12%	60.92%	55.26%	50.36%	39.29%
Class 1-5	25.95%	25.27%	26.19%	24.29%	26.53%	27.78%	25.81%
Class 6-SSC	22.87%	14.73%	25.76%	13.39%	16.45%	19.71%	27.87%
HSC and above	4.68%	1.48%	5.81%	1.35%	1.65%	2.55%	6.95%
Informal/Madrasa	0.09%	0.07%	0.09%	0.04%	0.11%	0.07%	0.10%
Land Assets (decimals)	81.36	71.48	84.86	64.63	80.26	67.44	90.96
Non-Land Asset Score (1-100)	17.10	13.23	18.47	12.37	14.33	15.53	19.50
Mobile	86.98%	81.17%	89.04%	79.25%	83.63%	86.44%	89.94%
Microcredit access	33.10%	32.71%	33.24%	32.21%	33.34%	34.55%	32.78%
Bank account	7.72%	2.99%	9.40%	2.75%	3.30%	4.99%	10.94%
Financial Asset	48.20%	35.74%	52.60%	31.67%	40.95%	46.22%	54.84%
Mechanized Service	31.71%	28.07%	33.00%	25.62%	31.20%	34.04%	32.63%
Safety Net	28.58%	35.48%	26.14%	33.75%	35.13%	31.11%	24.41%
Primary Stipend	12.35%	16.78%	10.78%	16.85%	16.70%	13.82%	9.71%
Secondary Stipend	3.86%	3.82%	3.87%	3.41%	4.34%	4.13%	3.78%
HH Classification Job Type							
Pure Farm	36.58%	45.55%	33.40%	46.05%	44.91%	41.94%	30.42%
Pure Non-Farm	37.23%	33.54%	38.54%	33.30%	33.84%	34.73%	39.87%
Mixed	6.75%	7.71%	6.41%	8.03%	7.31%	7.86%	5.91%
Unemployed	19.44%	13.20%	21.65%	12.62%	13.95%	15.47%	23.81%
Labor Status							
Self Employed	32.22%	26.27%	34.33%	24.51%	28.54%	31.74%	35.24%
Employer	0.79%	0.25%	0.98%	0.19%	0.33%	0.54%	1.13%
Employee (salaried)	8.16%	5.72%	9.02%	6.18%	5.14%	7.16%	10.74%
Employee (casual)	40.12%	54.05%	35.19%	55.26%	52.51%	47.17%	31.00%
Others (Unpaid, etc.)	18.70%	13.70%	20.48%	13.86%	13.49%	13.39%	21.90%
Distance to Dhaka (Km)	208.42	232.78	199.79	239.54	224.12	214.61	192.61
Rainfall Mean (2013)	1582.53	1573.00	1585.90	1604.27	1532.99	1575.72	1589.45
Rainfall St. Dev. (2013)	219.38	210.08	222.67	212.91	206.46	215.37	225.23
Natural Disaster Shock	13.33%	12.40%	13.66%	13.00%	11.62%	13.28%	13.80%
Household size	4.07	4.53	3.91	4.69	4.31	4.23	3.79
Female Earners	0.14	0.20	0.12	0.23	0.17	0.15	0.11

Male Earners	1.05	1.11	1.03	1.13	1.10	1.11	1.00
HH's Migration Status							
Foreign	7.99%	2.00%	10.11%	1.44%	2.72%	3.78%	12.33%
Domestic	3.76%	2.92%	4.06%	2.68%	3.21%	2.96%	4.44%
Non-Migrant	88.25%	95.08%	85.83%	95.88%	94.07%	93.25%	83.23%
Division							
Barisal	10.06%	8.83%	10.49%	9.10%	8.48%	9.48%	10.84%
Chittagong	19.03%	18.89%	19.08%	19.53%	18.07%	18.48%	19.29%
Dhaka	16.26%	10.65%	18.25%	10.09%	11.37%	13.87%	19.78%
Khulna	14.75%	14.19%	14.95%	11.93%	17.08%	16.03%	14.57%
Mymensingh	6.34%	8.00%	5.75%	8.24%	7.69%	7.96%	4.97%
Rajshahi	13.16%	13.89%	12.91%	12.21%	16.04%	14.15%	12.47%
Rangpur	13.70%	22.33%	10.65%	24.66%	19.36%	14.18%	9.41%
Sylhet	6.69%	3.22%	7.92%	4.25%	1.90%	5.86%	8.65%

Annex Table 2: Descriptive Statistics for Different Groups of Urban Households (HIES 2016)

Variable	All HH	All Poor HH	All Non-Poor HH	Extreme Poor HH	Moderate Poor HH	Vulnerable Non-Poor HH	Comfortable Non-Poor HH
HH Head's age	43.90	43.32	44.05	43.64	43.11	43.45	44.20
HH's Gender							
Female	13.19%	12.30%	13.42%	12.76%	12.00%	10.50%	14.14%
Male	86.81%	87.70%	86.58%	87.24%	88.00%	89.50%	85.86%
HH Head's Education							
No Formal	31.94%	50.57%	27.19%	56.47%	46.75%	42.45%	23.42%
Class 1-5	22.07%	27.22%	20.75%	24.62%	28.91%	25.01%	19.70%
Class 6-SSC	30.19%	19.19%	32.99%	17.10%	20.54%	26.75%	34.54%
HSC and above	15.58%	2.81%	18.83%	1.63%	3.57%	5.71%	22.08%
Informal/Madrasa	0.15%	0.14%	0.15%	0.18%	0.12%	0.09%	0.17%
Land Assets (decimals)	32.99	24.09	35.26	22.80	24.92	26.34	37.46
Non-Land Asset Score (1-100)	23.89	16.24	25.83	14.53	17.35	20.23	27.22
Mobile	86.98%	81.17%	89.04%	79.25%	83.63%	91.05%	94.73%
Microcredit access	30.39%	36.46%	28.84%	35.84%	36.86%	36.33%	26.99%
Bank account	7.82%	3.59%	8.90%	2.62%	4.21%	5.93%	9.64%
Financial Asset	53.55%	39.45%	57.15%	35.57%	41.95%	50.43%	58.81%
Mechanized Service	9.37%	12.19%	8.66%	10.86%	13.05%	12.60%	7.68%
Safety Net	14.23%	23.63%	11.83%	24.62%	23.00%	18.67%	10.14%
Primary Stipend	2.51%	5.33%	1.79%	6.61%	4.51%	3.19%	1.44%
Secondary Stipend	2.42%	3.06%	2.26%	2.81%	3.22%	2.60%	2.18%
HH Classification Job Type							
Pure Farm	10.10%	17.27%	8.28%	20.09%	15.45%	12.69%	7.19%
Pure Non-Farm	71.10%	64.57%	74.02%	61.27%	66.71%	71.02%	74.76%
Mixed	2.55%	4.94%	1.94%	5.34%	4.68%	3.65%	1.51%
Unemployed	15.25%	12.22%	15.77%	13.30%	13.17%	12.64%	16.54%
Labor Status							
Self Employed	25.93%	22.42%	26.82%	19.73%	24.17%	25.83%	27.07%
Employer	0.85%	0.28%	1.00%	0.36%	0.23%	0.37%	1.15%
Employee (salaried)	25.52%	12.22%	28.90%	10.77%	13.17%	18.30%	32.55%
Employee (casual)	30.14%	51.14%	24.80%	54.57%	48.92%	41.58%	20.65%
Others (Unpaid, etc.)	17.60%	13.39%	18.48%	14.57%	13.52%	13.92%	18.58%
Distance to Dhaka (Km)	173.92	205.96	165.76	229.72	190.59	184.69	161.08
Rainfall Mean (2013)	1536.78	1532.87	1537.78	1560.90	1514.75	1549.41	1534.90
Rainfall St. Dev. (2013)	219.32	213.70	220.75	212.49	214.49	218.29	221.36
Natural Disaster Shock	5.38%	7.64%	4.80%	8.51%	7.08%	7.07%	4.24%
Household size	3.98	4.55	3.84	4.73	4.43	4.32	3.72
Female Earners	0.214	0.213	0.214	0.233	0.200	0.218	0.213
Male Earners	1.069	1.141	1.050	1.127	1.152	1.180	1.019
HH's Migration Status							

Foreign	5.53%	2.10%	6.40%	1.36%	2.57%	2.78%	7.30%
Domestic	2.03%	1.46%	2.17%	1.90%	1.17%	1.78%	2.27%
Non-Migrant	92.44%	96.45%	91.42%	96.74%	96.26%	95.44%	90.43%
Division							
Barisal	7.72%	10.70%	6.97%	9.41%	11.53%	9.36%	6.37%
Chittagong	12.66%	10.02%	13.33%	11.40%	9.13%	13.65%	13.25%
Dhaka	29.59%	18.80%	32.33%	12.49%	22.88%	23.87%	34.42%
Khulna	17.74%	21.89%	16.68%	19.73%	23.29%	18.48%	16.24%
Mymensingh	6.17%	8.53%	5.57%	8.42%	8.60%	7.07%	5.20%
Rajshahi	10.92%	9.95%	11.17%	10.95%	9.30%	11.82%	11.01%
Rangpur	9.90%	15.49%	8.48%	22.53%	10.94%	10.00%	8.10%
Sylhet	5.30%	4.62%	5.47%	5.07%	4.33%	5.75%	5.40%

Notes to Annex Tables 1.1 and 1.2: **Extreme poor HH** is defined as HH whose annual per capita consumption expenditure is below the lower poverty line annual per capita consumption expenditure; **Moderate poor HH** is defined as the HH whose annual per capita consumption expenditure is above the lower poverty line but lower than the upper poverty line annual per capita consumption expenditure; **Vulnerable non-poor HH** is defined as the HH whose annual per capita consumption expenditure is more than the upper poverty line and less than 1.25times (25% more than) the upper poverty line annual per capita consumption expenditure; **Comfortable non-poor HH** is defined as the HH whose annual per capita consumption expenditure is more than 1.25times (25% more than) the upper poverty line annual per capita consumption expenditure.

Annex Table 3: Poverty Trends during the Pre-Covid Situation in the second half of the 2010s, 2016-2020											
	Poverty Headcount Rate				Poverty Gap				Squared Poverty Gap		
	2016	2020-Q1 (Before Shock)	Change		2016	2020-Q1 (Before Shock)	Change		2016	2020-Q1 (Before Shock)	Change
Poverty line = Annual Upper Poverty Line											
Urban	**18.9**	**15.8**	**-3.2**		**3.9**	**3.1**	**-0.8**		**1.2**	**0.9**	**-0.3**
Rural	**26.4**	**22.0**	**-4.4**		**5.4**	**4.3**	**-1.1**		**1.7**	**1.3**	**-0.4**
Total	**24.4**	**20.3**	**-4.1**		**5.0**	**3.9**	**-1.0**		**1.5**	**1.2**	**-0.4**
Poverty line = Annual Lower Poverty Line											
Urban	**7.6**	**5.8**	**-1.8**		**1.3**	**1.0**	**-0.3**		**0.4**	**0.3**	**-0.1**
Rural	**14.9**	**11.7**	**-3.2**		**2.6**	**2.0**	**-0.6**		**0.7**	**0.5**	**-0.2**
Total	**12.9**	**10.1**	**-2.8**		**2.3**	**1.7**	**-0.6**		**0.6**	**0.5**	**-0.2**

Note: The poverty headcount estimate for the first quarter of 2020 (before the Covid-19 shock hit the country) has been derived by applying the *net growth elasticity of poverty reduction* based on the poverty and inequality trends observed between 2010 and 2016 HIES data (see, col. 1, Table 35). The corresponding poverty gap index and squared poverty gap index have been derived by using the Adept model.

Annex Table 4: Rise of Poverty due to Covid-19 Shock and Lockdown, 2020 (Q1 vs. Q2): Scenario-1											
	Poverty Headcount Rate				Poverty Gap				Squared Poverty Gap		
	2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change		2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change		2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change
Poverty line = Annual Upper Poverty Line											
Urban	**15.8**	**34.8**	**19.1**		**3.1**	**32.2**	**29.1**		**0.9**	**31.8**	**30.9**
Rural	**22.0**	**22.0**	**0.0**		**4.3**	**4.3**	**0.0**		**1.3**	**1.3**	**0.0**
Total	**20.3**	**25.5**	**5.2**		**3.9**	**11.9**	**7.9**		**1.2**	**9.6**	**8.4**
Poverty line = Annual Lower Poverty Line											
Urban	**5.8**	**32.8**	**27.0**		**1.0**	**31.8**	**30.9**		**0.3**	**31.7**	**31.4**
Rural	**11.7**	**11.7**	**0.0**		**2.0**	**2.0**	**0.0**		**0.5**	**0.5**	**0.0**
Total	**10.1**	**17.5**	**7.4**		**1.7**	**10.1**	**8.4**		**0.5**	**9.0**	**8.6**

Note: This scenario is as follows: it is assumed that there is 'zero income' for *laboring class* in urban areas, but the rural sector income unaffected. Estimated by using Adept program.

Annex Table 5: Rise of Poverty due to Covid-19 Shock and Lockdown, 2020 (Q1 vs. Q2): Scenario-2												
	Poverty Headcount Rate				Poverty Gap				Squared Poverty Gap			
	2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change		2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change		2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change	
Poverty line = Annual Upper Poverty Line												
Urban	**15.8**	**34.8**	**19.1**		**3.1**	**25.6**	**22.5**		**0.9**	**20.0**	**19.1**	
Rural	**22.0**	**24.6**	**2.6**		**4.3**	**4.9**	**0.7**		**1.3**	**1.5**	**0.2**	
Total	**20.3**	**27.4**	**7.1**		**3.9**	**10.6**	**6.6**		**1.2**	**6.6**	**5.4**	
Poverty line = Annual Lower Poverty Line												
Urban	**5.8**	**32.8**	**27.0**		**1.0**	**23.2**	**22.2**		**0.3**	**16.9**	**16.6**	
Rural	**11.7**	**13.6**	**1.8**		**2.0**	**2.4**	**0.4**		**0.5**	**0.7**	**0.1**	
Total	**10.1**	**18.8**	**8.7**		**1.7**	**8.1**	**6.3**		**0.5**	**5.1**	**4.6**	

Note: This scenario is as follows: it is assumed that there will be 80% drop in income for laboring class in urban areas and 5% drop in income for laboring class in rural areas. Estimated by using Adept program.

Annex Table 6: Rise of Poverty due to Covid-19 Shock and Lockdown, 2020 (Q1 vs. Q2): Scenario-3 (Reference Scenario)											
	Poverty Headcount Rate				Poverty Gap				Squared Poverty Gap		
	2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change		2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change		2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change
Poverty line = Annual Upper Poverty Line											
Urban	**15.8**	**34.8**	**19.1**		**3.1**	**25.6**	**22.5**		**0.9**	**20.0**	**19.1**
Rural	**22.0**	**27.4**	**5.4**		**4.3**	**5.8**	**1.5**		**1.3**	**1.8**	**0.5**
Total	**20.3**	**29.4**	**9.1**		**3.9**	**11.2**	**7.2**		**1.2**	**6.8**	**5.6**
Poverty line = Annual Lower Poverty Line											
Urban	**5.8**	**32.8**	**27.0**		**1.0**	**23.2**	**22.2**		**0.3**	**16.9**	**16.6**
Rural	**11.7**	**15.9**	**4.1**		**2.0**	**2.9**	**0.9**		**0.5**	**0.8**	**0.3**
Total	**10.1**	**20.5**	**10.4**		**1.7**	**8.4**	**6.7**		**0.5**	**5.2**	**4.7**

Note: This scenario is as follows: it is assumed that there will be 80% drop in income for laboring class in urban areas and 10% drop in income for laboring class in rural areas. Estimated by using Adept program.

Annex Table 7: Rise of Poverty due to Covid-19 Shock and Lockdown, 2020 (Q1 vs. Q2): Scenario-4											
	Poverty Headcount Rate				Poverty Gap				Squared Poverty Gap		
	2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change		2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change		2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change
Poverty line = Annual Upper Poverty Line											
Urban	**15.8**	**34.8**	**19.1**		**3.1**	**25.6**	**22.5**		**0.9**	**20.0**	**19.1**
Rural	**22.0**	**34.2**	**12.2**		**4.3**	**8.0**	**3.7**		**1.3**	**2.7**	**1.4**
Total	**20.3**	**34.4**	**14.1**		**3.9**	**12.8**	**8.8**		**1.2**	**7.4**	**6.2**
Poverty line = Annual Lower Poverty Line											
Urban	**5.8**	**32.8**	**27.0**		**1.0**	**23.2**	**22.2**		**0.3**	**16.9**	**16.6**
Rural	**11.7**	**21.6**	**9.9**		**2.0**	**4.3**	**2.4**		**0.5**	**1.3**	**0.8**
Total	**10.1**	**24.7**	**14.6**		**1.7**	**9.5**	**7.8**		**0.5**	**5.6**	**5.1**

Note: This scenario is as follows: it is assumed that there will be 80% drop in income for laboring class in urban areas and 20% drop in income for laboring class in rural areas. Estimated by using Adept program.

Annex Table 8: Rise of Poverty due to Covid-19 Shock and Lockdown, 2020 (Q1 vs. Q2): Scenario-5											
	Poverty Headcount Rate				Poverty Gap				Squared Poverty Gap		
	2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change		2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change		2020-Q1 (Pre-Shock)	2020-Q2 (Post-Shock)	Change
Poverty line = Annual Upper Poverty Line											
Urban	**15.8**	**34.8**	**19.1**		**3.1**	**22.3**	**19.2**		**0.9**	**15.2**	**14.3**
Rural	**22.0**	**42.0**	**20.0**		**4.3**	**11.1**	**6.8**		**1.3**	**4.1**	**2.8**
Total	**20.3**	**40.0**	**19.7**		**3.9**	**14.1**	**10.2**		**1.2**	**7.1**	**6.0**
Poverty line = Annual Lower Poverty Line											
Urban	**5.8**	**32.8**	**27.0**		**1.0**	**18.9**	**17.9**		**0.3**	**11.4**	**11.1**
Rural	**11.7**	**29.4**	**17.7**		**2.0**	**6.6**	**4.6**		**0.5**	**2.2**	**1.7**
Total	**10.1**	**30.3**	**20.2**		**1.7**	**10.0**	**8.3**		**0.5**	**4.7**	**4.2**

Note: This scenario is as follows: it is assumed that there will be 70% drop in income for laboring class in urban areas and 30% drop in income for laboring class in rural areas. Estimated by using Adept program.

Annex 9: Poverty Estimate for 2020: Q3

	Poverty Headcount Rate	Poverty Gap	Squared Poverty Gap
Poverty line = Annual Upper Poverty Line			
Urban	**34.8**	**12.4**	**5.2**
Rural	**24.6**	**4.9**	**1.5**
Total	**27.4**	**7.0**	**2.5**
Poverty line = Annual Lower Poverty Line			
Urban	**26.7**	**6.5**	**2.3**
Rural	**13.6**	**2.4**	**0.7**
Total	**17.2**	**3.5**	**1.1**

Note: This assumes that there would be a 50% recovery of the income losses in the 3rd Quarter of 2020 (from the level of losses that were incurred during the 2nd Quarter of 2020). Estimated by using Adept program.

Annex 10: Poverty Estimate for 2020: Q4

	Poverty Headcount Rate	Poverty Gap	Squared Poverty Gap
Poverty line = Annual Upper Poverty Line			
Urban	**24.7**	**5.4**	**1.8**
Rural	**22.9**	**4.5**	**1.4**
Total	**23.4**	**4.8**	**1.5**
Poverty line = Annual Lower Poverty Line			
Urban	**10.7**	**2.0**	**0.6**
Rural	**12.4**	**2.1**	**0.6**
Total	**11.9**	**2.1**	**0.6**

Note: This assumes that there would be a 80% recovery of the income losses in the 4th Quarter of 2020 (from the level of losses that were incurred during the 2nd Quarter of 2020).

Annex Table 11: Correlates of Different Categories of Poor and Non-Poor in Rural Areas under Alternative Definitions of VNP and CNP

	Extreme Poor HH (n=4660)	Moderate Poor HH (n=3641)	Vulnerable Non-Poor HH (n=8225)	Comfortable Non-Poor HH (n=15196)
Age	58.91***	11.46	20.56	192.7
	(19.73)	(10.44)	(19.36)	(347.2)
Age2	-0.441**	-0.0480	-0.135	-0.368
	(0.194)	(0.118)	(0.208)	(4.022)
Gender (Male=1)	239.2	163.5	-93.82	-780.2
	(233.8)	(100.2)	(181.0)	(2,364)
HH Head's Education Reference Group: No Formal Education				
EDUC2(Class 1-5)	373.6***	109.2	69.87	2,584*
	(113.7)	(85.10)	(100.2)	(1,440)
EDUC3 (Class 6-SSC)	316.6**	155.3	47.86	5,295***
	(136.3)	(115.4)	(118.0)	(1,224)
EDUC4 (Class HSC & above)	901.2*	-256.5	571.0**	10,106***
	(501.4)	(396.9)	(272.5)	(1,483)
EDUC5 (informal)	-926.3***	-1,390***	-758.9	-4,050
	(312.2)	(175.2)	(1,056)	(2,571)
Non-Land Asset Index	105.1***	7.167	26.04***	839.8***
	(17.51)	(6.858)	(6.512)	(120.9)
Mobile (Yes=1)	771.4***	13.73	154.0	3,030
	(111.7)	(73.78)	(217.1)	(1,884)
Microcredit access (Yes=1)	212.4	-49.96	85.64	314.1
	(138.2)	(80.11)	(84.52)	(967.2)
Bank account (Yes=1)	1,110***	33.08	478.4***	8,336**
	(275.6)	(146.1)	(143.8)	(3,379)
Financial Asset (Yes==1)	277.0*	22.53	52.75	956.2
	(140.0)	(52.09)	(81.75)	(1,522)
Mechanized Service (Yes=1)	518.3***	107.8*	112.2	1,460
	(115.8)	(55.61)	(79.34)	(1,283)
Safety Net (yes=1)	-135.7	-63.20	27.33	-3,115*
	(173.2)	(59.69)	(96.98)	(1,740)
Primary Stipend (Yes=1)	202.1	88.09	-97.39	476.9
	(139.9)	(105.7)	(141.3)	(1,651)
Secondary Stipend (Yes=1)	461.0*	132.6	28.61	-229.1
	(255.6)	(125.4)	(192.7)	(1,889)
HH_Job Classification Reference Group: Unemployed HH				
HH_Pure Farm	223.2	-25.67	-200.4	-1,168
	(237.9)	(116.5)	(137.2)	(2,333)
HH_Pure Non-Farm	70.94	11.41	119.9	-1,664
	(262.2)	(110.2)	(130.6)	(2,023)
HH_Mixed	201.6	29.99	-141.7	-1,087
	(268.8)	(148.0)	(267.8)	(2,912)

Distance to Dhaka	-0.0441	0.0160	1.470	-30.63**
	(1.393)	(0.568)	(1.051)	(14.12)
Household size	-455.5***	-24.64	-210.6***	-4,677***
	(42.19)	(18.83)	(39.63)	(555.4)
Female Earners	-260.8	-8.463	-7.024	1,142
	(194.0)	(80.80)	(133.0)	(1,649)
Male Earners	98.72	-50.07	195.3	1,437
	(107.0)	(56.41)	(144.1)	(1,141)
Migrating HH Reference: Non-Migrating HH				
Foreign Migrating HH	257.5	356.0***	121.2	7,091**
	(315.5)	(121.3)	(238.5)	(2,699)
Domestic Migrating HH	200.6	-87.22	207.2	3,992
	(419.5)	(210.8)	(212.2)	(3,178)
Natural Disaster Shock	301.0*	104.7	-8.941	4,393*
	(155.9)	(75.51)	(160.3)	(2,575)
Division reference: Barisal				
Chittagong	2,965***	3,840***	5,534***	4,119
	(388.4)	(89.06)	(251.8)	(3,100)
Dhaka	814.3*	864.6***	1,522***	-784.3
	(482.2)	(111.9)	(261.8)	(3,243)
Khulna	-643.6*	-798.3***	-698.4***	-4,391
	(365.3)	(80.54)	(197.9)	(3,325)
Mymensingh	1,149***	909.8***	1,571***	-8,943***
	(372.4)	(109.5)	(264.5)	(2,742)
Rajshahi	-489.3	-292.8***	-108.4	-3,759*
	(347.7)	(79.26)	(205.2)	(2,199)
Rangpur	-985.4**	-416.7***	-516.5**	2,890
	(373.1)	(73.05)	(240.6)	(2,629)
Sylhet	1,411***	-1,232***	-2,390***	673.4
	(453.5)	(54.95)	(276.6)	(2,284)
Constant	15,075***	22,463***	28,122***	49,199***
	(817.9)	(289.9)	(494.6)	(7,922)
Observations	4,660	3,641	8,255	15,196
R-squared	0.244	0.643	0.468	0.072

*Notes: Robust standard errors are reported within the parentheses; *** p<0.01, ** p<0.05, * p<0.1; **Extreme poor HH** is defined as HH whose annual per capita consumption expenditure is below the lower poverty line annual per capita consumption expenditure; **Moderate poor HH** is defined as the HH whose annual per capita consumption expenditure is above the lower poverty line but lower than the upper poverty line annual per capita consumption expenditure; **Vulnerable non-poor HH** is defined as the HH whose annual per capita consumption expenditure is more than the upper poverty line and less than 1.35 times (35% more than) the upper poverty line annual per capita consumption expenditure; **Comfortable non-poor HH** is defined as the HH whose annual per capita consumption expenditure is more than 1.35 times (35% more than) the upper poverty line annual per capita consumption expenditure. All regressions include district-level controls such as % of HH receiving foreign remittance, % of HH receiving domestic remittance, % of HH with credit access, % of HH with safety net access, and % of HH having access to secondary and post-secondary education.*

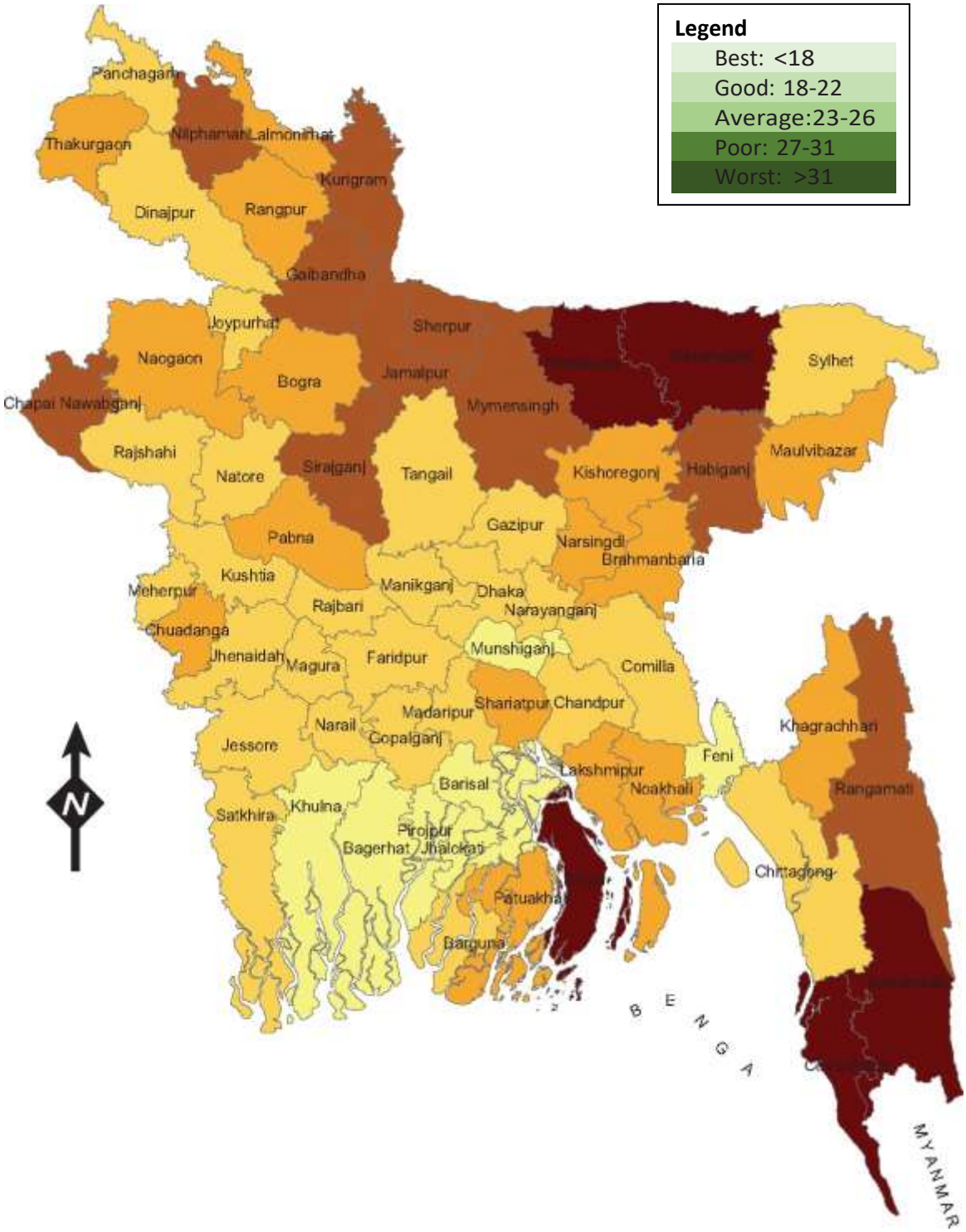
Annex Table 12: Correlates of Different Categories of Poor and Non-Poor in Urban Areas under Alternative Definitions of VNP and CNP

	Extreme Poor HH (n=1105)	Moderate Poor HH (n=1709)	Vulnerable Non-Poor HH (n=3034)	Comfortable Non-Poor HH (n=8020)
Age	57.20	-19.29	-42.06	-36.63
	(43.81)	(20.71)	(35.58)	(318.3)
Age2	-0.411	0.0908	0.640	7.876*
	(0.438)	(0.236)	(0.427)	(4.141)
Gender (Male=1)	-115.4	430.3*	-196.5	-6,335***
	(374.2)	(223.3)	(244.7)	(2,133)
HH Head's Education Reference Group: No Formal Education				
EDUC2(Class 1-5)	349.4	-62.28	-66.14	4,879**
	(313.4)	(150.7)	(306.9)	(1,912)
EDUC3 (Class 6-SSC)	679.5*	282.7	-259.9	11,726***
	(392.0)	(373.5)	(396.6)	(2,164)
EDUC4 (Class HSC & above)	457.2	1,422*	155.4	26,019***
	(449.7)	(745.9)	(285.0)	(3,086)
EDUC5 (Informal)	911.3	3,585***	2,087**	9,042
	(650.6)	(756.6)	(894.4)	(9,858)
Non-Land Asset Index	119.4***	55.46***	58.77***	1,609***
	(21.56)	(16.99)	(16.47)	(225.4)
Mobile (Yes=1)	1,101***	-117.4	86.74	2,737
	(275.9)	(488.5)	(279.6)	(2,359)
Microcredit access (Yes=1)	273.9	44.92	-488.8**	7,813*
	(279.8)	(139.9)	(193.0)	(3,918)
Bank account (Yes=1)	-530.3	116.9	543.5	15,729***
	(833.6)	(338.0)	(382.7)	(4,320)
Financial Asset (Yes==1)	112.5	-477.8***	175.5	1,506
	(291.4)	(160.0)	(397.5)	(1,408)
Mechanized Service (Yes=1)	935.7**	-156.3	-60.76	-573.1
	(417.7)	(238.0)	(209.5)	(3,055)
Safety Net (yes=1)	-758.8	239.8	-124.5	-4,578*
	(499.3)	(249.0)	(222.9)	(2,502)
Primary Stipend (Yes=1)	1,073	-263.8	-123.3	7,069
	(709.2)	(248.3)	(371.5)	(4,823)
Secondary Stipend (Yes=1)	1,459***	-498.9	167.4	8,847**
	(493.8)	(339.3)	(384.1)	(4,385)
HH_Job Classification Reference Group: Unemployed HH				
HH_Pure Farm	-211.5	-383.7	536.5	9,266***
	(588.7)	(474.0)	(718.5)	(3,303)
HH_Pure Non-Farm	88.69	-514.4	1,066*	8,481**
	(528.4)	(488.5)	(574.9)	(3,935)
HH_Mixed	-851.3	-570.3	734.5	16,259**

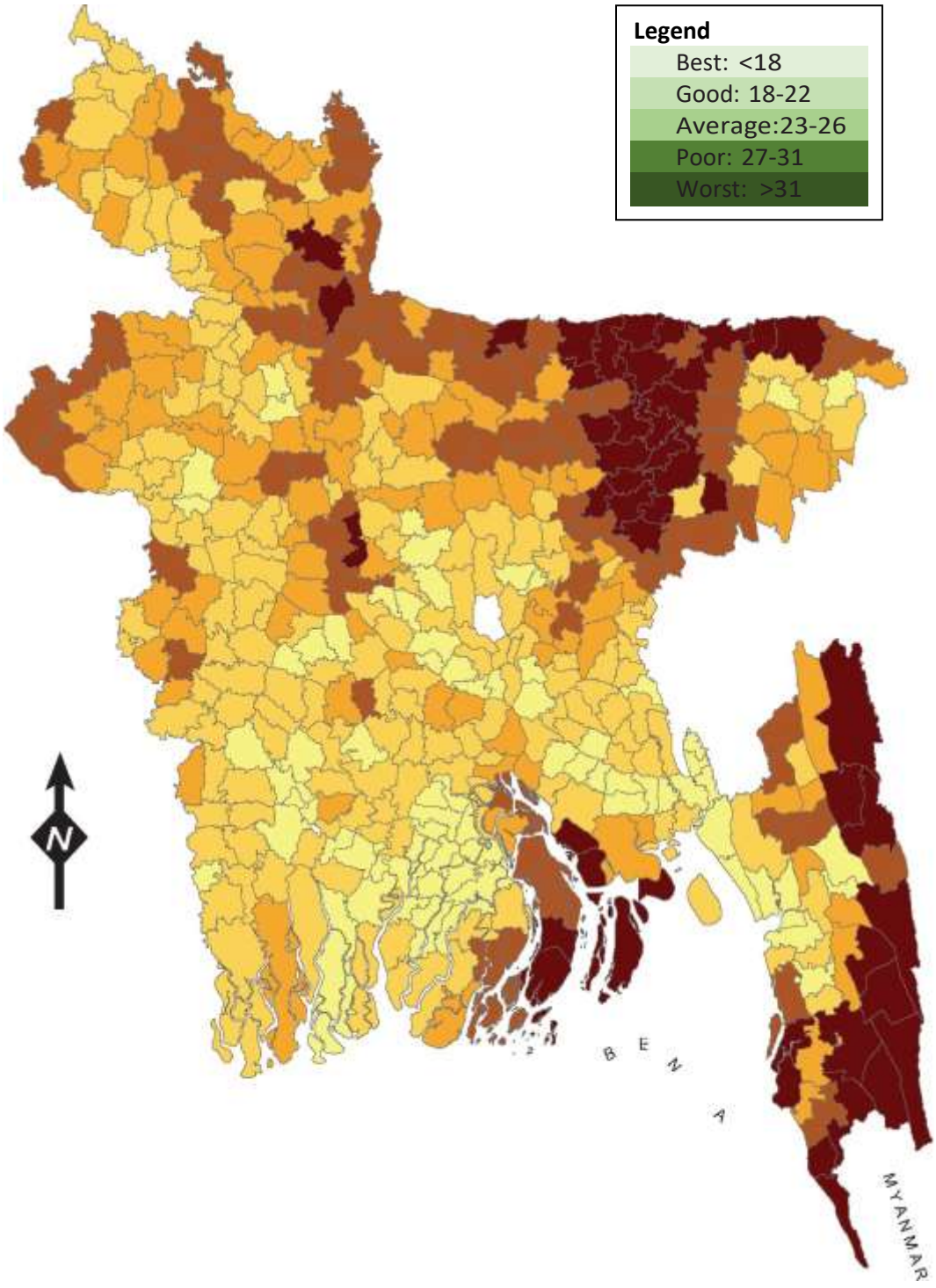
	(679.7)	(585.3)	(467.6)	(6,881)
Distance to Dhaka	-2.543	-3.699**	-3.555*	-23.62
	(2.242)	(1.680)	(2.079)	(25.51)
Household size	-435.7***	-209.8***	-369.6**	-9,611***
	(81.91)	(51.88)	(153.5)	(663.3)
Female Earners	-109.7	479.4**	-132.6	904.4
	(234.3)	(186.4)	(200.3)	(1,304)
Male Earners	292.4	418.1**	173.6	-321.9
	(219.9)	(167.7)	(153.6)	(1,643)
Migrating HH Reference: Non-Migrating HH				
Foreign Migrating HH	-886.5	346.5	814.2	15,694***
	(572.1)	(490.2)	(829.5)	(4,569)
Domestic Migrating HH	-994.2	1,089	-215.9	5,589
	(715.3)	(683.8)	(611.0)	(4,404)
Natural Disaster Shock	795.4**	-165.5	42.26	-4,060
	(390.4)	(189.1)	(337.0)	(3,170)
Division reference: Barisal				
Chittagong	2,739***	-439.7	-2,073***	5,922
	(777.9)	(406.7)	(346.6)	(6,025)
Dhaka	1,440*	-1,199*	-661.8	6,748
	(778.4)	(612.6)	(678.1)	(7,268)
Khulna	-115.2	-3,330***	-4,806***	-7,691
	(727.3)	(336.0)	(384.4)	(5,481)
Mymensingh	397.2	-1,148**	-2,068***	-3,349
	(700.5)	(448.2)	(404.7)	(5,623)
Rajshahi	42.91	-4,395***	-6,935***	-7,149
	(577.4)	(374.1)	(362.1)	(5,615)
Rangpur	-543.2	-4,013***	-6,585***	3,593
	(781.8)	(388.4)	(494.7)	(6,744)
Sylhet	316.4	-2,905***	-5,608***	6,586
	(1,064)	(343.4)	(404.9)	(6,258)
Constant	16,413***	30,025***	39,547***	33,813***
	(1,451)	(884.0)	(750.9)	(9,801)
Observations	1,105	1,709	3,034	8,020
R-squared	0.264	0.411	0.432	0.207

*Notes: Robust standard errors are reported within the parentheses; *** p<0.01, ** p<0.05, * p<0.1; **Extreme poor HH** is defined as HH whose annual per capita consumption expenditure is below the lower poverty line annual per capita consumption expenditure; **Moderate poor HH** is defined as the HH whose annual per capita consumption expenditure is above the lower poverty line but lower than the upper poverty line annual per capita consumption expenditure; **Vulnerable non-poor HH** is defined as the HH whose annual per capita consumption expenditure is more than the upper poverty line and less than 1.35 times (35% more than) the upper poverty line annual per capita consumption expenditure; **Comfortable non-poor HH** is defined as the HH whose annual per capita consumption expenditure is more than 1.35 times (35% more than) the upper poverty line annual per capita consumption expenditure. All regressions include district-level controls such as % of HH receiving foreign remittance, % of HH receiving domestic remittance, % of HH with credit access, % of HH with safety net access, and % of HH having access to secondary and post-secondary education.*

Map 1: Pockets of social deprivation by district



Map 2: Pockets of social deprivation by upazilla



Map 3: Most deprived 100 upazillas in Bangladesh