



POVERTY MAPS OF BANGLADESH 2016

KEY FINDINGS



Bangladesh Bureau of Statistics

Statistics and Informatics Division, Ministry of Planning
Government of the People's Republic of Bangladesh



World Food Programme

POVERTY MAPS OF BANGLADESH 2016

December 2020, Dhaka

All rights reserved. The reproduction and dissemination of material in this information product for educational or non-commercial uses is authorized without prior written permission from the copyright holders, provided the source is fully acknowledged. Reproduction of material in this information product for resale or other commercial purposes is prohibited without written permission. Applications for such permission should be addressed to the Director General, Bangladesh Bureau of Statistics, e-mail: dg@bbs.gov.bd

Report Writing:

Dr. Syed Shahadat Hossain, Consultant, WFP
Md. Alamgir Hossen, Deputy Director, BBS

Map:

Dr. Din Ara Wahid, Head of VAM Unit, WFP

Small Area Estimation Analysis:

Faiz Uddin Ahmed, Ex-Director, BBS

Small Area Geocode update:

Md. Alamgir Hossen, Deputy Director, BBS
Md. Khorshed Alam, Statistical Officer, BBS
S. M. Ashiqur Rahman, Asst. Cartographer, BBS

Photo:

Sayed Asif Mahmud, WFP
Mehedi Rahman, WFP

Design and illustration :

Easel Mortuza
Mohammad Inamul Shahriar

ISBN: 978-984-34-9773-4

For further information on the report, please contact:

Md. Alamgir Hossen, Focal Point Officer, Poverty Mapping of Bangladesh 2016
Bureau of Statistics, E-27/A Agargaon, Sher-e-Bangla Nagar, Dhaka-1207.
Email: alamgir.hossen@bbs.gov.bd. Phone: 02-55006833



FOREWORD

Poverty maps are indispensable for accurately identifying underserved, impoverished areas. Policymakers, planners, researchers and development partners in Bangladesh require disaggregated poverty estimates to better understand geographical variations and spatial inequality in growth and poverty.

The Poverty Maps of Bangladesh 2016 were created to address the growing demand for updated information. The Bangladesh Bureau of Statistics (BBS) in collaboration with the World Food Programme (WFP), commenced an updating exercise which began in 2019 and involved rigorous review of data by the Technical Committee and the Steering Committee, comprising professionals and subject matter experts. The exercise was completed in November 2020, and generated poverty estimates for key sub-national administrative units using data from both the Household Income and Expenditure Survey (HIES) 2016 as well as the Population and Housing Census 2011, and sophisticated indirect estimation methodology.

We hope these maps will allow for better targeting of policy interventions and programs, building on the improved knowledge of local contexts.

With strong commitment, sound policies and effective coverage, we have the ability to work towards a better and brighter future for the people of Bangladesh. We look forward to continuing and expanding our partnership to overcome development challenges and to end poverty, in all its forms, throughout Bangladesh.

Richard Ragan
Country Director
World Food Programme

Mohammad Tajul Islam
Director General
Bangladesh Bureau of Statistics



ACKNOWLEDGEMENTS

The Poverty Maps of Bangladesh 2016 are the final product of a collaborative effort between the Bangladesh Bureau of Statistics (BBS) and the World Food Programme (WFP). The initiative was funded by the International Fund for Agriculture Development (IFAD) and WFP. Members from BBS and WFP were involved in the the poverty mapping exercise, backstopped by experts in this field.

I would like to express my humble gratitude to Mr. Mohammad Yamin Chowdhury, Secretary, Statistics and Informatics Division (SID), Ministry of Planning, for his policy guidance and all out patronage in this exercise. I extend my profound regards and gratitude to Mr. Mohammad Tajul Islam, Director General (Additional Secretary), BBS, for his patient guidance and valuable suggestions in the analysis and completion of the report. Mr. Ghose Subobrata, Deputy Director General, BBS, and Dr. Md. Shahadat Hossain, Director (Joint Secretary), Census Wing, BBS, deserve special recognition for their effective oversight and support in the completion of the report.

I am grateful to Dr. Syed Shahadat Hossain, SAE Consultant, WFP and Professor, ISRT, University of Dhaka for his contribution in preparing this report. Ms. Maria Eugenia Genoni, Senior Economist and Mr. Faizuddin Ahmed, Senior Poverty Consultant to the World Bank, provided technical suggestions during this exercise for which I am truly grateful. I would like to acknowledge the active and substantial support provided by Dr. Din Ara Wahid, Head of VAM, WFP especially on the mapping exercises. Thanks to Ms. Arifeen Aktar, Senior Program Officer and Ms. Sanjida Showkat, Data Analysis and Mapping Officer from WFP, for their continuous engagement in the initiative.

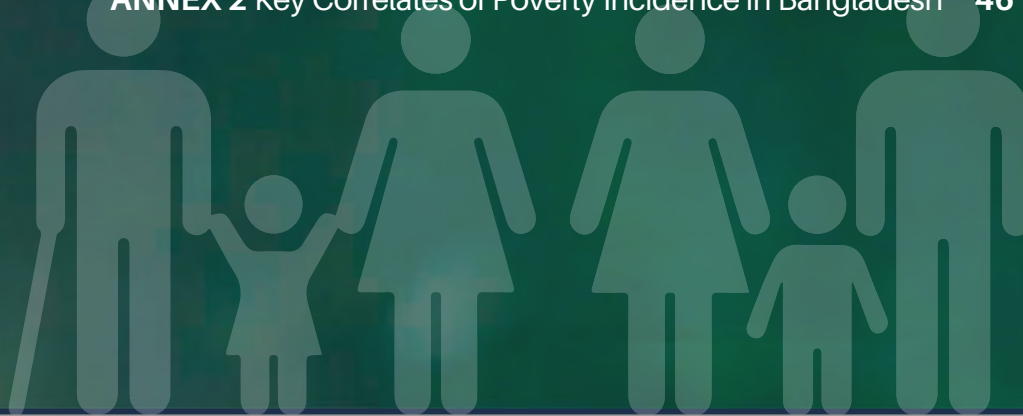
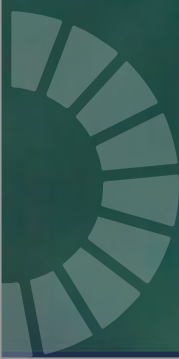
I would like to take this opportunity to express my sincere gratitude to the concerned officials of BBS, particularly Dr. Dipankar Roy, Project Director, Household Income and Expenditure Survey (HIES) Project 2016, for his ceaseless review and support in completing the report. I would like to thank Ms. Naima Aktar, Deputy Director, Census Wing, BBS; Mr. Mohammad Junayed Bhuyan, Statistical Officer; BBS, Mr. Md. Khorshed Alam, Statistical Officer, Census Wing, BBS; and Ms. Samapti Majumdar, Statistical Officer, Census Wing, BBS for their assistance. I would also like to acknowledge all the members of the Steering Committee, Technical Committee, Editors Forum and Report Review Committee for their careful review and constructive suggestions, which contributed to improving the final version of the poverty maps and key findings of the report.

Md. Alamgir Hossen

Deputy Director, Census Wing
and
Focal Point Officer
Poverty Mapping of Bangladesh 2016
Bangladesh Bureau of Statistics

CONTENT

1	Introduction	5
	1.1 Background	5
	1.2 Geographic and administrative units	6
<hr/>		
2	Methodology	7
	2.1 Data Sources for Small Area Estimation	8
	2.2 Implementation of Small Area Estimation for Poverty Mapping	8
	2.3 Selection of Consumption Model	9
	2.4 Simulation	9
	2.5 Results and Assessment	10
	2.6 Grouping and Ranking at Upazila Level	10
	2.7 Comparison between HIES 2016 Estimates and Small Area Estimates at District Level	12
	2.8 Limitations and Concerns	13
<hr/>		
3	Results at a Glance	15
	3.1 Division level Poverty Estimates	16
	3.2 District level Poverty Estimates	19
	3.3 Upazila level Poverty Map	22
<hr/>		
4	CONCLUDING REMARKS	24
	ANNEX 1 Division, District and Upazila Level Poverty Rates	26
	ANNEX 2 Key Correlates of Poverty Incidence in Bangladesh	46





Chapter 1

INTRODUCTION

1.1 Background

Socioeconomic analyses, globally, were conducted at the national level, with limited attention given to urban differences with respect to rural differences and major regional differences. Important variations between regions or areas are often hidden in such aggregate at the national level. The last decade has seen a growing global demand for objective and subjective data on progress and well-being indicators at a smaller delineation¹. These measures play a central role for policymakers to verify the effectiveness of their policies; tracking and monitoring indicators of the SDGs towards 2030 is a mandate of all governments. The analysis of poverty, its determinants and poverty-reducing interventions therefore require a focus on poverty information that is further geographically disaggregated. To be informative and effective, the poverty indicators should be chosen at the appropriate level of disaggregation.

Poverty and inequality are multidimensional, constituted by consumption and income, education, health, opportunities, etc. They have multiple determinants: geographic and agro-climatic factors, services, infrastructure, etc. A poverty map provides a detailed description of the spatial distribution of poverty and inequality within a country combining individual and household (micro) survey data and population (macro) census data with the objective of estimating welfare indicators for specific geographic areas, as small as an upazila, in the case of Bangladesh. Recent advances in computer aided software engineering, geographic information systems (GIS) and databases make poverty mapping possible, where data is presented in the form of maps with interfaces overlaid for cross-comparison. Spatial analysis and benchmarking are used to assess the relationships between micro and macro data according to their geographic location.

For upazila level estimation, of the two usable sources of data, the census is a decadal activity and sample surveys are cost-effective means of obtaining information on wide-ranging topics of interest at frequent intervals over time; the Household Income and Expenditure Survey (HIES) is one such survey. The Population and Housing Census includes all households in the country, but collects data on a limited set of topics. On the other hand, the Household Income and Expenditure Survey (HIES) includes the extremely rich dataset collected in an integrated household survey, including expenditure data. Producing direct estimation of indicators for upazilas using HIES data, for instance, would first, suffer from low precision because of the small effective domain sample size and second, will not be applicable with zero sample characteristic in some of the domains which is prevalent for poverty indicators at the upazila level. This two-fold challenge to addressing the perpetual demand for estimates, and in particular for indicators such poverty at a very granular level may be mitigated by the use of the recently developed Small Area Estimation (SAE) methodology.

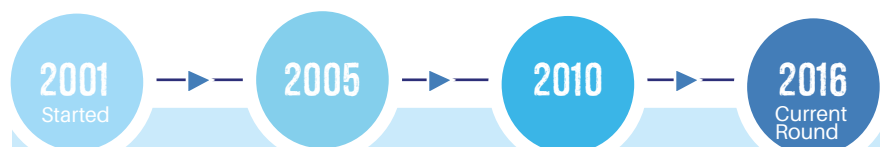


Figure 1: History of Poverty Mapping Exercises in Bangladesh

¹ Ida Kubiszewski, Nabeeh Zakariyya, and Diane Jarvis (2019), Subjective wellbeing at different spatial scales for individuals satisfied and dissatisfied with life, PeerJ. 7. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6387756/>

1.2 GEOGRAPHIC AND ADMINISTRATIVE UNITS

Bangladesh is divided into 8 Divisions (Bibhag) and 64 Districts (Zila), although these have only a limited role in public policy. For the purposes of local government, the country is divided into 577 Upazilas (sub-districts) including Metropolitan Thanas. The diagram below outlines the three tiers of government in Bangladesh.

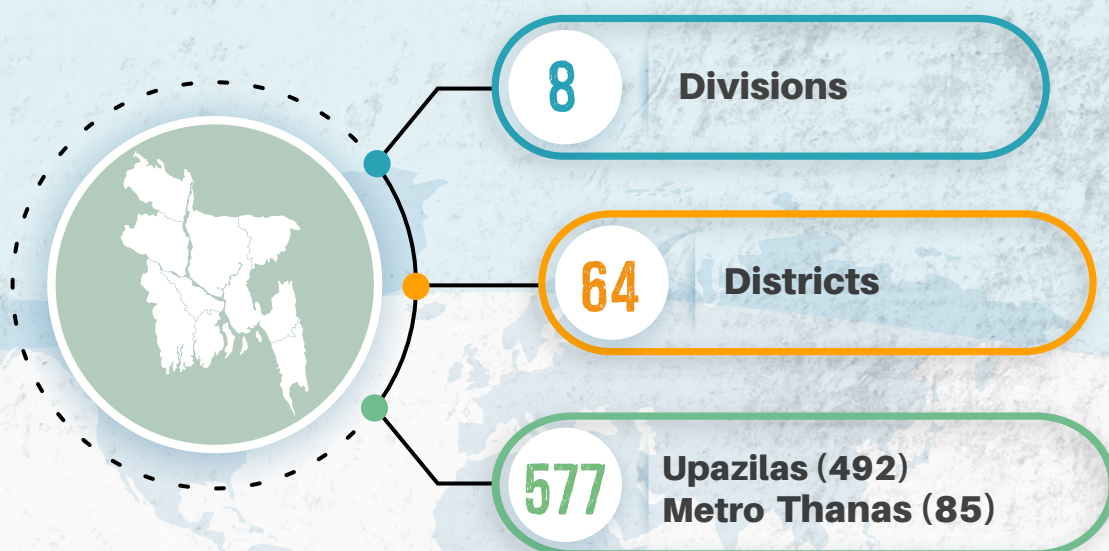


Figure 2: Top three Administrative and Geographic Tier of Bangladesh

By Division

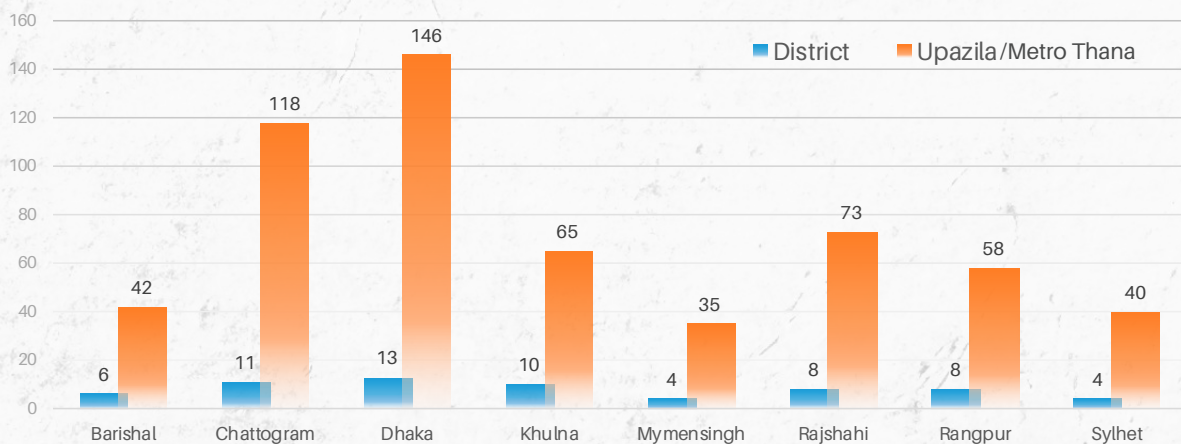


Figure 3: Districts and Upazilas/Metro Thanas by Division

Chapter 2

Poverty Mapping Methodology

Poverty mapping is the methodology for providing a detailed description of the spatial distribution of poverty and inequality within a country. It combines individual and household (micro) survey data from the HIES and Population and Housing (macro) census data with the objective of estimating welfare indicators for specific geographic area as small as upazila.

The poverty mapping methodology used in this exercise is the so-called ELL method developed by Elbers et al. using Small Area Estimation (SAE) techniques. The ELL² method, which has been widely tested and validated around the world, takes advantage of the strengths of both sources of data used in such exercises.

² Elbers, Chris, Jean O. Lanjouw, and Peter Lanjouw. "Micro-level estimation of poverty and inequality." *Econometrica* 71.1 (2003): 355-364.

2.1 Data Sources for Small Area Estimation

The primary data sources used in the Small Area Estimation (SAE) method are a national representative household survey and a national population census. As the National Statistics Office (NSO), Bangladesh Bureau of Statistics, through Household Income and Expenditure Survey, collects a wide range of data including detailed information on consumption and income, employment, ownership of assets, housing condition, access to education, health and sanitation, and so on.

Through the Population and Housing Census, BBS collects information of all households and individuals on employment, housing conditions, educational attainment, sources of drinking water, access to sanitation, electricity, etc. As a global practice, population census does not include consumption and income data.

Both the HIES and the Population and Housing Census have some strengths and weaknesses; none of them provides a complete picture, but they have a common set of explanatory variables. The SAE technique uses the parameter estimates from a consumption model derived using the 2016 HIES data to predict/simulate consumption data for each census household. Figure 4 shows the strength and weakness of data sources used for SAE in Poverty Mapping 2016.

Data Source	Strength	Weakness
Household Income and Expenditure Survey (HIES)	Presence of Per Capita Expenditure, and other poverty related variables	Limited sample size, especially at Upazila or Union level
Population and Housing Census (PHC)	Full coverage of population at any administrative and geographic levels.	Lack of Per Capita Expenditure and limited set of poverty related variables

Figure 4: Strength and Weakness of Data Sources

2.2 Implementation of Small Area Estimation for Poverty Mapping

- **Location Code Matching:** Location/Geocode Matching up to mauza level between census and survey data.
- **Identifying Common Variable:** Identifying common variables in survey and census data.
- **Identifying the unchanged properties:** Identification of variables with unchanged statistical properties between Census & Household Income and Expenditure Survey.
- **Identification of Auxiliary Data:** Identifying Auxiliary data source— Economic Census, GIS data, etc.
- **Creation of Census Variables:** Creation of a long list of census variables.

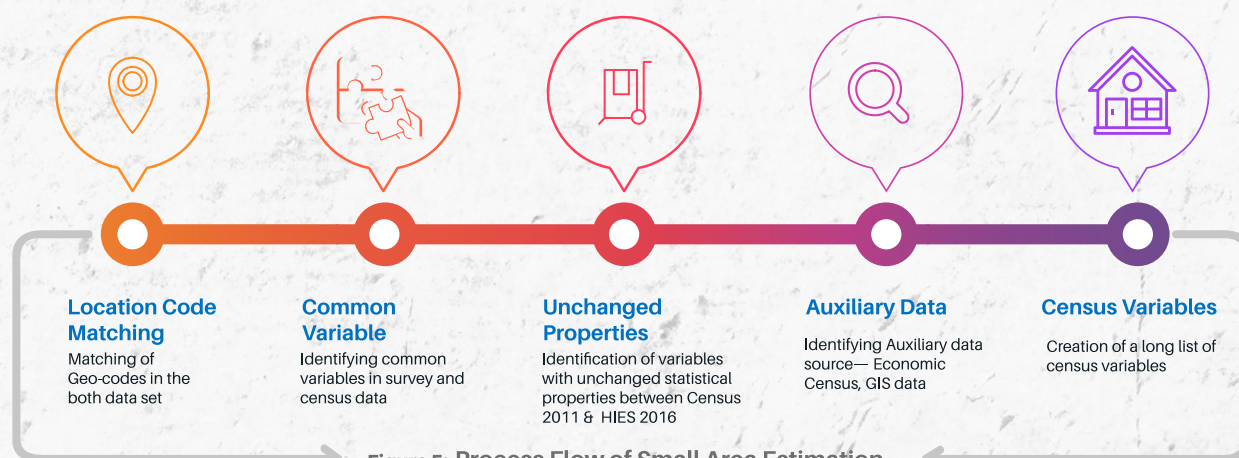


Figure 5: Process Flow of Small Area Estimation

2.3 Selection of Consumption Model

For the current poverty mapping exercise, a total of 18 consumption models, of which 16 correspond to the strata defined in HIES, were created to capture the regional variations.

The idea is straightforward. Let W be an indicator of poverty based on the distribution of a household-level variable of interest, Y_i and a vector of covariates, X_i linked to households. Using the two data sources, the joint distribution of Y_i and X_i is estimated. This estimated distribution can be used to generate the distribution of Y_i for any subpopulation in the larger sample conditional on the subpopulation's observed characteristics allowing to generate the conditional distribution of W . Let the explanatory variables, for example, education of household head (E_hh), household size (S_hh) and few others are found to be common for both the data sets, HIES 2016 and Population Census 2011. The Small Area Estimation technique utilized in this exercise intends to derive the parameter estimates using the 2016 HIES data and the consumption model (for i^{th} household of c^{th} cluster)

$$Y_{ic} = \alpha + \beta_1 * E_hh_{ic} + \beta_2 * S_hh_{ic} + \dots + \varepsilon_{ic} \dots\dots\dots (1)$$

However, considering that poverty can be geographically concentrated, introducing mauza level population (P_mauza) and mauza level errors (η_c), the model can be re-stated as

$$Y_{ic} = \alpha + \beta_1 * E_hh_{ic} + \beta_2 * S_hh_{ic} + \beta_3 * P_mauza + \dots + \eta_c + \varepsilon_{ic} \dots\dots\dots (2)$$

Considering as the log transformed expenditure, the estimated parameters and estimated errors distributions of model (2) are computed using Generalized Least Square (GLS) method. Now using these estimated parameters and estimated errors distributions, we predict/simulate consumption data for each census household. These predicted/simulated consumption data for all 2011 census households are then used to estimate the poverty rates at the zila and upazila level using the same poverty lines used to derive poverty estimates using the 2016 HIES data.

2.4 Simulation:

- Predicted HH expenditure for each census HH: Multiplying census variables with the estimated coefficients
- Simulated HH expenditure: Randomly drawing coefficients and errors from the GLS estimated distributions
- Compute poverty headcount rates using the simulated Household expenditures
- Repeat this simulation process 100 times and use the mean of them as poverty estimates and the standard deviation of 100 poverty headcount rates as standard errors of poverty estimates.



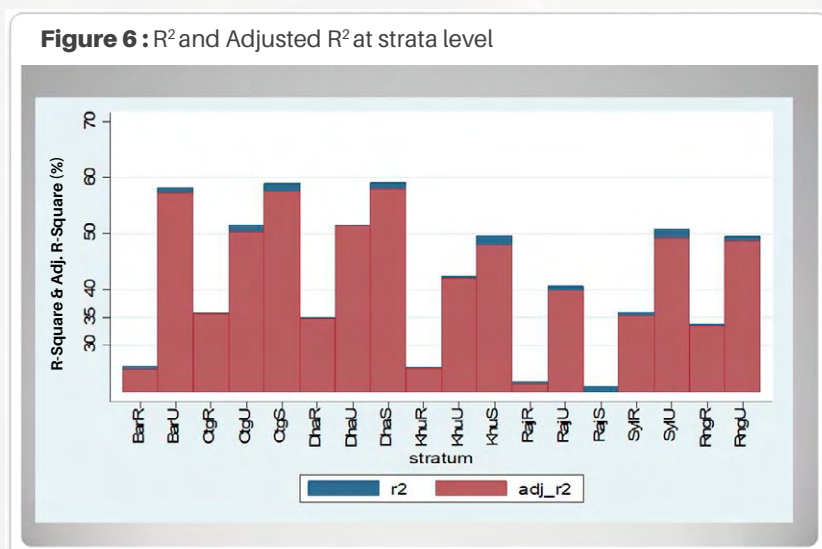
2.5 Results and Assessment

To assess the results in terms of various key statistics the following issues were addressed:

- Comparison between PovMap estimates and HIES 2016 estimates
- R²/Adjusted R² (model fitness)
- Relative share of variance at mauza level to variance of total error
- Determine the level of poverty maps by looking at standard errors of estimates

Poverty estimates for the Bangladesh Poverty Maps 2016 (at upazila level) were derived using the upper poverty lines in the HIES 2016 published by the BBS, which were also used in the World Bank's latest Poverty Assessment.

Figure 6 : R² and Adjusted R² at strata level



Computation of the model fitness reveals that

- R-squared and adjusted R-square for this poverty mapping exercise for most of the strata are reasonably high.
- However, 4 strata (Barishal Rural, Khulna Rural, Rajshahi Rural & Rajshahi City Corporation) record R-squared and adjusted R-squared of below 30 percent which seems a bit challenging.

2.6 Grouping and Ranking at Upazila Level

Due to high standard errors associated with the upazila level poverty estimates, especially for the largest 5 percent (between 95th percentile and Max), it may be challenging or sometimes misleading to use these estimates for the individual ranking of upazilas. However, to be on the safer side, ranking of upazilas may be done using some sort of grouping of poverty estimates.

Percentile	Stratum	Zila	Upazila
Median	1.7	2.9	3.8
95%	3.2	5.8	8.7
99%	3.2	7.0	11.9
Max	3.2	8.8	24.9

Table 1 : Standard errors of poverty estimates (%)

This gives an indication that individual upazila rankings using these poverty estimates may not be statistically significant enough. Thus, the upazilas grouped into five categories on the basis of the individual estimates and maps are produced for grouped level of poverty. The spatial distribution of poverty in Bangladesh at the upazila level is presented in the two maps in Chapter 3. The upazilas are grouped into five homogeneous groups using a quantile-based segregation. The five groups are formed by identifying the upazilas that are in the bottom 20% in terms of magnitude of poverty, then the next 20% upazilas formed the second group, and so on. Statistically, the 20%, 40%, 60% and 80% percentiles are computed and the groups are formed as:

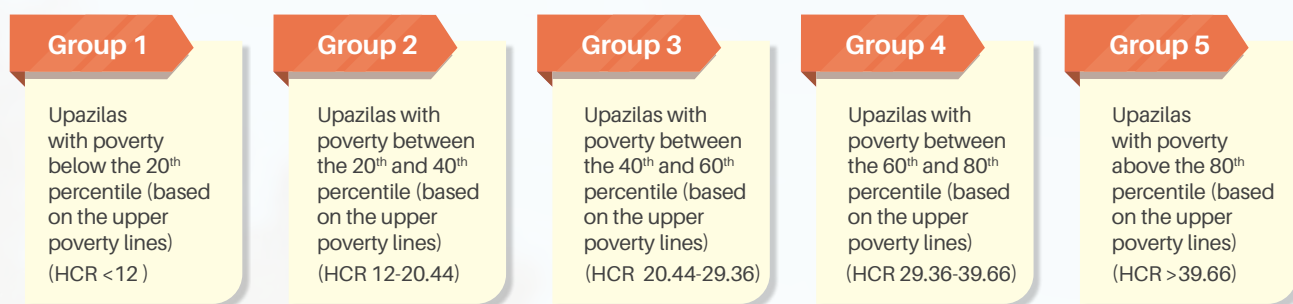


Figure 7 : Group Distribution of Upazila/Metro Thana Poverty Estimates

Presumably, each group will contain about equal number of upazila/Metro Thana. The resulting groups are given in the following table:

Group*	Very Low	Low	Moderate	High	Very High
Range	<12	12-20.44	20.44-29.36	29.36-39.66	>39.66
N	115	116	115	115	116

Table 2 : Number of Upazila/Metro Thana in poverty groups

Maps are produced from the depiction that the upazilas belonging to the same group has similar poverty level while upazilas belonging to different groups will have different poverty level.

Number of Upazilas/Metro Thanas in each of the Categories

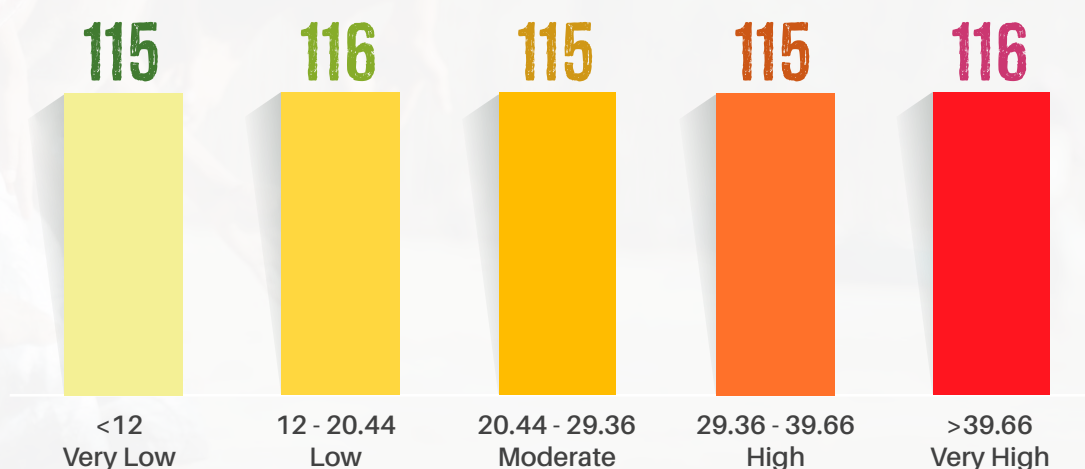
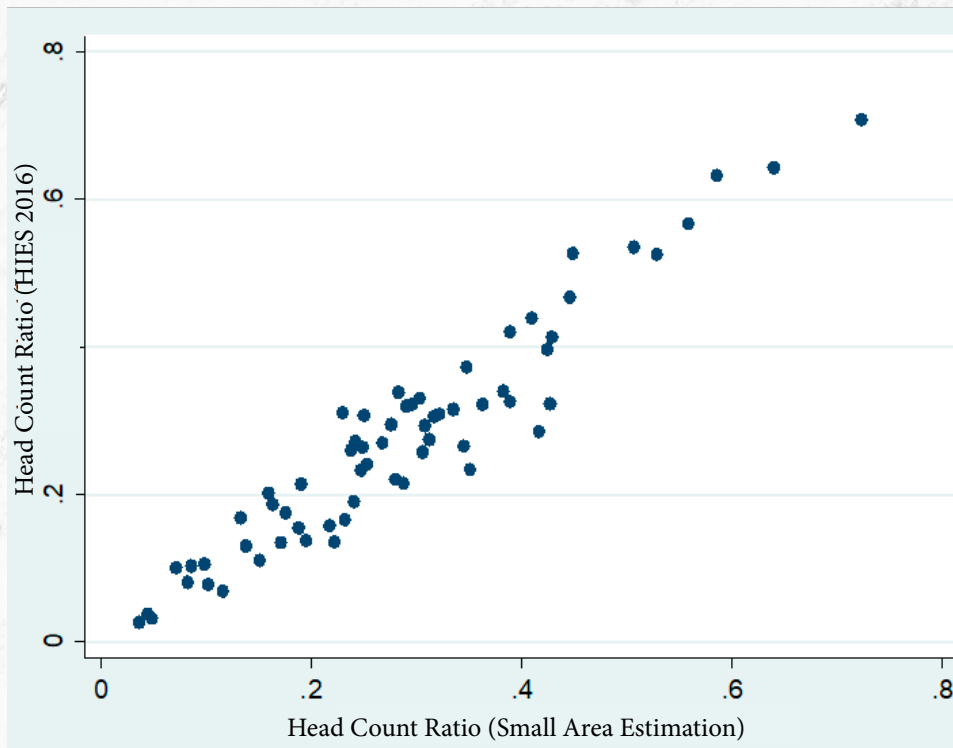


Figure 8: Distribution of Upazilas among the five groups according to the level of poverty (based on upper poverty line)

Disclaimer:

The nomenclature of the poverty grouping (Very High, High, Moderate, Low and Very Low) is arbitrary and basically on a quintile-based segregation.

2.7 Comparison between HIES 2016 Estimates and Small Area Estimates



- Scatter plot indicates a high correlation between the two poverty estimates as the dots are almost on the straight line and passes through the origin.
- Computed correlation coefficient is 0.96

Figure 9: Scatter plot of Zila level poverty estimates from SAE and HIES 2016



2.8 Limitations and Concerns

- i. The poverty mapping exercise of 2016 used unit level data of HIES 2016 and the Population and Housing Census 2011. The survey and the census were done more than 5 years apart. For any poverty mapping exercise using the SAE technique, the assumption is that the consumption pattern during this five-year gap did not change much. However, we know that Bangladesh experienced substantial economic growth between 2011 and 2016 and consumption patterns likely changed significantly during this period. Changes in consumption patterns were indicated in the five years between HIES 2016 and HIES 2010. Among other findings, household size decreased significantly, share of non-food consumption surpassed food consumption, and inequality increased.
- ii. Small Area Estimation (SAE) technique requires that Census data from 2011 should correctly provide information on 2016 consumption patterns. To address the gap in information, our regression model used stratum specific time-invariant variables that stayed fairly constant between the survey and census periods. This limits the number of candidate variables for the regression model and as such might have affected negatively in the model fitness.
- iii. In SAE, the basic idea is to increase the predictive power of the fitted regression model and to reduce the proportion of cluster level variation to total variation as much as possible. Predictive power is determined by the value of R-squared. The higher the R-square, the better predicted expenditure fits actual household expenditure. But only high value of R-square cannot influence the precision of SAE estimates, which is measured by the standard error associated with it.
- iv. We have two levels of residuals (errors) in our present analysis: a) household level error and b) cluster(mauza) level error. The cluster level error is principally responsible for high standard error for the SAE poverty estimates; we tried to minimize this error by incorporating many stratum specific cluster level variables/census aggregated means, other auxiliary variables etc. to our regression model. In spite of all these efforts, we have found in our poverty estimates to have relatively high standard errors, particularly for lower aggregation level. This will make the poverty estimates less precise, specially at upazila level.



Limitations At a Glance

- ⦿ Time interval between census and survey year was high.
- ⦿ Bangladesh experienced significant economic improvement.
- ⦿ Household size decreased during the interval of census and survey.
- ⦿ Significant growth was observed in Gross Domestic Product.
- ⦿ Consumption pattern has been changed after 2010 in which non-food share of consumption took the lead.
- ⦿ Bangladesh is experiencing Demographic Dividend which has a great impact on poverty reduction.





Chapter 3

RESULTS AT A GLANCE

RESULTS AT A GLANCE

3.1 Division Level Poverty Estimates

The poverty estimates derived through this Poverty Mapping exercise are quite close to those obtained from the HIES 2016. The minor differences between these two sets of estimates (as summarized in the map below) are partly to be expected, since the methods used in the Poverty Mapping exercise match predicted consumption (i.e. not poverty rates) at the Mauza/Mahalla level in the two data sets - i.e. HIES 2016 and Population and Housing Census 2011.

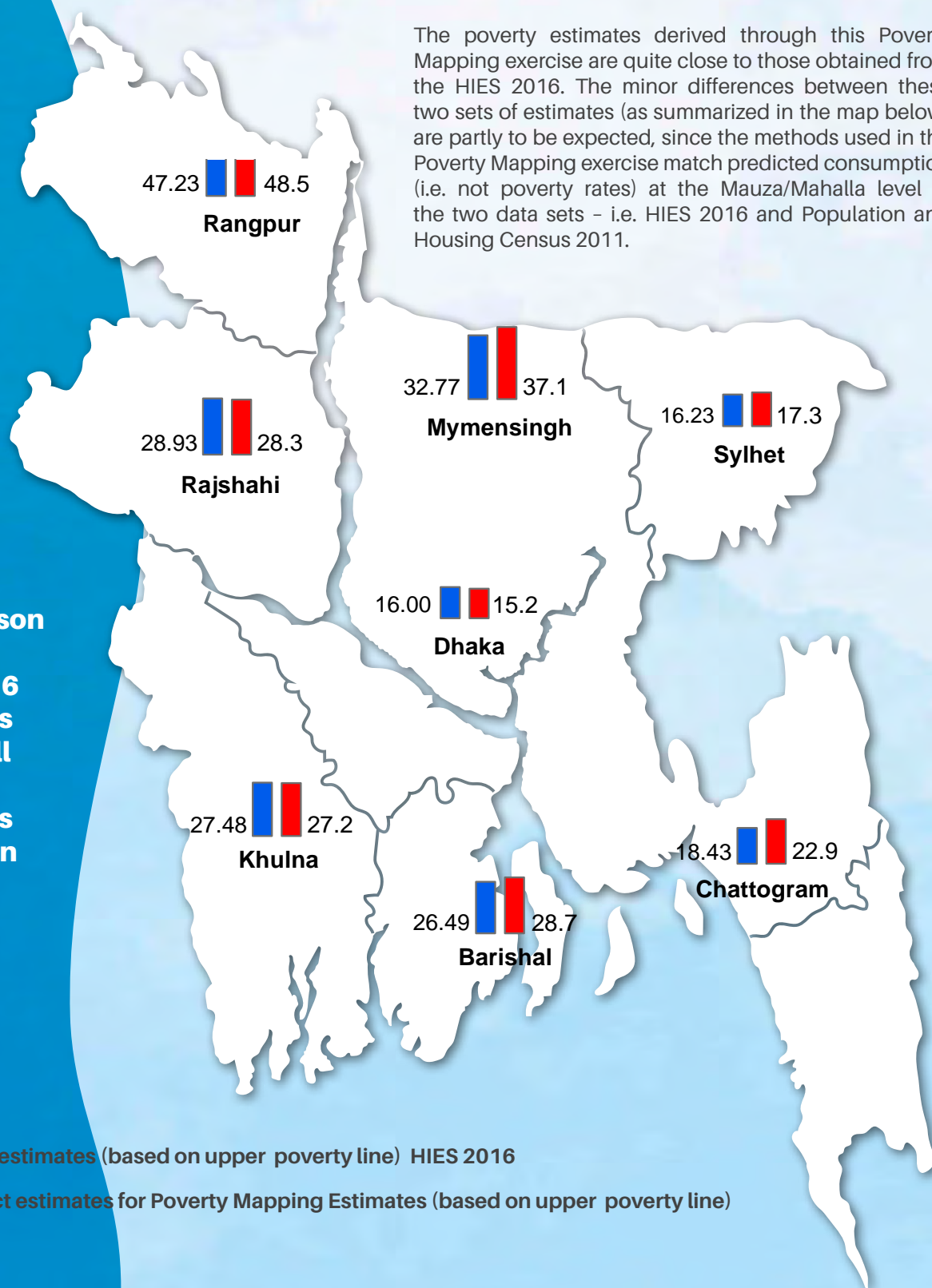


Figure 10

Comparison between HIES 2016 Estimates and Small Area Estimates at division level

■ Direct estimates (based on upper poverty line) HIES 2016
■ Indirect estimates for Poverty Mapping Estimates (based on upper poverty line)

Proportion of Population below Upper Poverty Line Division level

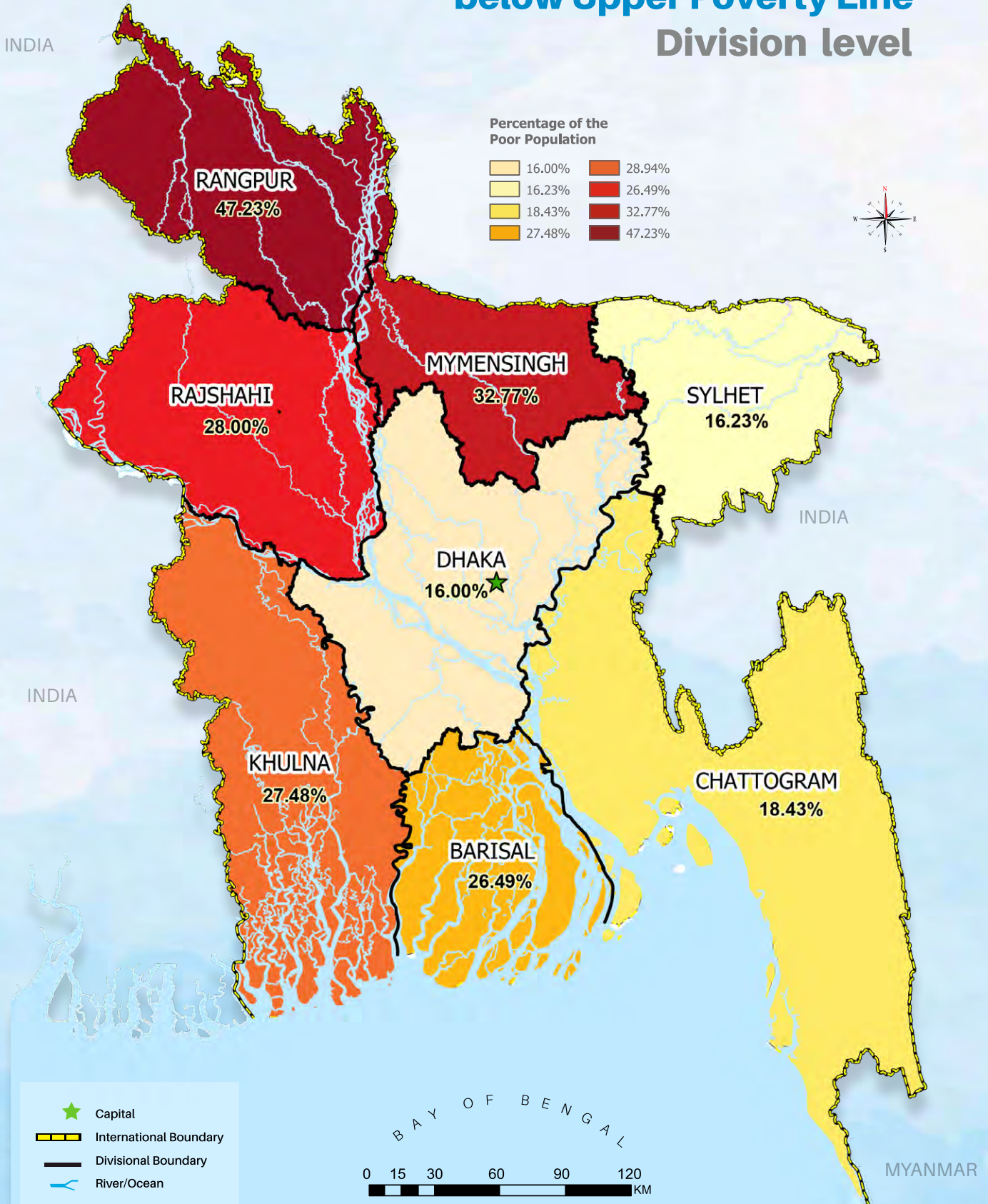


Figure 11: Proportion of Population below Upper Poverty Line 2016 according to Direct Estimate (HIES 2016)

Poverty Rate by Division (2016 HIES)



Figure 12: Head Count Ratio by Division (HIES 2016)

Poverty Rate by Division (2016 HIES)

Power of Disaggregation

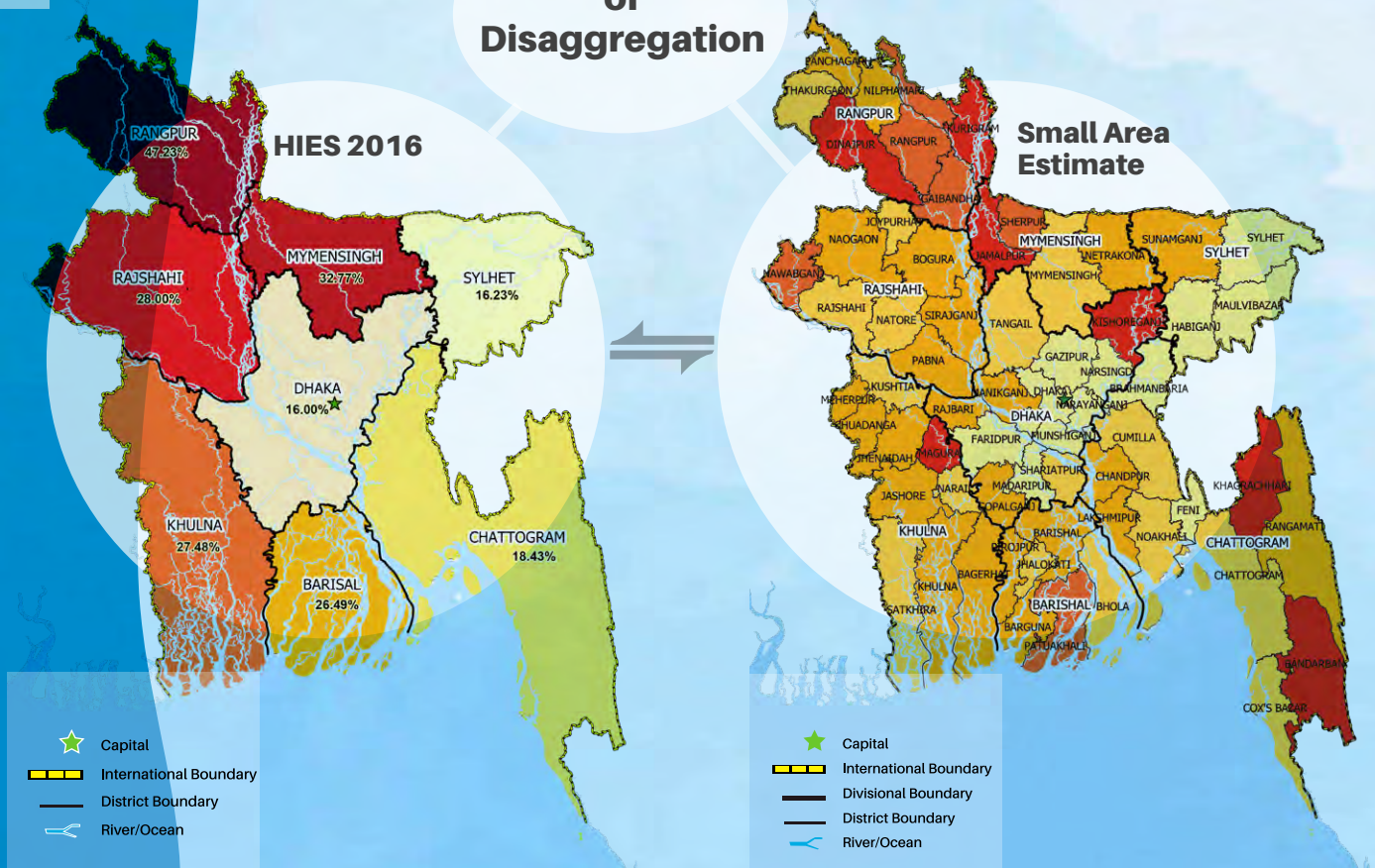


Figure 13: Direct estimates of Division level compared to the district level ELL method estimates of Head Count Ratio (based on upper poverty line)

3.2 District Level Poverty Estimates

District	Number of Upazila/Metro Thana					
	Total	Very Low	Low	Moderate	High	Very High
BAGERHAT	9	0	2	6	1	0
BANDARBAN	7	0	0	0	1	6
BARGUNA	6	0	0	1	5	0
BARISHAL	10	0	0	4	5	1
BHOLA	7	0	5	0	2	0
BOGURA	12	1	2	5	4	0
BRAHMANBARIA	9	7	2	0	0	0
CHANDPUR	8	0	0	3	3	2
CHATTOGRAM	30	8	11	8	3	0
CHUADANGA	4	0	0	3	1	0
CUMILLA	17	0	6	11	0	0
COX'S BAZAR	8	0	4	2	1	1
DHAKA	55	45	8	1	1	0
DINAJPUR	13	0	0	0	0	13
FARIDPUR	9	6	3	0	0	0
FENI	6	5	1	0	0	0
GAIBANDHA	7	0	0	0	0	7
GAZIPUR	13	7	6	0	0	0
GOPALGANJ	5	0	0	3	2	0
HABIGANJ	9	1	6	2	0	0
JAMALPUR	7	0	0	0	0	7
JASHORE	8	0	0	4	4	0
JHALOKATI	4	0	1	2	0	1
JHENAIDAH	6	0	0	1	4	1
JOYPURHAT	5	0	2	3	0	0
KHAGRACHHARI	9	0	0	0	1	8
KHULNA	15	0	1	1	13	0
KISHOREGONJ	13	0	0	0	1	12
KURIGRAM	9	0	0	0	0	9
KUSHTIA	6	1	3	2	0	0
LAKSHMIPUR	5	0	0	2	1	2
LALMONIRHAT	5	0	0	0	3	2
MADARIPUR	4	4	0	0	0	0
MAGURA	4	0	0	0	0	4
MANIKGANJ	7	0	2	4	1	0
MAULVIBAZAR	7	3	2	2	0	0
MEHERPUR	3	0	0	2	0	1
MUNSHIGANJ	6	6	0	0	0	0
MYMENSINGH	13	0	1	5	6	1
NAOGAON	11	0	0	1	7	3
NARAIL	3	1	2	0	0	0
NARAYANGANJ	5	5	0	0	0	0
NARSINGDI	6	4	2	0	0	0
NATORE	7	0	3	2	2	0
CHAPAINAWABGANJ	5	0	0	0	1	4
NETRAKONA	10	0	0	0	7	3
NILPHAMARI	6	0	0	0	0	6
NOAKHALI	9	2	2	2	1	2
PABNA	9	0	0	6	1	2
PANCHAGARH	5	1	1	2	1	0
PATUAKHALI	8	0	0	2	4	2
PIROJPUR	7	0	0	4	2	1
RAJBARI	5	0	0	2	3	0
RAJSHAHI	15	3	10	1	1	0
RANGAMATI	10	0	0	1	1	8
RANGPUR	8	0	0	0	4	4
SATKHIRA	7	1	6	0	0	0
SHARIATPUR	6	0	4	2	0	0
SHERPUR	5	0	0	0	3	2
SIRAJGANJ	9	0	0	3	6	0
SUNAMGANJ	11	0	6	3	1	1
SYLHET	13	4	9	0	0	0
TANGAIL	12	0	3	7	2	0
THAKURGAON	5	0	0	0	5	0

Table 3: Distribution of Upazila/Metro Thana in Poverty Groups by District

Proportion of Population below Upper Poverty Line 2016 District level

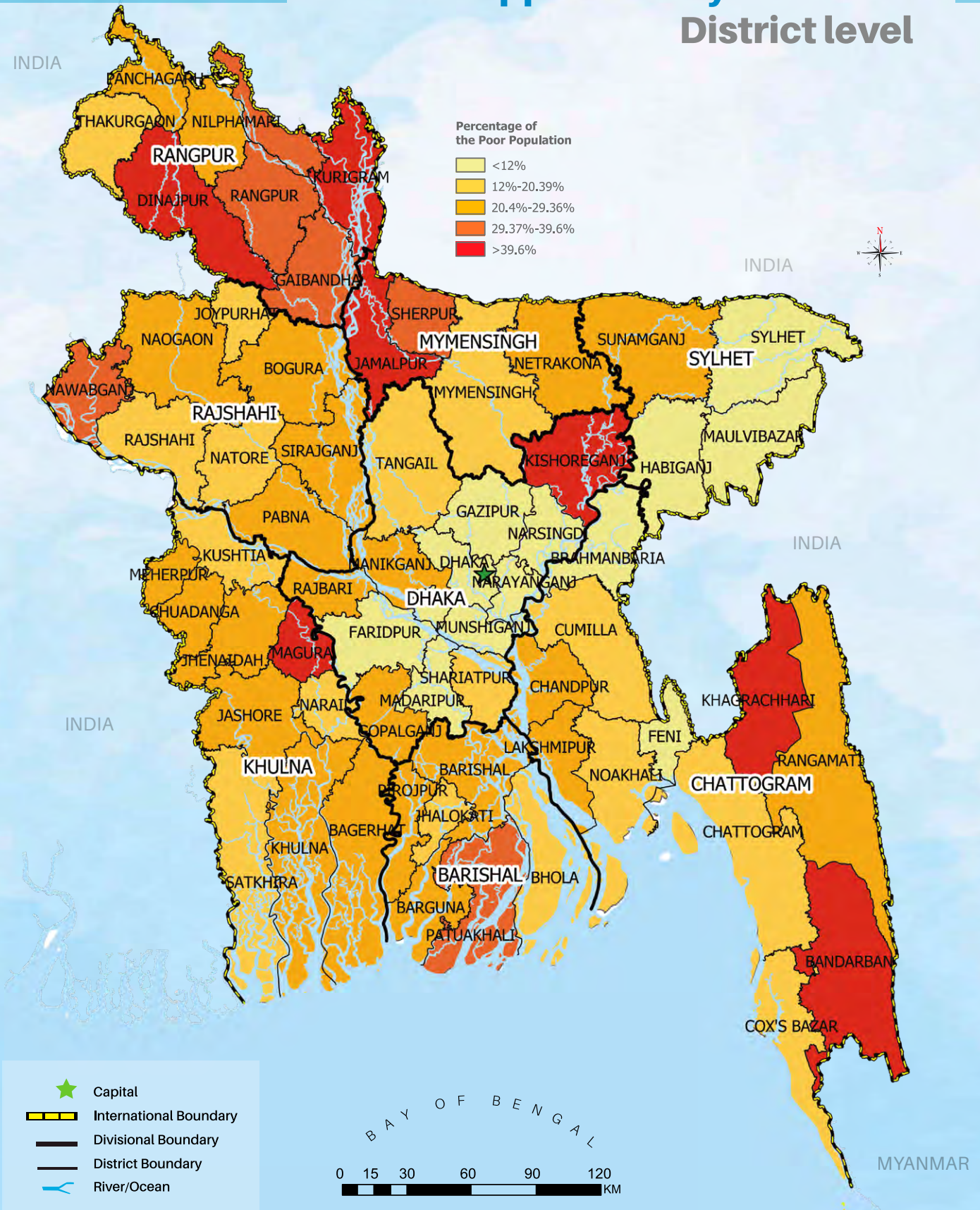


Figure 14: Direct estimates of district wise Poverty Rates of Bangladesh (based on upper poverty line) using Household Income and Expenditure Survey (HIES) 2016

Small Area Estimation

Proportion of Population below Upper Poverty Line 2016

District level

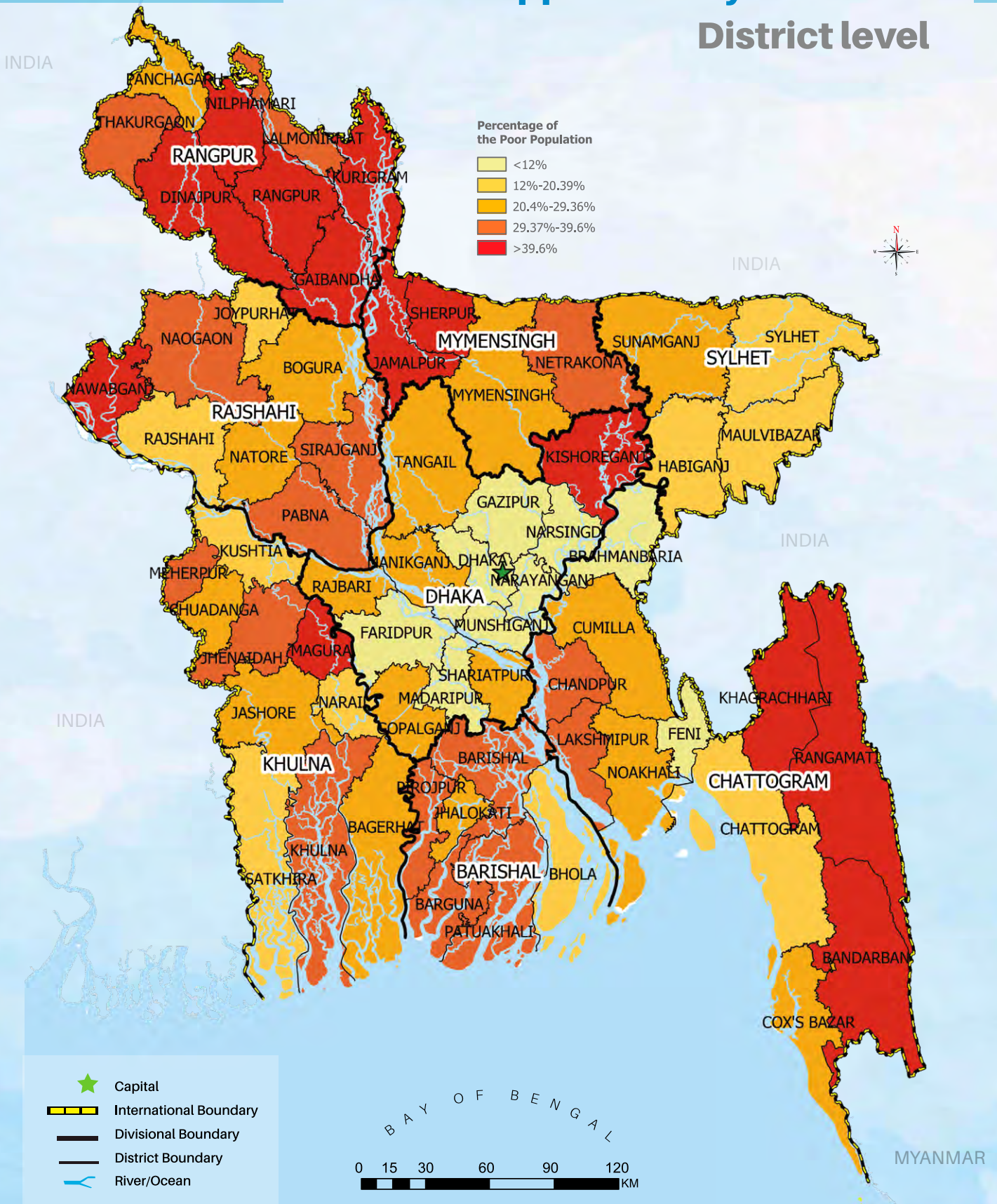


Figure 15: Direct estimates of district wise Poverty Rates of Bangladesh (based on upper poverty line) using Small Area Estimation

3.3 Upazila Level Poverty Estimates

Proportion of Population below Upper Poverty Line Upazila level

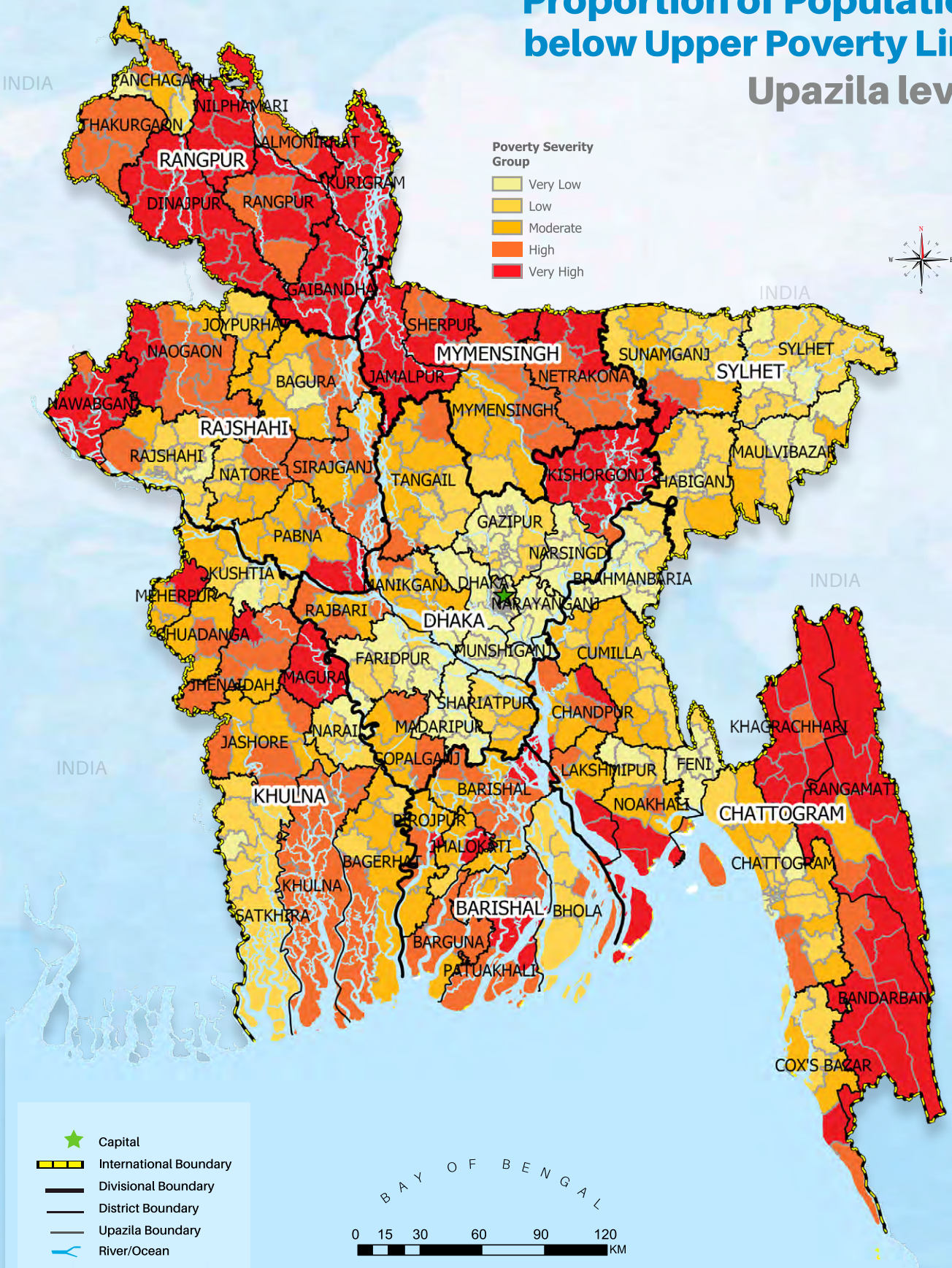
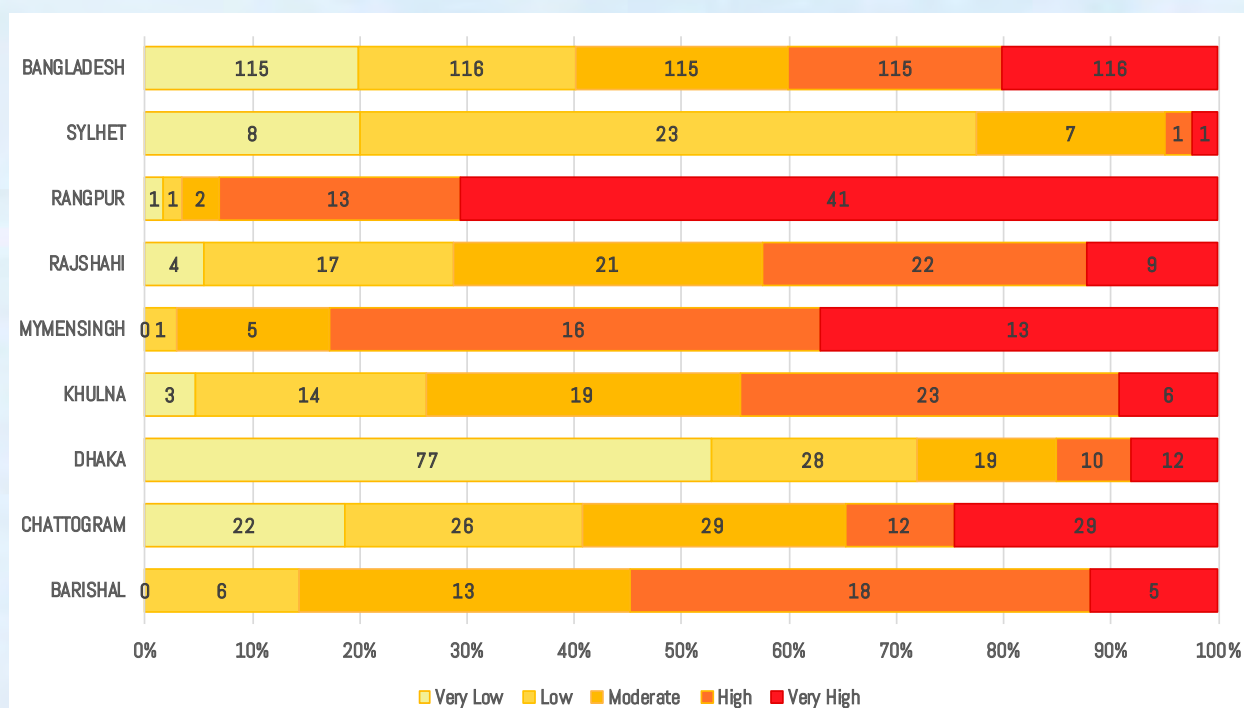


Figure 16 : ELL method SAE of upazila level Poverty Group Distribution of Bangladesh (based on upper poverty line)

Figure 17: Distribution of Upazila level Poverty Groups by Division



- It was observed that inequity in terms of poverty group at Upazila level (within the Division) is very high in Chattogram Division.
- There is no Upazila in Barishal and Mymensingh Division in very low poverty group.
- There is only 1(one) Upazila in Rangpur Division belongs to very low poverty group while only 1(one) Upazila in Sylhet Division belongs to very high poverty group.
- Though a good number of (77) Upazila in Dhaka Division belongs to very low poverty group, while 12 (twelve) Upazila falls in very high poverty group.

	Average Poverty Rate in HIES 2016 (in percent)	Minimum in SAE (in percent)	Maximum in SAE (in percent)
Barishal	26.49	12.2 Daulat Khan, Bhola	52.8 Dashmina, Patuakhali
Chattogram	18.43	1.5 Chattogram Port, Chattogram	77.8 Thanchi, Bandarban
Dhaka	16.00	0.4 Gulshan, Dhaka	61.2 Mithamain, Kishoreganj
Khulna	27.48	7.9 Alamdanga, Chuadanga	62.4 Mohammadpur, Magura
Mymensingh	32.77	15.5 Bhaluka, Mymensingh	63.2 Dewanganj, Jamalpur
Rajshahi	28.93	9.0 Boalia, Rajshahi	48.7 Porsha, Naogaon
Rangpur	47.23	9.3 Atwari, Panchagarh	79.8 Char Rajibpur, Kurigram
Sylhet	16.23	10.4 Biswanath, Sylhet	60.9 Sulla, Sunamganj
Overall Bangladesh	24.3	0.4 Gulshan, Dhaka	79.8 Char Rajibpur, Kurigram

Table 4 : Lowest and Highest Upazila in terms of HCR in SAE within the Division.

Chapter 4

CONCLUDING REMARKS

The pockets of affluence and poverty across the country can be easily pinpointed and monitored by the Poverty Mapping tool. The maps resulted from this dominant tool can be used to help policymakers and development partners better plan their resource allocations as the maps provide a rich information base. As a result, these maps can contribute to faster and more effective poverty reduction, and they can be further reinforced by combining them with other geo-referenced databases such as maps of human development indicators, maps of natural disasters, and maps of the impending impacts of climate change.





ANNEX -1

Division, District and Upazila Level Poverty Rates

National, Division and District Level HCR presented in the Table are direct estimates from HIES 2016 while upazila level HCR are based on indirect estimates through Small Area Estimation.

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
BANGLADESH		24.3	0.54
BARISHAL DIVISION		26.5	1.54
BARGUNA DISTRICT		25.7	-
AMTALI	High	31.5	5.3
BAMNA	High	39.5	8.3
BARGUNA SADAR	High	30.1	4.2
BETAGI	High	31.1	9.8
PATHORGHATA	High	29.5	4.3
TALTALI	Moderate	23.9	5.7
BARISHAL DISTRICT		27.4	-
AGAILJHARA	High	35.1	13.4
BABUGANJ	High	32.5	6.3
BAKERGANJ	Moderate	24.4	3.9
BANARIPARA	Moderate	21.7	7.3
GAURNADI	High	35.6	5.3
HIZLA	Very High	43.9	6.9
BARISHAL SADAR	High	32.9	2.3
MEHENDIGANJ	High	34.6	4.7
MULADI	Moderate	28	4.7
WAZIRPUR	Moderate	26	5.1
BHOLA DISTRICT		15.5	-
BHOLA SADAR	Low	15	3.2
BORHANUDDIN	Low	17.9	4.4
CHAR FASSON	Low	18.4	5
DAULAT KHAN	Low	12.2	3.1
LALMOHAN	Low	17.9	5.8
MANPURA	High	36.8	13.3
TAZUMUDDIN	High	34.8	11.1
JHALOKATHI DISTRICT		21.5	-
JHALOKATHI SADAR	Moderate	23.8	6.5
KATHALIA	Low	20.1	6.4

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
NALCHITY	Very High	43.9	7
RAJAPUR	Moderate	24.2	6.5
PATUAKHALI DISTRICT		37.2	-
BAUPHAL	High	29.5	6.3
DASHMINA	Very High	52.8	7.2
DUMKI	Moderate	24.1	6.2
GALACHIPA	Very High	41.5	6.6
KALAPARA	High	37.8	5.7
MIRZAGANJ	High	36.7	5.1
PATUAKHALI SADAR	Moderate	26.2	4.3
RANGABALI	High	36.7	6.9
PIROJPUR DISTRICT		32.2	-
BHANDARIA	Moderate	28.1	4.9
KAWKHALI	Very High	43.4	10.1
MATHBARIA	Moderate	28.6	4.7
NAZIRPUR	Moderate	25.8	6.2
PIROJPUR SADAR	High	33.8	6.9
NESARABAD	Moderate	25.1	4
INDURKANI	High	35.9	4.7
CHATTOGRAM DIVISION		18.4	1.23
BANDARBAN HILL DISTRICT		63.2	-
ALIKADAM	Very High	69.1	11.9
BANDARBAN SADAR	High	37.3	6.8
LAMA	Very High	61.3	10.5
NAIKHONGCHHARI	Very High	65.8	9.4
ROWANGCHHARI	Very High	54.1	12.0
RUMA	Very High	66.1	14.5
THANCHI	Very High	77.8	15.9
BRAHMANBARIA DISTRICT		10.3	-
AKHAURA	Very Low	7	2.3
BANCHHARAMPUR	Very Low	4	2
BIJOYNAGAR	Low	12.4	4.3
BRAHMANBARIA SADAR	Very Low	8.7	3.1

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
ASHUGANJ	Very Low	7.4	4.2
KASBA	Very Low	5.6	1.9
NABINAGAR	Very Low	5.4	2.4
NASIRNAGAR	Low	18	5.2
SARAIL	Very Low	9.8	4.1
CHANDPUR DISTRICT		29.3	-
CHANDPUR SADAR	Moderate	21.6	4.4
FARIDGANJ	Moderate	27.2	6
HAIMCHAR	Very High	39.7	6.1
HAJIGANJ	High	33.3	7.6
KACHUA	Very High	40.2	7.8
MATLAB DAKSHIN	Moderate	28.3	5.2
MATLAB UTTAR	High	32.1	6
SHAHRASTI	High	32.9	6.1
CHATTOGRAM DISTRICT		13.7	-
AKBARSHAH	Low	19.5	2.5
ANOWARA	High	29.4	8.1
BAYEJID BOSTAMI	Low	16.7	1.7
BANSHKHALI	High	35.8	7.5
BAKALIA	Moderate	28.4	2.8
BOALKHALI	Low	19.2	8.2
CHALK BAZAR	Low	13.3	1.6
CHANDANAISH	Moderate	26.9	10
CHANDGAON	Low	17.3	2
CHATTOGRAM PORT	Very Low	1.5	0.5
DOUBLE MOORING	Very Low	4.7	1
EPZ	Very Low	4.9	0.9
FATIKCHHARI	Moderate	24	8.8
HALISHAHAR	Very Low	8.7	1.2
HATHAZARI	Low	18.8	10.6
KARNAFULI	Moderate	26	10.7
KOTWALI	Very Low	3.7	0.8
KHULSHI	Moderate	21.3	2.2
LOHAGARA	Moderate	21.1	7.9

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
MIRSHARAI	Low	19.8	6.5
PAHARTALI	Low	19.6	2.6
PANCHLAISH	Low	18.5	1.7
PATIYA	Low	20.2	8
PATENGA	Very Low	6.8	1
RANGUNIA	Moderate	21.1	6.1
RAOZAN	Very Low	9.8	4.9
SADARGHAT	Very Low	3.8	1
SANDWIP	High	30.1	9.1
SATKANIA	Low	15.7	8.4
SITAKUNDA	Moderate	24.7	15.3
CUMILLA DISTRICT		13.5	-
BARURA	Moderate	23.1	4.3
BRAHMANPARA	Moderate	21.4	4.8
BURICHANG	Low	17.2	5.1
CHANDINA	Moderate	24.4	4.1
CHAUDDAGRAM	Low	18	3.9
SADAR DAKSHIN	Low	19.4	3.8
DAUDKANDI	Moderate	23.8	4.2
DEBIDWAR	Moderate	23.2	5.1
HOMNA	Moderate	20.7	3.8
ADARSHA SADAR	Low	19.6	5.6
LAKSAM	Moderate	23.3	4.6
LALMAI	Low	17.6	4.4
MANOHARGANJ	Moderate	26	6.6
MEGHNA	Moderate	26.6	7
MURADNAGAR	Moderate	26.2	4.3
NANGALKOT	Moderate	26.3	6.1
TITAS	Low	16.8	4.6
COX'S BAZAR DISTRICT		16.6	-
CHAKARIA	Low	19	8
COX'S BAZAR SADAR	Low	16.8	5.9
KUTUBDIA	Low	20.4	7.7
MAHESHKHALI	Moderate	25.2	11.3

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
PEKUA	Low	18.8	10.4
RAMU	Moderate	22.6	8.7
TEKNAF	High	30	10
UKHIYA	Very High	40.2	15.9
FENI DISTRICT		8.1	-
CHHAGALNAIYA	Very Low	9.1	1.6
DAGANBHUIYAN	Very Low	6.5	1.6
FENI SADAR	Very Low	7.6	1.5
FULGAZI	Very Low	4.4	1.9
PARSHURAM	Low	15.7	2.9
SONAGAZI	Very Low	9.6	3.4
KHAGRACHHARI HILL DISTRICT		52.7	-
DIGHINALA	Very High	47.9	10.9
GUIMARA	Very High	53.7	10.5
KHAGRACHHARI SADAR	High	37.3	5.6
LAKSHMICHHARI	Very High	58.7	10.5
MAHALCHHARI	Very High	44.9	9.9
MANIKCHHARI	Very High	40.8	6.5
MATIRANGA	Very High	45	6.5
PANCHHARI	Very High	41.4	9.2
RAMGARH	Very High	49.7	5.7
LAKSHMIPUR DISTRICT		32.5	-
KAMALNAGAR	Very High	60.4	8.5
LAKSHMIPUR SADAR	Moderate	29.1	5.5
ROYPUR	High	35.7	7.1
RAMGANJ	Moderate	26.8	7.9
RAMGATI	Very High	62.8	6.5
NOAKHALI DISTRICT		23.3	-
BEGUMGANJ	Low	12.5	3.8
CHATKHIL	Very Low	9.4	3.3
COMPANIGANJ	Moderate	23.1	7.2
HATIYA	Very High	47.5	7.2
KABIRHAT	High	31.7	7.8

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
SENBAGH	Low	13.3	4.6
SONAIMURI	Very Low	6.4	4.8
SUBARNACHAR	Very High	47.7	8.7
NOAKHALI SADAR	Moderate	27.2	5.7
RANGAMATI HILL DISTRICT		28.5	-
BAGHAICHHARI	Very High	45.9	8.9
BARKAL	Very High	44.5	10.6
KAWKHALI (BETBUNIA)	Very High	43.7	10.2
BELAI CHHARI	Very High	61.4	13.8
KAPTAI	High	37.4	13.4
JURAI CHHARI	Very High	49.5	11.8
LANGADU	Very High	50.7	6.9
NANIARCHAR	Very High	44.2	10.6
RAJASTHALI	Very High	43.2	10.8
RANGAMATI SADAR	Moderate	24.9	4.5
DHAKA DIVISION		16	1.30
DHAKA DISTRICT		10	-
ADABOR	Moderate	28.6	8.8
BADDA	Low	12.9	5.1
BANGSHAL	Very Low	2.5	1.3
BIMAN BANDAR	Very Low	4.2	2
BANANI	Low	19.2	2.7
CANTONMENT	High	35.2	9.5
CHAK BAZAR	Very Low	5.2	3.5
DAKSHINKHAN	Very Low	10.1	4.6
DARUS SALAM	Very Low	10	4.4
DEMRA	Very Low	3	1.1
DHAMRAI	Very Low	0.9	0.2
DHANMONDI	Very Low	2.7	2.3
DOHAR	Very Low	2.3	0.5
BHASANTEK	Very Low	10.4	3
BHATARA	Low	12.8	5.1
GENDARIA	Very Low	1.5	1.2
GULSHAN	Very Low	0.4	0.4

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
HATIRJHEEL	Very Low	5.8	2.6
HAZARIBAGH	Low	12.2	4.7
JATRABARI	Very Low	7.9	3.5
KAFRUL	Very Low	8.8	2.1
KADAMTALI	Very Low	4.7	2.5
KALABAGAN	Very Low	1.1	1.1
KAMRANGIR CHAR	Very Low	1.1	0.9
KHILGAON	Low	18.6	6
KHILKHET	Very Low	7.3	4.1
KERANIGANJ	Very Low	1.2	0.8
KOTWALI	Very Low	3.2	3.6
LALBAGH	Very Low	5.8	2.6
MIRPUR	Very Low	7.2	4
MOHAMMADPUR	Low	17.1	6.9
MOTIJHEEL	Very Low	8.4	4.7
MUGDA	Very Low	10.1	3.9
NAWABGANJ	Very Low	0.7	0.2
NEW MARKET	Very Low	4.5	2.8
PALLABI	Low	14.4	5.2
PALTAN	Very Low	2	1.5
RAMNA	Very Low	1.3	1.9
RAMPURA	Very Low	10.4	4.4
SABUJBAGH	Very Low	9.8	3.2
RUPNAGAR	Very Low	3.3	3
SAVAR	Very Low	3.1	1.3
SHAHJAHANPUR	Very Low	11.4	3.5
SHAH ALI	Very Low	7.6	3.6
SHAHBAGH	Very Low	7.1	4.5
SHYAMPUR	Very Low	7.9	4.8
SHER-E-BANGLA NAGAR	Very Low	10.2	5.4
SUTRAPUR	Very Low	1.7	0.9
TEJGAON	Very Low	10.2	6.7
TEJGAON IND. AREA	Very Low	4.3	4.3
TURAG	Low	12.3	2.9

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
UTTRA PASHCHIM	Very Low	3.6	2.8
UTTARA PURBA	Very Low	4.1	3.7
UTTAR KHAN	Very Low	6.4	2.9
WARI	Very Low	5.3	2.3
FARIDPUR DISTRICT		7.7	-
ALFADANGA	Very Low	8.4	2
BHANGA	Very Low	9.6	1.8
BOALMARI	Low	12.9	2.7
CHAR BHADRASAN	Low	14.6	3.8
FARIDPUR SADAR	Very Low	10	1.9
MADHUKHALI	Very Low	6.5	2
NAGARKANDA	Very Low	10.2	2.2
SADARPUR	Very Low	7.7	1.9
SALTHA	Low	13.9	3.2
GAZIPUR DISTRICT		6.9	-
BASAN	Low	14.9	4.7
GACHHA	Low	12	4.5
GAZIPUR SADAR	Very Low	8.8	3
KALIAKAIR	Very Low	10.8	3.6
KALIGANJ	Low	12.4	4.4
KAPASIA	Low	13.6	5.9
KASHIMPUR	Low	12.7	5
KONABARI	Low	16.3	3.4
PUBAIL	Very Low	10.4	3.9
JOYDEBPUR	Very Low	9.5	2.7
SREEPUR	Very Low	10.7	3.7
TONGI PASHCHIM	Very Low	7.1	3.4
TONGI PURBA	Very Low	11.9	2.6
GOPALGANJ DISTRICT		29.5	-
GOPALGANJ SADAR	Moderate	24.3	2.7
KASHIANI	Moderate	26.4	3.5
KOTALIPARA	High	32.2	3.3
MUKSUDPUR	High	29.5	2.5
TUNGIPARA	Moderate	24.3	3.3

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
KISHOREGANJ DISTRICT		53.5	-
AUSTAGRAM	Very High	57.5	6.4
BAJITPUR	Very High	49.1	5.7
BHAIRAB	High	34.4	7.6
HOSSAINPUR	Very High	51.9	5.6
ITNA	Very High	55.6	5.5
KARIMGANJ	Very High	51.2	6.2
KATIADI	Very High	54.6	6
KISHOREGANJ SADAR	Very High	53.7	6
KULIARCHAR	Very High	55.1	6.1
MITHAMAIN	Very High	61.2	5.3
NIKLI	Very High	52.4	6.1
PAKUNDIA	Very High	47.2	7
TARAIL	Very High	45.6	7
MADARIPUR DISTRICT		3.7	-
KALKINI	Very Low	4	1.5
MADARIPUR SADAR	Very Low	3.2	1.2
RAJOIR	Very Low	3.3	1.3
SHIBCHAR	Very Low	6.7	3.3
MANIKGANJ DISTRICT		30.7	-
DAULATPUR	High	34.8	3.6
GHIOR	Low	19.8	2.3
HARIRAMPUR	Moderate	22.3	2.7
MANIKGANJ SADAR	Moderate	25.6	1.8
SATURIA	Low	20.1	2.3
SHIBALAYA	Moderate	24.1	2.6
SINGAIR	Moderate	26	2.7
MUNSHIGANJ DISTRICT		3.1	-
GAZARIA	Very Low	2.8	2.2
LOHAJANG	Very Low	3.3	2.1
MUNSHIGANJ SADAR	Very Low	7.1	2.1
SERAJDIKHAN	Very Low	4.6	2.7
SREENAGAR	Very Low	4.2	2.3

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
TONGIBARI	Very Low	3.9	2.1
NARAYANGANJ DISTRICT		2.6	-
ARAIHAZAR	Very Low	4.5	3
SONARGAON	Very Low	2	1.8
BANDAR	Very Low	3.2	1.3
NARAYANGANJ SADAR	Very Low	3.2	6.7
RUPGANJ	Very Low	5.1	1.6
NARSINGDI DISTRICT		10.5	-
BELABO	Low	13.2	3.5
MANOHARDI	Very Low	11.9	2.7
NARSINGDI SADAR	Very Low	5.2	1
PALASH	Very Low	7.4	1.5
ROYPURA	Low	15.9	3.6
SHIBPUR	Very Low	7.6	2
RAJBARI DISTRICT		33.8	-
BALIAKANDI	High	30.1	3.1
GOALANDA	High	32.6	4.2
KALUKHALI	Moderate	26.9	2.8
PANGSHA	High	30.4	2.9
RAJBARI SADAR	Moderate	24.9	2.3
SHARIATPUR DISTRICT		15.7	-
BHEDARGANJ	Moderate	25.5	5.9
DAMUDYA	Low	19.6	5.1
GOSAIRHAT	Moderate	25.3	7
NARIA	Low	18.7	4.3
SHARIATPUR SADAR	Low	20.1	4.2
ZAJIRA	Low	20.3	5.6
TANGAIL DISTRICT		19	-
BASAIL	Low	17.8	2.6
BHUAPUR	Moderate	26.5	2.3
DELDUAR	Moderate	21.6	2.3
DHANBARI	Moderate	25.1	2.7
GHATAIL	Moderate	20.5	2

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
GOPALPUR	Moderate	23.7	2.1
KALIHATI	Moderate	20.9	2
MADHUPUR	High	30.6	2.7
MIRZAPUR	Low	20.1	2.3
NAGARPUR	High	34.4	3.1
SAKHIPUR	Low	19.2	2.1
TANGAIL SADAR	Moderate	27.5	2.1
KHULNA DIVISION		27.5	1.27
BAGERHAT DISTRICT		31	-
BAGERHAT SADAR	Moderate	23.8	3.9
CHITALMARI	Low	16	4.3
FAKIRHAT	Moderate	22.4	3.8
KACHUA	Moderate	22.5	4.5
MOLLAHAT	Moderate	24	4.5
MONGLA	High	30.2	9.6
MORRELGANJ	Moderate	25.5	6.5
RAMPAL	Low	15.8	3.5
SARANKHOLA	Moderate	25.6	5.7
CHUADANGA DISTRICT		31.9	-
ALAMDANGA	Moderate	27.9	3.2
CHUADANGA SADAR	High	32.3	3.4
DAMURHUDA	Moderate	27.2	4.2
JIBAN NAGAR	Moderate	28.2	3.6
JASHORE DISTRICT		26.9	-
ABHAYNAGAR	Moderate	21.4	4.4
BAGHERPARA	High	31.1	3.4
CHAUGACHHA	Moderate	24.7	3.6
JHIKARGACHHA	Moderate	23.8	2.9
KESHABPUR	High	29.6	4.1
JASHORE SADAR	Moderate	24.8	4.7
MANIRAMPUR	High	30.3	3.4
SHARSHA	High	30.7	3.7
JHENAIDAH DISTRICT		26.5	-
HARINAKUNDA	Very High	48.9	4

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
JHENAIDAH SADAR	High	34.3	2.1
KALIGANJ	Moderate	25.6	2.5
KOTCHANDPUR	High	29.6	2.7
MAHESHPUR	High	32.1	3.3
SHAILKUPA	High	38.1	2.9
KHULNA DISTRICT		30.8	-
BATIAGHATA	High	30.2	4.3
DACOPE	High	30.3	7.7
DAULATPUR	High	37.2	2.7
DUMURIA	High	33.9	5.3
DIGHALIA	High	33.9	5.8
KHALISHPUR	High	29.4	1.8
KHAN JAHAN ALI	High	37.9	15.6
KHULNA SADAR	Moderate	28.6	1.2
KOYRA	High	36.7	6.5
PAIKGACHHA	High	36.9	4.6
PHULTALA	High	35.3	6.9
RUPSA	High	31	6.4
SONADANGA	Low	17.5	1.4
TEROKHADA	High	34.2	5.2
ARANGGHATA	High	35.6	1.8
KUSHTIA DISTRICT		17.5	-
BHERAMARA	Moderate	23.7	4.6
DAULATPUR	Moderate	23.7	3.9
KHOKSA	Low	14.9	2.8
KUMARKHALI	Low	14.5	3.1
KUSHTIA SADAR	Very Low	11.2	2.2
MIRPUR	Low	18.9	3.2
MAGURA DISTRICT		56.7	-
MAGURA SADAR	Very High	51.7	5.4
MOHAMMADPUR	Very High	62.4	6.8
SHALIKHA	Very High	59.2	6
SREEPUR	Very High	54.3	7.6
MEHERPUR DISTRICT		31.5	-

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
GANGNI	Very High	46.8	5.8
MUJIB NAGAR	Moderate	21	4
MEHERPUR SADAR	Moderate	22.7	3.8
NARAIL DISTRICT		16.8	-
KALIA	Low	16.5	3.4
LOHAGARA	Very Low	10.6	3.8
NARAIL SADAR	Low	12.9	2.6
SATKHIRA DISTRICT		18.6	-
ASSASUNI	Low	12.4	3
DEBHATA	Very Low	7.9	3.2
KALAROA	Low	15.6	2.7
KALIGANJ	Low	14	2.6
SATKHIRA SADAR	Low	19.8	3.2
SHYAMNAGAR	Low	17.6	4.1
TALA	Low	19.3	3.9
MYMENSINGH DIVISION		32.8	2.03
JAMALPUR DISTRICT		52.5	-
BAKSHIGANJ	Very High	63.1	5.1
DEWANGANJ	Very High	63.2	5.3
ISLAMPUR	Very High	52.8	5
JAMALPUR SADAR	Very High	49.3	3.8
MADARGANJ	Very High	60.8	4.5
MELANDAHA	Very High	49.9	4.7
SARISHABARI	Very High	41	4.9
MYMENSINGH DISTRICT		22	-
BHALUKA	Low	15.5	2.7
DHOBAURA	Very High	42.2	6.5
FULBARIA	Moderate	26.3	4.1
GAFFARGAON	Moderate	21.2	3.1
GAURIPUR	High	34.4	4.7
HALUAGHAT	High	36.6	5.4
ISHWARGANJ	High	32.9	4.1
MYMENSINGH SADAR	Moderate	27.4	3.2
MUKTAGACHHA	Moderate	25.2	3

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
NANDAIL	High	32.6	4.2
PHULPUR	High	30.8	4.1
TARAKANDA	High	32.5	4.3
TRISHAL	Moderate	20.6	2.8
NETROKONA DISTRICT		34	-
ATPARA	High	36.4	4.3
BARHATTA	Very High	42.2	5.4
DURGAPUR	Very High	41.1	5.2
KHALIAJURI	High	36.3	4.7
KALMAKANDA	Very High	43.2	5.7
KENDUA	High	38	4.3
MADAN	High	36.4	3.9
MOHANGANJ	High	38.4	4.8
NETROKONA SADAR	High	36.2	3.5
PURBADHALA	High	35.3	4.7
SHERPUR DISTRICT		41.3	-
JHENAIGATI	High	31.2	3.7
NAKLA	High	35.3	4
NALITABARI	Very High	43.5	5.2
SHERPUR SADAR	Very High	52.8	7.1
SREEBARDI	High	36.2	4.8
RAJSHAHI DIVISION		28.9	1.55
BOGURA DISTRICT		27.2	-
ADAMDIGHI	Moderate	24.6	2.5
BOGURA SADAR	Low	14.5	1.5
DHUNAT	High	32.6	3.5
DHUPCHANCHA	Moderate	25.9	4
GABTALI	High	30.4	3.4
KAHALOO	Low	17.1	2.4
NANDIGRAM	Moderate	27.1	1.8
SARIAKANDI	High	36.3	4.9
SHAJAHANPUR	Very Low	10.1	2.2
SHERPUR	Moderate	22.6	2.4
SHIBGANJ	Moderate	23.8	2.5

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
SONATOLA	High	37.7	5.1
JOYPURHAT DISTRICT		21.4	-
AKKELPUR	Moderate	21.4	2.8
JOYPURHAT SADAR	Low	13.1	2.3
KALAI	Moderate	21.5	2.7
KHETLAL	Moderate	29.3	4
PANCHBIBI	Low	18.3	2.5
NAOGAON DISTRICT		32.2	-
ATRAI	High	31.4	2.8
BADALGACHHI	High	34	4.3
DHAMOIRHAT	Moderate	28.1	3.5
MANDA	High	34.1	2.4
MAHADEBPUR	High	38.7	4.1
NAOGAON SADAR	High	31.2	2.6
NIAMATPUR	Very High	47.8	4.8
PATNITALA	High	34.8	3.8
PORSHA	Very High	48.7	5.5
RANINAGAR	High	31.7	2.5
SAPAHAR	Very High	47.6	5.7
NATORE DISTRICT		24	-
BAGATIPARA	Low	18.2	3.7
BARAIGRAM	Moderate	25.9	2.6
GURUDASPUR	High	32.5	3.2
LALPUR	Moderate	20.9	2.9
NALDANGA	Low	19.5	2.5
NATORE SADAR	Low	18.6	2.5
SINGRA	High	34	3.2
CHAPAINABABGANJ DISTRICT		39.6	-
BHOLAHAT	High	37.9	3.5
GOMASTAPUR	Very High	41.8	2.5
NACHOLE	Very High	40.3	2.1
CHAPAINABABGANJ SADAR	Very High	46.7	5.8
SHIBGANJ	Very High	40.1	3.1
PABNA DISTRICT		33	-
ATGHARIA	Moderate	27.5	5.3

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
BERA	Very High	43.3	4.8
BHANGURA	Moderate	29	3.2
CHATMOHAR	Moderate	29.1	3.6
FARIDPUR	High	29.4	3.3
ISHWARDI	Moderate	26.1	3.2
PABNA SADAR	Moderate	27	3.2
SANTHIA	Moderate	25.5	3.8
SUJANAGAR	Very High	39.9	4
RAJSHAHI DISTRICT		20.1	-
BAGHA	Low	19.1	9
BAGHMARA	Low	12.6	6.6
BOALIA	Very Low	9	2.9
CHANDRIMA	Very Low	10.6	3.5
CHARGHAT	Low	13	6.8
DURGAPUR	Low	12.7	6.4
GODAGARI	High	30.7	11.3
KASHIADANGA	Low	13.3	3.9
MATIHAR	Low	17.4	3.9
MOHANPUR	Low	12.3	5.3
PABA	Low	12.8	5.3
PUTHIA	Very Low	10.7	5.7
RAJPARA	Low	12	3.5
SHAH MAKHDUM	Low	20	5.2
TANORE	Moderate	21.8	7.9
SIRAJGANJ DISTRICT		30.5	-
BELKUCHI	High	36.3	3.7
CHAUHALI	High	34.3	3.3
KAMARKHANDA	Moderate	29.3	4.8
KAZIPUR	Moderate	25	4.5
ROYGANJ	High	33.4	2.8
SHAHJADPUR	High	35.2	3.2
SIRAJGANJ SADAR	High	31	2.4
TARASH	High	29.8	2.9
ULLAH PARA	Moderate	28.6	2.7

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
RANGPUR DIVISION		47.2	1.32
DINAJPUR DISTRICT		64.3	-
BIRAMPUR	Very High	59.5	4.3
BIRGANJ	Very High	67.2	4.4
BIRAL	Very High	65.1	4.3
BOCHAGANJ	Very High	59.2	4.4
CHIRIRBANDAR	Very High	64.1	4.1
FULBARI	Very High	60.8	4.3
GHORAGHAT	Very High	64.1	3.8
HAKIMPUR	Very High	63.9	5
KAHAROLE	Very High	63.9	4.9
KHANSAMA	Very High	68.2	4.4
DINAJPUR SADAR	Very High	64.1	5.9
NAWABGANJ	Very High	64.4	3.9
PARBATIPUR	Very High	63.8	4
GAIBANDHA DISTRICT		46.7	-
FULCHHARI	Very High	48	4.2
GAIBANDHA SADAR	Very High	46.6	3.7
GOBINDAGANJ	Very High	41.5	2.3
PALASHBARI	Very High	41.9	3
SADULLAPUR	Very High	42.5	2.8
SAGHATA	Very High	44.9	3.3
SUNDARGANJ	Very High	47.6	2.8
KURIGRAM DISTRICT		70.8	-
BHURUNGAMARI	Very High	71.9	4.3
CHAR RAJIBPUR	Very High	79.8	5.4
CHILMARI	Very High	73.5	3.9
PHULBARI	Very High	69	4.5
KURIGRAM SADAR	Very High	72.6	3.5
NAGESHWARI	Very High	72.7	3.3
RAJARHAT	Very High	70.1	4.6
RAUMARI	Very High	76.4	4.1
ULIPUR	Very High	70.8	3.7
LALMONIRHAT DISTRICT		42	-
ADITMARI	High	37.9	4.3

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
HATIBANDHA	High	39	4.2
KALIGANJ	High	36.9	3.9
LALMONIRHAT SADAR	Very High	40.1	3
PATGRAM	Very High	40.2	4.3
NILPHAMARI DISTRICT		32.3	-
DIMLA	Very High	43	4.2
DOMAR	Very High	44.1	3.2
JALDHAKA	Very High	43.8	4
KISHOREGANJ	Very High	39.8	4.6
NILPHAMARI SADAR	Very High	42.1	3
SAIDPUR	Very High	43.2	3.9
PANCHAGARH DISTRICT		26.3	-
ATWARI	Very Low	9.3	6.6
BODA	Moderate	25.4	9.4
DEBIGANJ	Low	17.8	6.5
PANCHAGARH SADAR	High	37.6	9.9
TENTULIA	Moderate	25.7	9.6
RANGPUR DISTRICT		43.8	-
BADARGANJ	High	36.1	3.8
GANGACHARA	Very High	47	3.6
KAUNIA	Very High	49.4	3.5
RANGPUR SADAR	High	37.5	3.8
MITHAPUKUR	Very High	40.1	2.6
PIRGACHHA	Very High	46	2.9
PIRGANJ	High	39.3	2.6
TARAGANJ	High	38.1	4.7
THAKURGAON DISTRICT		23.4	-
BALIADANGI	High	31.2	4.9
HARIPUR	High	35.7	4.5
PIRGANJ	High	34.3	2.6
RANISANKAIL	High	35.2	3.4
THAKURGAON SADAR	High	36.7	2.3

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
SYLHET DIVISION		16.2	1.70
HABIGANJ DISTRICT		13.4	-
AJMIRIGANJ	Moderate	21.3	5.7
BAHUBAL	Low	13.7	2.8
BANIACHONG	Low	17.1	3.5
CHUNARUGHAT	Moderate	21.5	6.9
HABIGANJ SADAR	Very Low	11.4	2.3
LAKHAI	Low	18.3	3.8
MADHABPUR	Low	19.1	3.8
NABIGANJ	Low	16.9	3.9
SHAYESTAGANJ	Low	12.8	2.3
MAULVIBAZAR DISTRICT		11	-
BARLEKHA	Very Low	10.4	2.8
JURI	Moderate	20.6	5.8
KAMALGANJ	Low	15.6	3.8
KULAURA	Very Low	10.8	2.4
MAULVIBAZAR SADAR	Low	13.4	2.5
RAJNAGAR	Very Low	11.4	2.6
SREEMANGAL	Moderate	25.2	8.6
SUNAMGANJ DISTRICT		26	-
BISHWAMBARPUR	Low	17.3	8.2
CHHATAK	Low	19.5	5.8
DAKSHIN SUNAMGANJ	Low	20.2	7.6
DERAI	High	35.6	15.0
DHARAMPASHA	Low	17.8	8.1
DOWARABAZAR	Low	15.6	6.3
JAGANNATHPUR	Moderate	22.6	8.4
JAMALGANJ	Moderate	26.8	11.6
SULLA	Very High	60.9	25.0
SUNAMGANJ SADAR	Low	19.9	5.3
TAHIRPUR	Moderate	26.2	8.7
SYLHET DISTRICT		13	-
BALAGANJ	Low	17.3	3.5
BEANI BAZAR	Low	13.8	2
BISHWANATH	Very Low	10.4	2.4

Division/District/ Upazila/Metro Thana	Poverty Group Level	HCR Upper (%)	Standard Error (%)
COMPANIGANJ	Very Low	11.2	4.2
DAKSHIN SURMA	Very Low	11.2	3.1
FENCHUGANJ	Low	19	3.2
GOLAPGANJ	Very Low	10.5	2.2
GOWAINGHAT	Low	16.6	6.1
JAINTIAPUR	Low	13.9	2.8
KANAIGHAT	Low	16	3.6
OSMANINAGAR	Low	15.7	3.4
SYLHET SADAR	Low	13.6	1.3
ZAKIGANJ	Low	17.1	2.8



ANNEX -2

Key Correlates of Poverty incidence in Bangladesh

For each of the strata a different set of covariates were identified using the PovMap software. The list of the covariates along with their estimated coefficients are given in the following:

Description of the variables	Coefficient	
	OLS	GLS
Barishal Rural [STRATUM-1]		
Constant used in the model	2.4177	2.0856
Number of children (0-15 yrs) is 2 in the household	-0.069	-0.0595
Mauza level census mean of household with access to electricity	0.4455	0.4483
Upazila level census mean with graduate head in the household	-35.1817	-34.2957
Upazila level census mean of household with head non-muslim	0.6879	0.7439
Household head married in the household	0.1376	0.1142
Upazila level census mean of household with married head	13.6371	14.3748
Upazila level census mean of household with working head	-1.891	-2.0876
Upazila level census mean of household head completed higher secondary education	31.8739	31.6023
Household head with no education	-0.2057	-0.154
Upazila level census mean of household with non-sanitary latrine	-0.6532	-0.6875
Upazila level census mean of household with other type of houses	-4.9592	-5.1101
Upazila level census mean of household with pucca houses	-17.7335	-17.9352
Household with semi-pucca house	0.2749	0.2763
Age of head of household	-0.0686	-0.0721
Household size	-0.1999	-0.2158
Household size squared	0.0107	0.0119
Education of spouse is 5 years or below	-0.0583	-0.0374
Dummy for zila=09	0.1492	0.1524
Interaction with zila=79 and household size squared	0.0042	0.0044
Barishal Urban [STRATUM-2]		
Constant used in the model	12.9945	12.3842
Proportion of 1-4 yr children in the household	-0.4246	-0.3624
Upazila level census mean with household head widowed or divorced	-7.6953	-6.9718
Head is working in the industry sector	-0.114	-0.0978
Mauza level census mean of household with head married	-3.3332	-2.7547

Description of the variables	Coefficient	
	OLS	GLS
Mauza level census mean of household with owned house	-0.4196	-0.3753
Mauza level census mean of household head completed primary education	-0.4657	-0.5327
Household with a pucca house	0.288	0.2516
Upazila level census mean of household with pucca house	-1.3535	-1.2443
Household with semi-pucca house	0.2007	0.1725
Spouse of head is literate	0.0654	0.0667
Household with access to tap water	0.1949	0.2156
Education of head is 10 yrs or more	0.202	0.1735
Head is either less than 40 or greater than 60 yrs old	-0.093	-0.0734
Highest grade completed among the household members	0.0185	0.0223
Household size	-0.2761	-0.2859
Household size squared	0.0167	0.0176
Proportion of employed persons in the household	-0.1228	-0.1405
Dummy for zila=04	-0.3274	-0.3218
dummy for zila=78	-0.8356	-0.8103
Interaction with zila=09 and household size squared	0.0049	0.0049
Interaction with zila=78 and household head is literate	0.4781	0.4591
Chattogram Rural [STRATUM-3]		
Constant used in the model	8.1987	8.2427
Mauza level census mean of household with access to electricity	0.3378	0.2961
Head of the household is widowed or divorced	-0.1273	-0.1409
Head of the household is working in the agriculture sector	-0.0409	-0.0471
Upazila level census mean of household with head working in agriculture sector	0.2609	0.4115
Upazila level census mean of household with head working	-0.3983	-0.6528
Upazila level census mean of household with no latrine	-0.8646	-0.8541
Upazila level census mean of household with access to non-sanitary latrine	-0.474	-0.4495
Household lives in rented household	-0.2304	-0.1122
Education of head is 10 yrs or more	0.2745	0.2228
Mauza level census mean of household with head age	0.0225	0.0252
Household size	-0.2177	-0.2292
Household size squared	0.0135	0.0142
Proportion of female children aged 6-10 yrs attending school	-0.2522	-0.1595
Proportion of male children aged 6-10 yrs attending school	-0.1912	-0.1713

Description of the variables	Coefficient	
	OLS	GLS
Dummy for zila=12	0.3952	0.3515
Dummy for zila=22	0.2846	0.2602
Dummy for zila=30	0.3636	0.3272
Dummy for zila=51	-0.0746	-0.1038
Dummy for zila=75	0.1325	0.091
Interaction with zila=12 and household size squared	-0.0035	-0.0029
Interaction with zila=13 and household size squared	-0.0025	-0.0029
Interaction with zila=75 and household size squared	-0.0018	-0.0014
Chattogram Urban [STRATUM-4]		
Constant used in the model	16.4555	16.8986
Proportion of 0 yr. children in the household	-0.7349	-0.6704
Proportion of (1-4) yr. children in the household	-0.3498	-0.2763
Mauza level census mean of household with access to electricity	0.7648	0.7568
Head of the household is widowed or divorced	-0.3133	-0.2615
Upazila level census mean with household head widowed or divorced	-8.6382	-9.3239
Mauza level census mean of household with head working in agri. Sector	0.6847	0.6231
Upazila level census mean of household with head working in agri. Sector	-0.8947	-0.8166
Upazila level census mean of household with head working in industry Sector	-1.2159	-1.2004
Upazila level census mean of household with head married	-9.0841	-9.7088
Head of the household is a female	0.1788	0.1618
Mauza level census mean of male headed household	1.8089	2.1268
Mauza level census mean of household head working	1.0775	1.2654
Mauza level census mean of household head completed higher secondary education	1.4569	1.512
Upazila level census mean of household head completed higher secondary education	-4.5838	-4.9866
Upazila level census mean of household head completed junior secondary education	-4.9202	-4.6665
Household with a pucca house	0.2671	0.2561
Household lives in a rental house	-0.071	-0.0598
Age of the head of household	0.0074	0.0061
Education grade of the head of household	0.0289	0.0244
Household size	-0.1943	-0.1831
Household size squared	0.0095	0.0086
Proportion of elderly people(60 plus) in the household	-0.1697	-0.1869

Description of the variables	Coefficient	
	OLS	GLS
Proportion of 6-10 yr female children attending school	-0.5383	-0.5036
Proportion of 6-10 yr male children attending school	-0.3591	-0.3564
Dummy for zila= 12	0.2185	0.2114
Dummy for zila=75	0.2889	0.2723
Interaction with zila= 13 and household size squared	0.0058	0.0052
Chattogram City Corporation [STRATUM-5]		
Constant used in the model	12.4402	12.7525
Proportion of 0 yr. children in the household	-0.6003	-0.48
Proportion of (1-4) yr. children in the household	-0.4821	-0.5112
Mauza level census mean of household with access to electricity	-2.7395	-2.7364
Mauza level census mean of household with non-muslim head	0.8573	0.9066
Upazila level census mean of household with non-muslim head	-1.2267	-1.2901
Mauza level census mean of sex of household head	-2.492	-2.7854
Mauza level census mean of household head completed higher secondary education	1.6529	1.5461
Upazila level census mean of household with other type of houses	-2.1094	-1.9377
Household lives in owned house	0.5789	0.5612
Household lives in rental house	0.4278	0.4038
Mauza level census mean of household living in rented house	-0.6517	-0.6427
Age of the head of household	0.0053	0.005
Household size	-0.2536	-0.385
Household size squared	0.014	0.0284
Proportion of employed people in the household	-0.1278	-0.1389
Proportion of literate people in the household	0.3446	0.3322
Education of the spouse is 5 yrs or below	-0.1198	-0.1038
Spouse with no education	-0.1617	-0.15
Dhaka Rural [STRATUM-6]		
Constant used in the model	8.2683	8.2782
Proportion of 0 yr. children in the household	-0.4659	-0.5244
Upazila level census mean of household with access to electricity	0.4026	0.4433
Upazila level census mean with graduate head in the household	7.3885	8.1419
Household head is married	0.0922	0.0701
Education of head is 10 yrs or more	0.2845	0.2476
Household size	-0.2191	-0.2209

Description of the variables	Coefficient	
	OLS	GLS
Household size squared	0.0136	0.0141
Proportion of female children aged 6-10yrs attending school	-0.2018	-0.2138
Dummy for zila=29	0.2819	0.2671
Dummy for zila=33	0.6062	0.8522
Dummy for zila=39	-0.2137	-0.2285
Dummy for zila=48	-0.1739	-0.1869
Dummy for zila=54	0.2396	0.2195
Dummy for zila=68	0.2371	0.1967
Interaction with zila=26 and number of establishment	0	0
Interaction with zila=33 and mauza level mean of households with head literate	-0.9942	-1.4871
Interaction with zila=59 and household size squared	-0.0038	-0.0035
Interaction with zila=67 and number of establishment	0	0
Interaction with zila=86 and household size squared	-0.0035	-0.003
Interaction with zila=89 and number of establishment	0	0
Interaction with zila=26 and head not completed higher secondary education	0.8255	0.6339
Interaction with zila=59 and head not completed higher secondary education	0.2525	0.2088
Interaction with zila=67 and head not completed higher secondary education	0.3583	0.3184
Interaction with zila=86 and head not completed higher secondary education	0.2383	0.2177
Dhaka Urban [STRATUM-7]		
Constant used in the model	8.7902	8.8626
Number of children aged (0-15yrs) is 2 in the household	0.0317	0.0382
Proportion of 0yr children in the household	-0.513	-0.5999
Proportion of (1-4) yr children in the household	-0.5739	-0.6026
Household head is non-muslim	-0.1113	-0.1015
Household head is married	0.1302	0.1335
Mauza level census mean of household using water other than tap & tube-well	-0.342	-0.3812
Mauza level census mean of household with head post graduate	1.4062	1.5531
Upazila level census mean of household with head post graduate	-9.2375	-9.9877
Upazila level census mean of household with pucca house	1.3646	1.3408
Highest education grade completed among the household members	0.0503	0.0451
Household size	-0.2873	-0.3073
Household size squared	0.0175	0.0206
Proportion of employed people in the household	-0.1556	-0.1234

Description of the variables	Coefficient	
	OLS	GLS
Dummy for zila=33	-0.069	-0.073
Dummy for zila=39	-0.3771	-0.3715
Dummy for zila=48	-0.308	-0.3162
Dhaka City Corporation [STRATUM-8]		
Constant used in the model	9.502	9.6349
Mauza level census mean of household with head widowed or divorced	16.399	16.3445
Mauza level census mean of household with head working in the service sector	-0.7441	-0.8249
Upazila level census mean of household with head working in the service sector	-0.9778	-1.2179
Upazila level census mean of household with head a post graduate	1.1405	1.156
Household head completed primary education	-0.1601	-0.1068
Mauza level census mean of household using tap water	1.1439	1.3706
Upazila level census mean of household using tap water	-1.663	-1.7872
Head of household completed education grade 6-9	-0.1783	-0.0945
Household size	-0.1882	-0.1878
Household size squared	0.0128	0.013
Proportion of 15-59 yr people in the household	0.3373	0.3949
Proportion of elderly (60+ yr) people in the household	0.5779	0.5034
Proportion of employed people in the household	-0.3063	-0.2176
Proportion of literate persons in the household	0.6048	0.4219
Proportion of un-employed people in the household	-1.9587	-1.313
Education grade of spouse 5 yrs or below	-0.1272	-0.097
Khulna Rural [STRATUM-9]		
Constant used in the model	8.8265	8.785
Upazila level census mean of household with literate head	1.7562	1.725
Household head completed higher secondary education	0.2021	0.2044
Household lives in other types of houses	-0.3958	-0.3725
Household has access to water other than tap or tube-well	-0.3612	-0.3432
Household lives in a semi-pucca house	-0.1968	-0.1967
Upazila level census mean of household living in semi-pucca houses	-0.8802	-0.7969
Head is either less than 40 or greater than 60 yrs old	-0.0931	-0.0937
Household size	-0.2536	-0.2622
Household size squared	0.0191	0.0204

Description of the variables	Coefficient	
	OLS	GLS
Proportion of female in the household	-0.2725	-0.2248
Education grade of spouse is 10yrs or more	0.121	0.0986
Upazila level census mean of household with spouse completed 10yrs or more education	-5.8408	-5.7011
Dummy for zila=50	0.3671	0.3572
Dummy for zila=55	-0.2967	-0.3005
Dummy for zila=87	0.1994	0.2027
Interaction with zila=47 and household size squared	-0.0046	-0.0037
Khulna Urban [STRATUM-10]		
Constant used in the model	9.8053	9.5977
Number of children (0-15yrs) in the household is 1	-0.069	-0.037
Proportion of children 1-4yrs in the household	-0.4636	-0.4419
Head of the household working in agriculture sector	-0.3933	-0.4031
Head of the household is married	0.1923	0.2432
Mauza level census mean of household with head working	0.8957	0.8379
Upazila level census mean of household with head working	-2.3092	-1.8643
Mauza level census mean of household with pucca houses	0.5153	0.5032
Head of the household completed secondary education	0.1316	0.1075
Upazila level census mean of household with access to tap water	-0.5804	-0.6322
Upazila level census mean of household with access to tube-well	-0.1862	-0.2282
Highest education grade among the members in the household	0.0487	0.0454
Household size	-0.2731	-0.3505
Household size squared	0.0154	0.0263
Proportion of 6-10 yr male children attending school	-0.4426	-0.3618
Interaction with zila=18 and head of household is a graduate	0.6882	0.8641
Khulna City Corporation [STRATUM-11]		
Constant term used in the model	-15.8559	-8.3628
Number of children(0-15yr) in the household is 0	0.1038	0.0959
Proportion of 0 yr children in the household	-0.9246	-0.9348
Proportion of (1-4 yr) children in the household	-0.5554	-0.5455
Head of the household is married	0.1608	0.1722
Upazila level census mean of household with head married	26.1438	17.7977
Mauza level census mean of household with head completed higher secondary education	1.429	1.597

Description of the variables	Coefficient	
	OLS	GLS
Head of the household with no education	-0.1464	-0.1256
Household has houses other than pucca or semi-pucca	-0.2626	-0.2272
Household owns the house	0.144	0.1637
Mauza level census mean of household owning the house	-0.2349	-0.2306
Number of female in the household	-0.2	-0.1903
Household is a 4 member household	-0.0862	-0.0685
Highest education grade among the members in the household	0.0381	0.0325
Proportion of female in the household	0.7154	0.7133
Rajshahi Rural [STRATUM-12]		
Constant used in the model	6.5413	6.5869
Number of children (0-15yrs) in the household is 2	-0.088	-0.0811
Proportion of 0 yr children in the household	-0.4188	-0.4273
Head of the household is a graduate	0.2113	0.2415
Upazila level census mean of household with head graduate	16.6005	16.08
Head of the household is non-muslim	-0.1722	-0.1303
Mauza level census mean of household with head literate	0.3694	0.3729
Upazila level census mean of household with head working	1.7701	1.7608
Upazila level census mean of household with no latrine	-0.6004	-0.5769
Household has access to non-sanitary latrine	-0.1217	-0.1147
Household lives in a pucca house	0.3252	0.2565
Head of the household completed secondary education	0.0868	0.0732
Education of head is 10yrs or more	0.2235	0.191
Age of the head of household	0.0027	0.0028
Household size	-0.1347	-0.1495
Household size squared	0.0071	0.0087
Proportion of female in the household	-0.179	-0.2252
Dummy for zila=81	0.1336	0.1449
Interaction with zila=10 and household size squared	0.0031	0.0039
Rajshahi Urban [STRATUM-13]		
Constant used in the model	8.3134	8.34
Head of the household is married	0.1295	0.1247
Head of the household is working in the service sector	0.0786	0.0713
Mauza level census mean of household with head post graduate	1.9642	2.2221

Description of the variables	Coefficient	
	OLS	GLS
Household has a pucca house	0.2358	0.1994
Household lives in a rented house	-0.1399	-0.1321
Household with access to tap water	0.2535	0.2427
Education grade of head is 10 yrs or more	0.1429	0.1371
Head is either less than 40 or greater than 60 yrs old	-0.0798	-0.0829
Highest education grade among the members in the household	0.0338	0.0316
Household size	-0.2791	-0.283
Household size squared	0.0187	0.0196
Dummy for zila=81	0.1972	0.1971
Interaction with zila=76 and household size squared	-0.0044	-0.0048
Rajshahi City Corporation [STRATUM-14]		
Constant used in the model	14.3697	13.105
Proportion of 0 yr children in the household	-0.995	-1.339
Proportion of (1-4) yr children in the household	-0.6525	-0.6902
Upazila level census mean of household with head married	-6.7463	-5.4777
Household with semi-pucca house	-0.1965	-0.2169
Spouse is literate	0.206	0.1041
Upazila level census mean of household with access to tube-well	0.2557	0.3571
Head is either less than 40 or greater than 60 yrs old	-0.1602	-0.0908
Household size	-0.0658	-0.0381
Sylhet Rural [STRATUM-15]		
Constant used in the model	9.5219	9.4493
Head of the household is a post graduate	0.1876	0.2249
Upazila level census mean of household with head non-muslim	-0.7342	-0.7298
Head of the household is widowed or divorced	-0.0785	-0.0618
Mauza level census mean of household with no latrine	-0.5679	-0.5622
Household with access to houses other than pucca or semi-pucca	-0.2834	-0.283
Upazila level census mean of household with head completed primary education	-2.0347	-1.8189
Head of the household completed secondary education	0.2432	0.1498
Household with 2 members	0.0845	0.0944
Household size	-0.1715	-0.1619
Household size squared	0.0087	0.008
Proportion of 6-10 yrs female children attending school	-0.2182	-0.2432

Description of the variables	Coefficient	
	OLS	GLS
Proportion of 6-10 yrs male children attending school	-0.2186	-0.2112
Interaction with zila=58 and head not completed higher secondary education	0.1998	0.1874
Interaction with zila=58 and head completed higher secondary education	0.4667	0.5278
Interaction with zila=90 and head not completed higher secondary education	-0.1483	-0.1527
Interaction with zila=91 and head completed higher secondary education	0.6978	0.6319
Sylhet Urban [STRATUM-16]		
Constant used in the model	8.9172	9.0543
Proportion of 0 yr children in the household	-0.6842	-0.6493
Proportion of 1-4 yr children in the household	-0.3903	-0.2904
Upazila level census mean of household with access to electricity	-1.4197	-1.4476
Mauza level census mean of household with head non-muslim	-0.2489	-0.2427
Head of the household is widowed or divorced	-0.1862	-0.1771
Upazila level census mean of household with head working in industry sector	2.4237	2.753
Mauza level census mean of household with head literate	1.8796	1.9326
Household is a female headed household	0.1997	0.1465
Mauza level census mean of household with head completed junior secondary education	-2.8497	-3.3023
Household has no latrine	-0.3524	-0.6261
Mauza level census mean of household with no latrine	-1.3192	-1.3724
Upazila level census mean of household with access to other types of water	1.9284	2.1598
Mauza level census mean of household with head post graduate	-3.2638	-3.3654
Mauza level census mean of household with head completed primary education	1.0877	1.1566
Head of the household completed secondary education	0.2012	0.1633
Number of female in the household	-0.0392	-0.0356
Age of the head of household	0.0062	0.0046
Household size	-0.1877	-0.2284
Household size squared	0.0099	0.0122
Proportion of literate person in the household	0.3142	0.3497
Education of spouse is 5 yrs or below	-0.4364	-0.4194
Education of spouse is 6-9 yrs	-0.3043	-0.2394
Spouse with no education	-0.372	-0.3404

Description of the variables	Coefficient	
	OLS	GLS
Rangpur Rural [STRATUM-17]		
Constant used in the model	7.888	7.8843
Number of children (0-15yr) in the household is 2	-0.0728	-0.0651
Head of the household is a post graduate	0.4918	0.4209
Upazila level census mean of household with head working in agriculture sector	0.9387	0.9293
Mauza level census mean of household with head working in service sector	0.3604	0.3785
Head of the household completed higher secondary education	0.3173	0.3017
Mauza level census mean of household with head completed junior secondary education	1.4272	1.4318
Household with access to houses other than pucca or semi-pucca	-0.3322	-0.3144
Head of the household is a post graduate	0.3896	0.2626
Head of the household completed secondary education	0.1538	0.1573
Age of the head of household	-0.0038	-0.004
Household size	-0.2307	-0.2388
Household size squared	0.0077	0.0088
Proportion of male children aged 11-15 yrs attending school	0.1918	0.2177
Dummy for zila=49	-0.264	-0.2633
Dummy for zila=77	0.584	0.627
Interaction with age of head and household size	0.0017	0.0017
Interaction with zila=27 and household size squared	-0.003	-0.0035
Interaction with zila=77 and number of establishment	-0.0001	-0.0001
Interaction with zila=27 and household size not equal to 2	-0.2472	-0.2146
Interaction with zila=27 and household size equal to 2	-0.1746	-0.1745
Rangpur Urban [STRATUM-18]		
Constant used in the model	8.8007	8.8934
Proportion of 1-4 yr children in the household	-0.3861	-0.2907
Mauza level census mean of household with head post graduate	0.7791	1.0173
Household has access to non-sanitary latrine	-0.0891	-0.072
Household with access to houses other than pucca or semi-pucca	-0.5349	-0.5067
Household with semi-pucca house	-0.3371	-0.2993
Age of the head of household	0.0053	0.0025
Education grade of the head of household	0.0178	0.0125
Highest education grade among the members in the household	0.0197	0.0262
Household size	-0.1966	-0.2378

Description of the variables	Coefficient	
	OLS	GLS
Household size squared	0.0096	0.0126
Proportion of elderly people(60+) in the household	-0.3223	-0.223
Proportion of female in the household	-0.1843	-0.1421
Proportion of unemployed in the household	-0.599	-0.6058
Dummy for zila=49	-0.2903	-0.2754
Interaction with zila=27 and number of establishment	0	0
Interaction with zila=73 and household size squared	-0.0057	-0.0045
Interaction with zila=85 and number of establishment	0	0
Interaction with zila=85 and household size squared	0.0065	0.0085
Interaction with zila=27 and head not completed higher secondary education	-0.312	-0.2842
Interaction with zila=49 and head completed higher secondary education	-0.569	-0.5903
Interaction with zila=85 and head not completed higher secondary education	-0.5821	-0.581
Interaction with zila=85 and head completed higher secondary education	-0.6528	-0.6044





Bangladesh Bureau of Statistics

Parishankhyan Bhaban
E-27/A Agargaon
Sher-e-Bangla Nagar
Dhaka-1207, Bangladesh
Tel: 880 2 55007056
Fax: 880 2 55007069
www.bbs.gov.bd



World Food Programme

IDB Bhaban (17th floor)
E/8-A Rokeya Sharani
Sher-e-Bangla Nagar
Dhaka-1207, Bangladesh
Tel: 880 2 9183022-25
Fax: 880 2 9183020
www.wfp.org/countries/bangladesh

Supported by



Investing in rural people

International Fund for Agricultural Development (IFAD)
Bangladesh Office
www.ifad.org