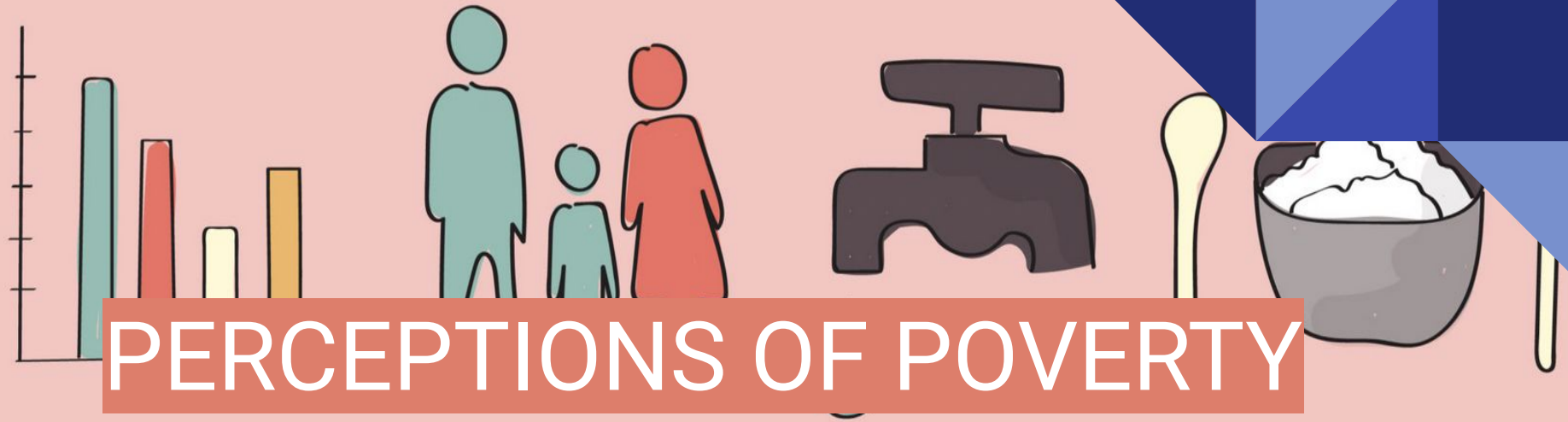
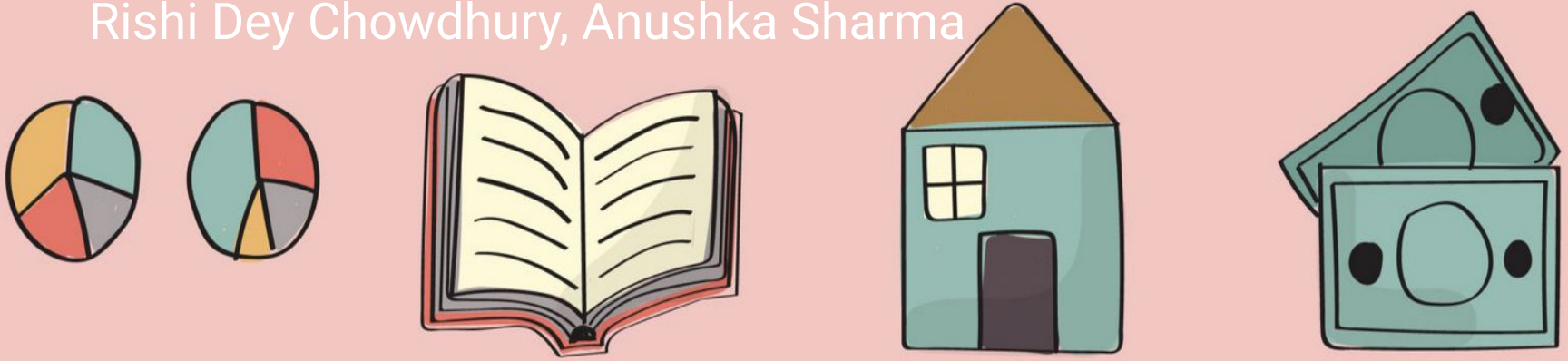


PERCEPTIONS OF POVERTY

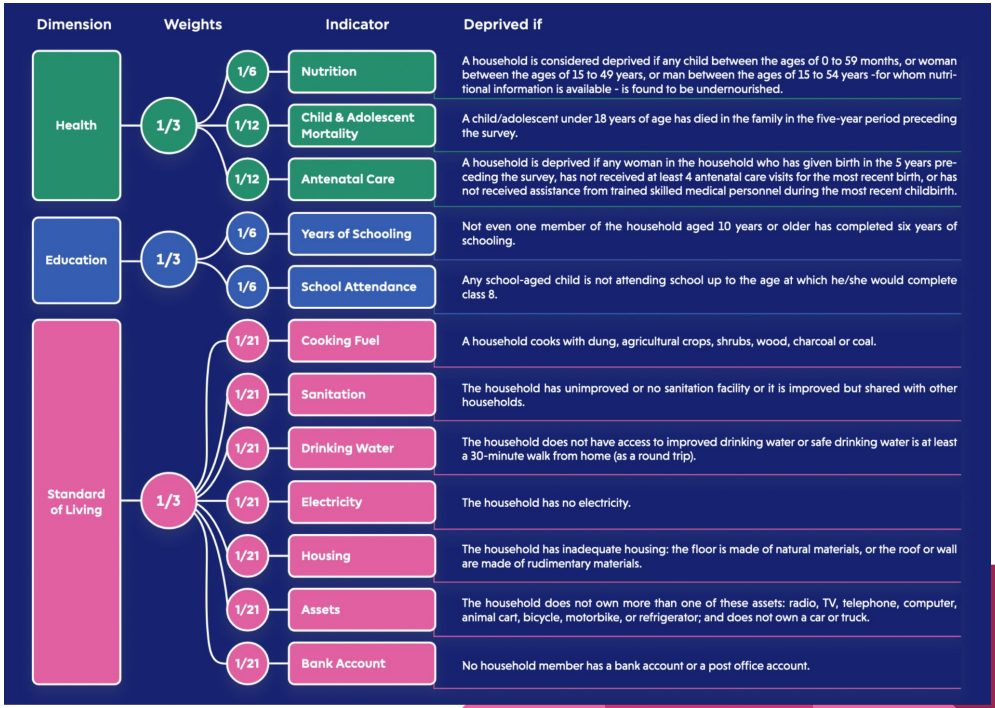
Rishi Dey Chowdhury, Anushka Sharma



Multi-Dimensional Poverty Index

An weighted sum score calculated based on this chart is the Deprivation Score (DS) which translates to Poverty level of a person.

Here, we do not question the validity of MPI. But we want to improve on it to be apt for all class of people and across all regions across India.



The Problem

Regional Problems

Many of the indicators does not portray the true picture of poverty or deprivations faced by people living in a region.

Current weighting scheme doesn't take into account this factor.

Indian Context

The MPI Indicators are taken directly from global MPI model. This makes it less accurate in Indian context.

Need to revisit the indicators and improve their quality.

Problem statement

The weighting scheme must be more robust and flexible:

- Adaptable Weights
- Weights $\propto$ Importance
- MPI DS $\propto$ True Poverty
- The Indicators truly capture what is intended

Challenges deep-dive

Challenge 1

Design Questionnaire

The questionnaire should ideally touch upon all the important aspects required to validate the weights and make them adjustable.
Also the validity of the indicators.

Challenge 2

Collect Data

We can help ease out this step of survey by following the sampling scheme of NSSO.
We must collect as much bg info about a place in advance as possible and frame the qsns accord.

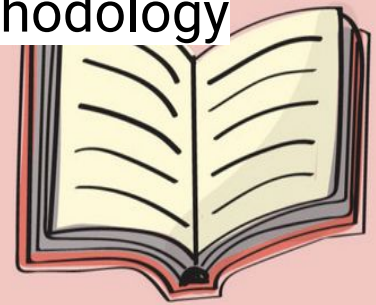
Challenge 3

Inference and Benchmark

We will have to infer from whatever response we get from the survey. Translate it into meaningful decisions for policy makers and also validate our empirical results with past data.

CAP Framework

Contrastive Allocative Perturbative (CAP) Methodology



An effective framework which can be leveraged to design questionnaire and estimate weights for MPI

Design

The Questionnaire Structure

Emphasis should be put on the fact that the **respondents should be encouraged to answer this question keeping in mind their locality** and not the entirety of the city or India

Collect as much **background information about the place** from secondary data, if possible, where survey will be conducted to calibrate the two extremes of the poverty scale and available facilities to frame targeted questions and reduce redundancy.

Questionnaire

Collect information regarding **socio-economic background of the respondent**.

Past MPI Data collected can give us prior idea in selecting which questions to ask.

Contrast

To identify the relative importance between two or more indicators, we design situations where the respondent have to decide who can be deemed poorer than the other

Allocation

To identify how much importance is assigned to each indicator, we design situations where the respondent has to allocate the income to different indicators under constrained scenarios

Perturb

To identify the optimum threshold of one indicator by finding the bare minimum requirement of this indicator such that a person is not deemed poor, we design such situations with different levels of this indicator

Sample Questions

Contrastive Comparison

Rank the following according to their level of poorness. The other indicators not mentioned remain the same across each person.

A

B

C

Framing the Comparisons

I: We should keep the number of ❌ same in each person, o.w. one with more ❌ will be selected as more poor.

I: To reduce the no. of questions we can compare **good** indicators among themselves and same for **bad** ones.

I: If some region is not having **good** medical facilities then at least one of our ranking question must have one ✅ and one ❌ for one of the medical indicators.

Why? To understand if they really feel deprived of that

What is good? The indicators which received higher score

What is bad? The indicators which received lower score

Past MPI data can come into play. More on it Later

Between the Broad indicators

Q: ✅ Schooling, ✅ Nutritious Daily Meal, ❌ Electricity

Q: ✅ Water, ❌ Children Care, ✅ Education

Q: ❌ Bank Account, ❌ Antenatal Care, ✅ Education

Allocation Analysis

How will you allocate the income earned across the various indicators?

We may provide the average income of that region as the amount to be distributed among these classes

Health

Education

Standard of Living

Between the Broad indicators

Q: Would you choose paying medical bills over your child's school fees?

Q: If you have money so that you can either spend over your child's school fees or eating a month's two times a day nutritious meal , what would you choose?

Q: Would you consider expenditure for antenatal care more important than paying for electricity?

Q: Which is more important for you: use of cooking fuel or payment of your child's school fees?

Within the Indicators

Q: What would you prioritize: payment for electricity or payment for clean drinking water?

Q: Is living in a *pucca* house more important for you or having access to electricity?

Q: Which is more important for you:living in a *pucca* house or having a bank account?

Q: Which is more important for you: owing a T.V. or having a bank account?

Perturbation Performance

Whom out of the following will you consider to be NOT poor? More than one person can be chosen.

A

Attended School Upto Class 8

B

Attended School Upto Class 10

C

Attended School Upto Class 12

D

Graduated

Past MPI Data

Adding Insights for framing regional questions

West Bengal

A snapshot of multidimensional poverty in West Bengal

Overview

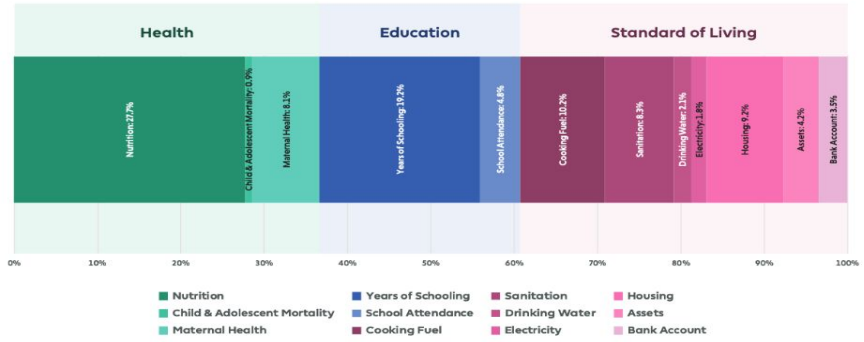
West Bengal Headcount Ratio, Intensity and MPI

Headcount Ratio (H)		Intensity (A)		MPI (HxA)
21.43%	x	45.49%	=	0.097

Rural			Urban		
Headcount Ratio	Intensity	MPI	Headcount Ratio	Intensity	MPI
25.8%	45.39%	0.117	11.67%	46%	0.054

West Bengal: Indicator-wise Contribution to the MPI

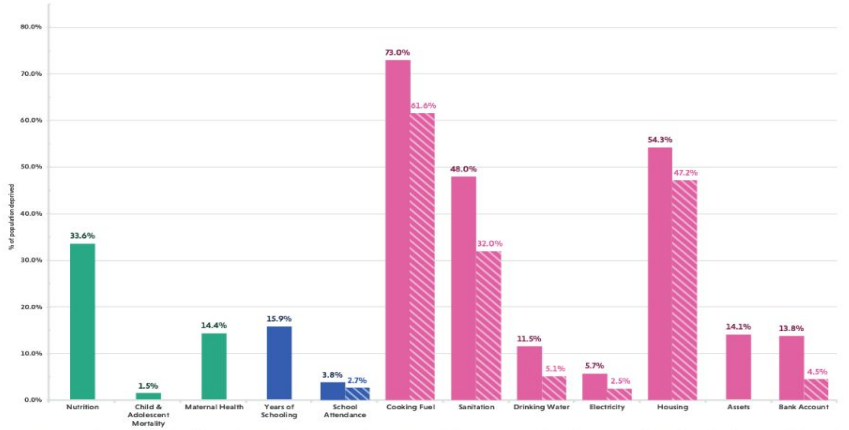
Percentage contribution of each indicator to the MPI score



Note on the data period: The NFHS 4 (2015-16) precedes the full roll out of flagship schemes of Pradhan Mantri Awas Yojana (PMAY), Jal Jeevan Mission (JJM), Swachh Bharat Mission (SBM), Pradhan Mantri Sahaj Bijli Har Ghar Yojana (Saubhagya), Pradhan Mantri Ujjwala Yojana (PMUY), and the Pradhan Mantri Jan Dhan Yojana (PMJDY).

West Bengal: Uncensored Headcount Ratio

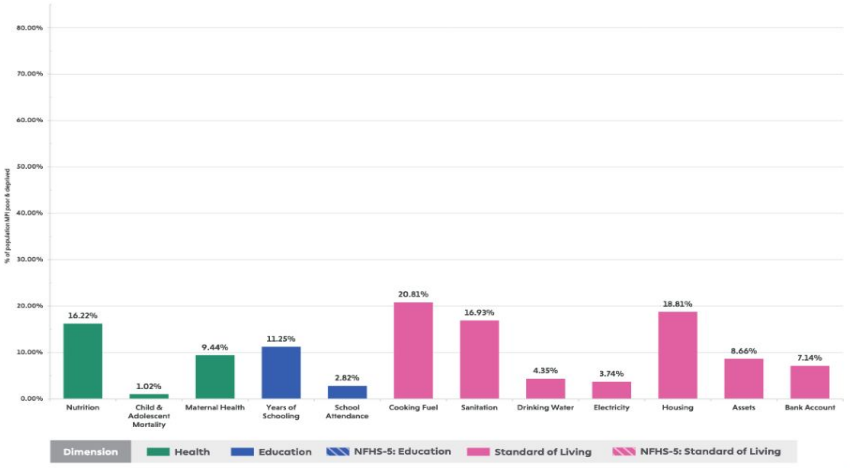
Percentage of total population who are deprived in each indicator



Note on comparison: The striped bars denote the provisional estimates of the uncensored headcount ratio based on the data available in the NFHS-5 West Bengal State Report (2019-20).

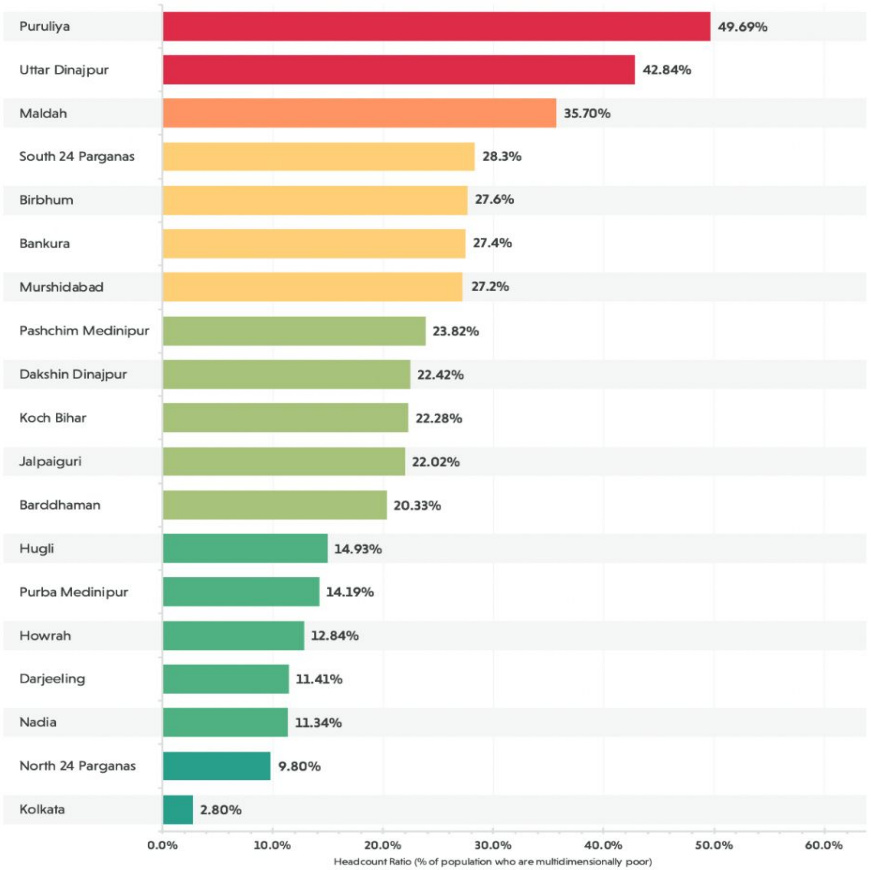
West Bengal: Censored Headcount Ratio

Percentage of total population who are multidimensionally poor and deprived in each indicator



West Bengal: Headcount Ratio

Percentage of population who are multidimensionally poor in each district



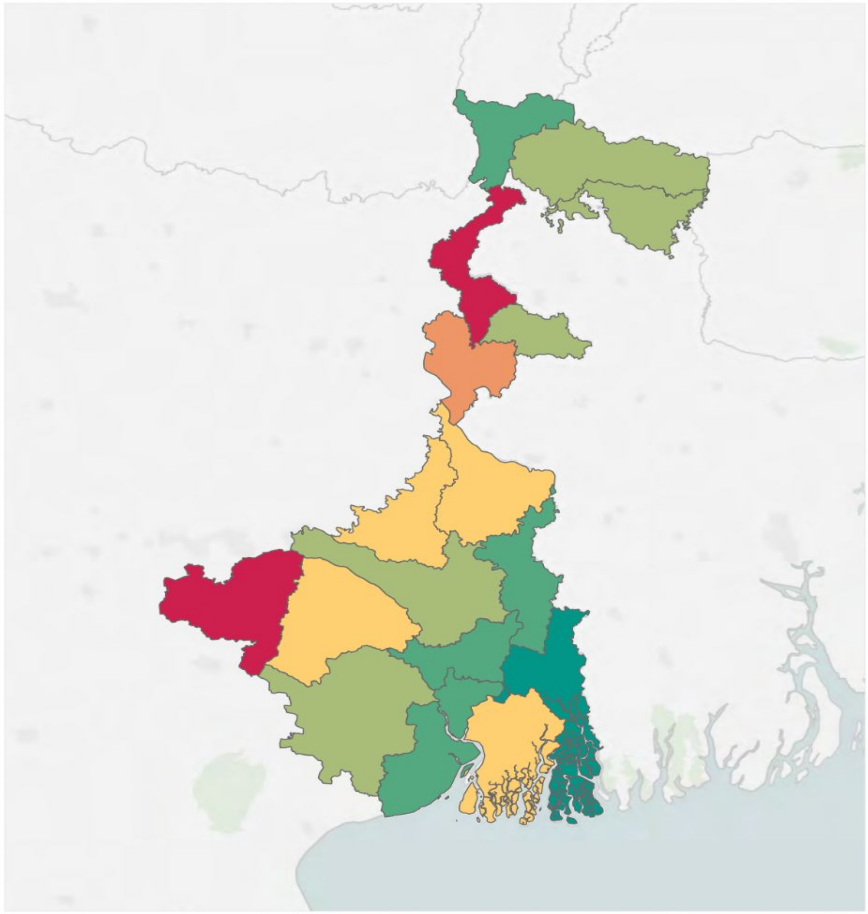
Multidimensional Poverty Index

0.013 to 0.044	0.045 to 0.075	0.076 to 0.107	0.108 to 0.139	0.140 to 0.171	0.172 to 0.203	0.204 to 0.236

The size of the bar represents the percentage of population who are multidimensionally poor in each district of West Bengal.
The colour of the bar represents the MPI score of the district. The colour moves from green, through yellow, to red as the MPI score increases. Green represents areas with the lowest MPI scores while red represents areas with the highest MPI scores. The legend provides the range of MPI scores represented by a colour.

West Bengal

Multidimensional Poverty Index Score (District-wise)



0.013 to 0.044	0.045 to 0.075	0.076 to 0.107	0.108 to 0.139	0.140 to 0.171	0.172 to 0.203	0.204 to 0.236

Districts of West Bengal are as per the 2011 Census of India. The colour represents the MPI score of a district. The colour moves from green, through yellow, to red as the MPI score increases. Green represents areas with the lowest MPI scores while red represents areas with the highest MPI scores. The legend provides the range of MPI scores represented by a colour.

Multidimensional Poverty in West Bengal

District-wise Headcount Ratio, Intensity and MPI Score

Districts of West Bengal	Headcount Ratio	Intensity	MPI
Bankura	27.42%	44.58%	0.122
Barddhaman	20.33%	47.06%	0.096
Birbhum	27.61%	45.60%	0.126
Dakshin Dinajpur	22.42%	44.18%	0.099
Darjeeling	11.41%	44.97%	0.051
Howrah	12.84%	45.12%	0.058
Hugli	14.93%	44.23%	0.066
Jalpaiguri	22.02%	45.90%	0.101
Koch Bihar	22.28%	45.13%	0.101
Kolkata	2.80%	45.56%	0.013
Maldah	35.70%	45.66%	0.163
Murshidabad	27.23%	45.96%	0.125
Nadia	11.34%	42.60%	0.048
North 24 Parganas	9.80%	41.51%	0.041
Pashchim Medinipur	23.82%	43.50%	0.104
Purba Medinipur	14.19%	42.68%	0.061
Puruliya	49.69%	47.44%	0.236
South 24 Parganas	28.27%	45.67%	0.129
Uttar Dinajpur	42.84%	49.79%	0.213

Districts of West Bengal are as per the 2011 Census of India

Multidimensional Poverty in West Bengal

Urban and Rural Headcount Ratio, Intensity and MPI Score for each District

Districts of West Bengal	Rural			Urban		
	Headcount Ratio	Intensity	MPI	Headcount Ratio	Intensity	MPI
Bankura	29.38%	44.79%	0.132	7.34%	36.00%	0.026
Barddhaman	21.92%	48.56%	0.106	18.38%	44.86%	0.082
Birbhum	30.08%	45.76%	0.138	12.97%	43.41%	0.056
Dakshin Dinajpur	24.89%	44.45%	0.111	5.13%	35.03%	0.018
Darjeeling	15.24%	45.60%	0.069	4.93%	41.69%	0.021
Howrah	14.34%	45.55%	0.065	11.88%	44.79%	0.053
Hugli	17.23%	43.21%	0.074	10.92%	47.00%	0.051
Jalpaiguri	27.88%	46.12%	0.129	3.80%	40.68%	0.015
Koch Bihar	23.98%	45.36%	0.109	7.26%	38.51%	0.028
Kolkata	-	-	-	2.80%	45.56%	0.013
Maldah	37.53%	45.79%	0.172	24.36%	44.42%	0.108
Murshidabad	27.50%	45.03%	0.124	26.33%	49.19%	0.130
Nadia	14.08%	42.39%	0.060	3.92%	44.73%	0.018
North 24 Parganas	13.86%	40.24%	0.056	6.52%	43.70%	0.028
Pashchim Medinipur	24.91%	43.54%	0.108	14.85%	42.91%	0.064
Purba Medinipur	14.74%	43.06%	0.063	9.95%	38.36%	0.038
Puruliya	49.76%	46.04%	0.229	49.30%	55.58%	0.274
South 24 Parganas	31.75%	45.76%	0.145	16.70%	45.12%	0.075
Uttar Dinajpur	46.23%	49.72%	0.230	19.24%	50.92%	0.098

Districts of West Bengal are as per the 2011 Census of India

Data Collection

Sampling

Inference

Estimation of Weights