

## Comparing Multidimensional Poverty and Consumption Poverty Based on Primary Survey in India

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# Motivation & Objectives

- Consumption level based poverty measures do not directly measure other dimensions of deprivation.
- This study constructs a multidimensional poverty index and presents the composition of poverty, as well as how poverty level changes as poverty or deprivation cutoffs vary.
- It crosstabulates multidimensional poverty with consumption level based poverty and asset-based poverty from same data.
- It also attempts to identify the groups that are multidimensionally poor but not income poor: what are their demographic and social characteristics?

# Outline of the Study

- **Methodology:** (AF, consumption, assets)
- **Data**
- **MPI Results**
- **Income and Multidimensional Poverty:** Patterns
- **Investigation:** Who is MPI poor but not income poor

# Methodology – MPI Poverty

- Alkire Foster Adjusted Headcount Ratio used to build a Multidimensional Poverty Index (MPI):

$$\mathbf{MPI} = \mathbf{M}_0 = \mathbf{H} \times \mathbf{A}$$

- $\mathbf{H}$  is the percent of people who are identified as poor, it shows the *incidence* of multidimensional poverty.
- $\mathbf{A}$  is the average proportion of weighted deprivations people suffer at the same time. It shows the *intensity* of people's poverty – the *joint distribution* of their deprivations.

# Methodology – MPCE & Assets

- Poor households have been identified using MPCE data from our survey. State specific poverty lines (Urban and Rural) for 2007-08 has been estimated from the poverty lines for 2004-05 and 2009-10 provided by planning commission of India.
- Based on data on holding of various assets, an asset index has also been created using multiple correspondence analysis. Households have also been divided in five quintiles using the index.

# Data and RECOUP Survey

- Household survey conducted in the states of Rajasthan and Madhya Pradesh (MP) between October 2007 and January 2008.
- 717 rural and 300 urban households from 6 districts covered in the survey. Detailed data on 6260 individuals collected.
- Height and weight data available for all individuals above 5. Weight for age data for children up to 5.
- Our sample districts are not representative of the state. So interstate comparisons are not made.

# Indicators and Cutoffs

| Indicator          | Deprivation Cut-off  | Weights |
|--------------------|--|---------|
| Nutrition          | If any household member is malnourished (BMI<18.5 for adults, WFA< mean-2sd for children up to five years)                             | 1/6     |
| Child mortality    | Any child has died in the household before completing 5 years of age   | 1/6     |
| Years of schooling | No household member has completed five years of schooling  | 1/6     |
| School attendance  | At least one child in 6 to13 age group is not going to school  | 1/6     |
| Electricity        | The household has no electricity   | 1/18    |
| Sanitation         | The household has no toilet or it is shared with other households  | 1/18    |
| Drinking water     | The household does not have access to safe drinking water or safe water is <b>at a distance of 500 meters or more</b> (one way)        | 1/18    |
| House Type         | <b>The house is kachha</b>   | 1/18    |
| Cooking fuel       | The household cooks with dung, wood or charcoal  | 1/18    |
| Assets             | The household does not own more than one of: radio, TV, telephone, bike, motorbike or refrigerator, and does not own a car or tractor. | 1/18    |

# Poverty Cutoff

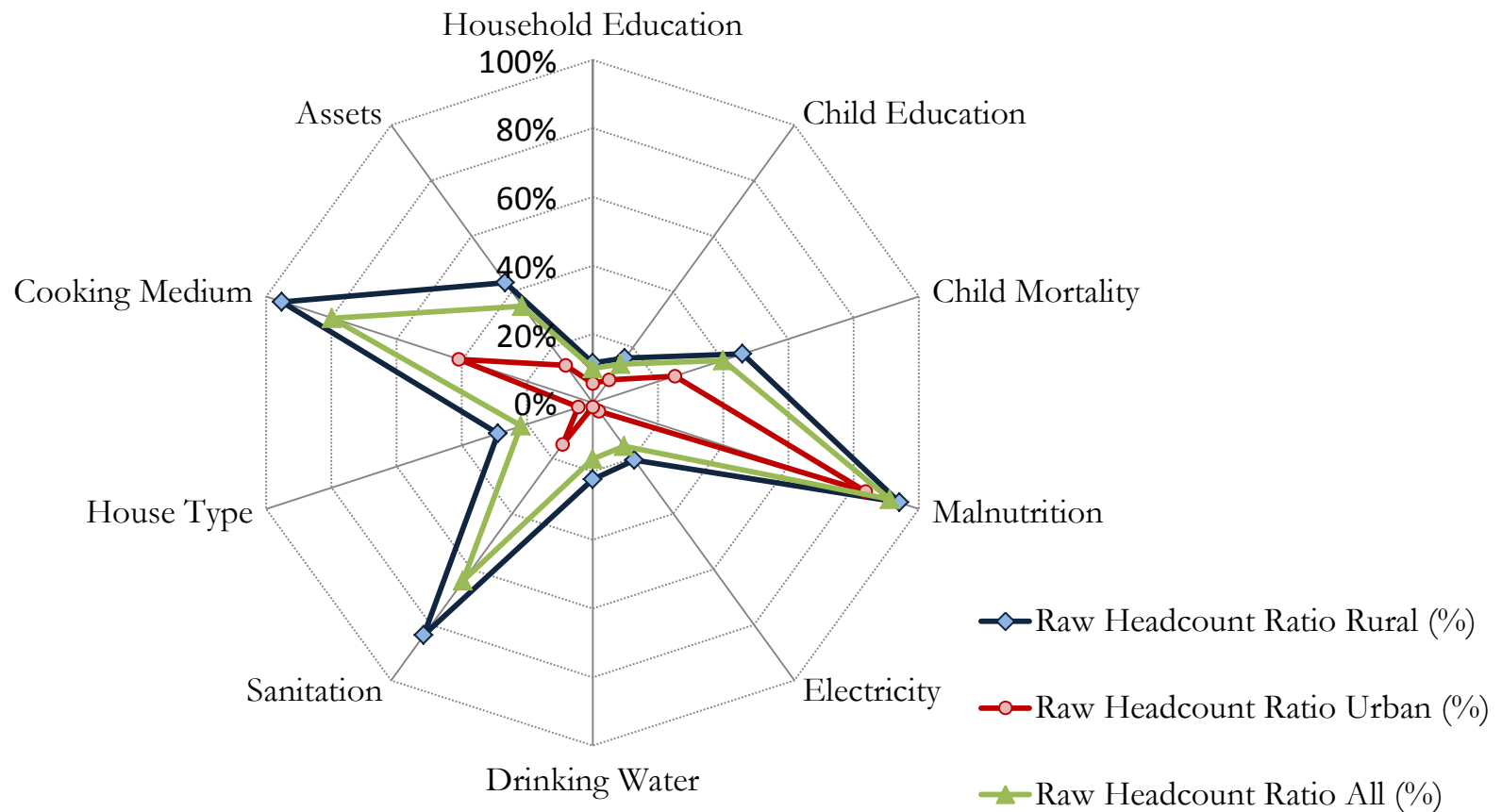
- A person is identified as poor if the household is deprived in 33% of all weighted indicators.
- Alternatively, we also look at cutoff of 50%.
- We apply alternative deprivation cutoffs to find the extent of “ultra” poverty.



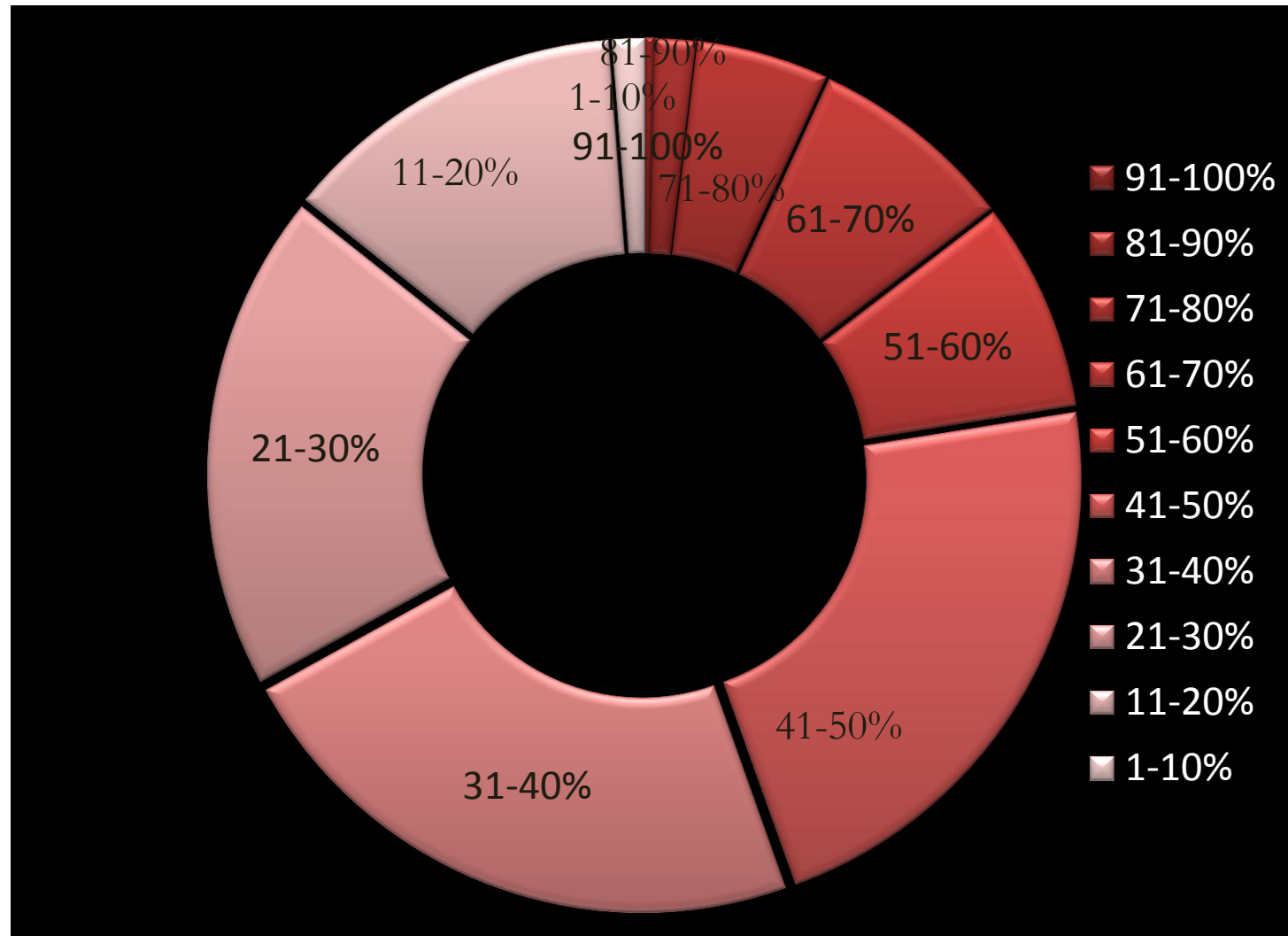
# Raw and Censored Headcounts

| <b>Deprivation Cut-Off</b>   | <b>Raw Headcounts</b> | <b>Censored Headcounts</b> |
|--|-----------------------|----------------------------|
| No household member has completed 5 years of schooling   | 9.9                   | 9.8                        |
| At least one child in 6 to 13 age group is not going to school   | 13.9                  | 13.8                       |
| If any child in the family died before completing 5 years  | <b>40.1</b>           | <b>38.6</b>                |
| If any household member is malnourished (BMI<18.5 for adults, WFA< mean-2sd for children upto five)                                    | <b>91.1</b>           | <b>63.6</b>                |
| Household has no electricity   | 15.7                  | 15.7                       |
| No access to clean drinking water or water source is 500 metres or more (one way)  | 16.4                  | 15                         |
| Toilet is Shared or no toilet  | <b>64.2</b>           | <b>54.7</b>                |
| House is Kuchha (Pucca and semi pucca houses usually have at least cement floor)   | 21.9                  | 20.8                       |
| Household cooks with wood, charcoal or dung  | <b>79.8</b>           | <b>61.6</b>                |
| Household does not own more than one of: radio, TV, telephone, bicycle, motorcycle, or refrigerator; and does not own a car or tractor | <b>34.8</b>           | <b>32.8</b>                |

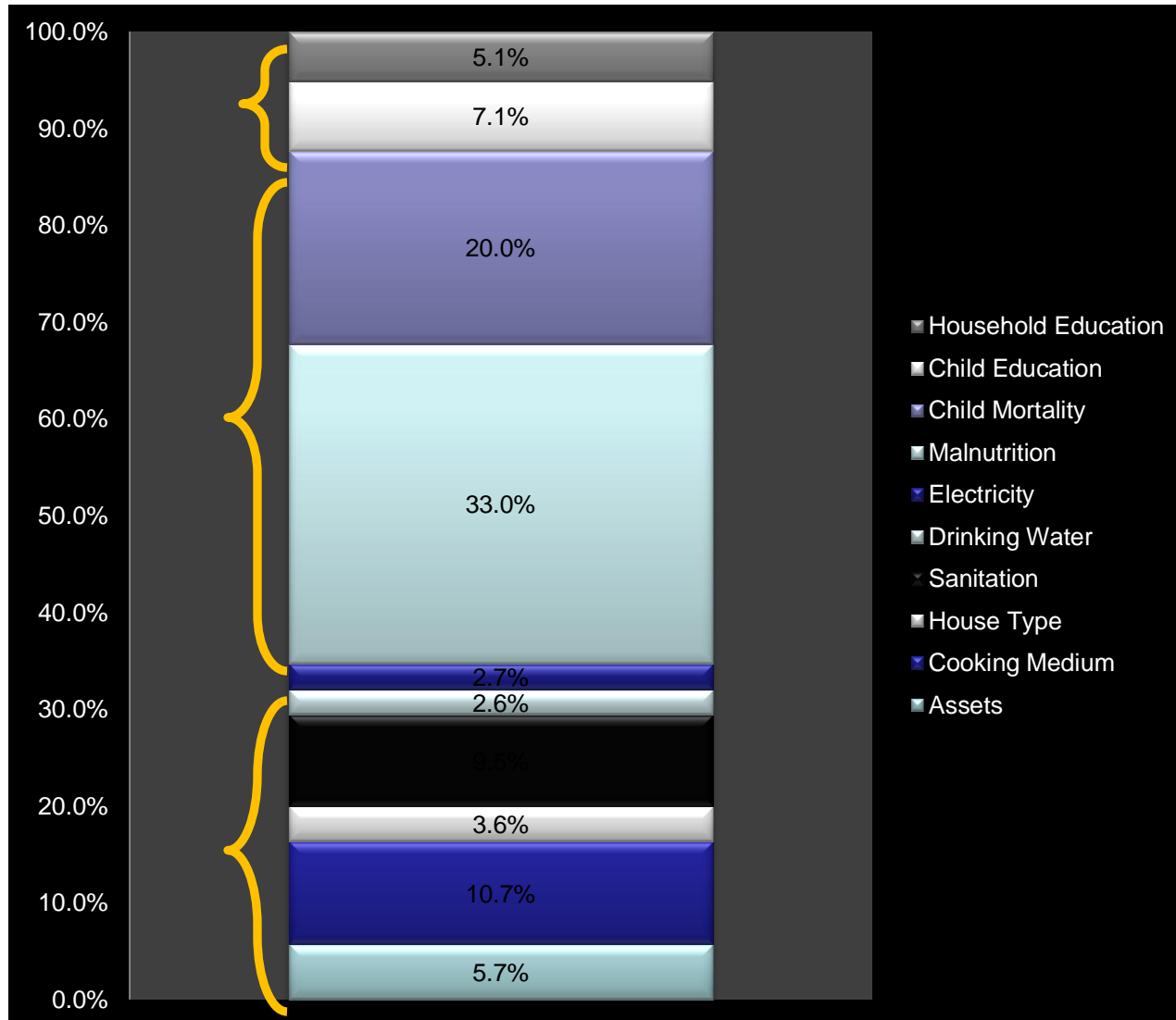
# Raw Headcount Ratio, Rural & Urban (%)



# Percentage of Deprived Population by level of Deprivation (among the deprived)



# Contribution of Indicators to MPI



# Indicators and Cutoffs (Ultra Poverty)

| Indicator          | Deprivation Cut-off   | Weights |
|--------------------|---|---------|
| Nutrition          | <i>If any household member is malnourished (<u>BMI&lt;17 for adults, WFA&lt; mean-3sd for children upto five</u>)</i>             | 1/6     |
| Child mortality    | <i>Any child has died in the household before completing 5 years.</i>   | 1/6     |
| Years of schooling | <i>No household member has had <u>any schooling</u></i>   | 1/6     |
| School attendance  | <i>Any child in 6 to 13 age group is not going to school</i>  | 1/6     |
| Electricity        | <i>The household has no electricity</i>   | 1/18    |
| Sanitation         | <i>The household has <u>no toilet at all</u></i>  | 1/18    |
| Drinking water     | <i>The household does not have access to safe drinking water <u>or safe water is at a distance of 1 km or more (one way).</u></i> | 1/18    |
| House Type         | <i>The house is kachha</i>  | 1/18    |
| Cooking fuel       | <i>The household cooks with <u>dung or wood</u></i>   | 1/18    |
| Assets             | <i>The household does not own <u>even one</u> of: radio, TV, telephone, bike, motorbike, refrigerator, car or tractor.</i>        | 1/18    |

# Cutoff Change and Ultra Poverty

|   | M0    | H            | A     |
|---|-------|--------------|-------|
| 33% Cutoff, Standard Definition of Deprivations (MPI)           | 0.321 | 64.9%        | 0.494 |
| 50% Cutoff, Standard Definition of Deprivations (Severe)        | 0.195 | 32.3%        | 0.602 |
| 33% Cutoff, & <b>Ultra</b> Definition of Deprivations (Ultra)   | 0.202 | <b>45.3%</b> | 0.447 |
| 50% Cutoff, <b>Ultra</b> Definition of Deprivations (Ultra Sev) | 0.082 | <b>14.2%</b> | 0.576 |

# MPI, H and Intensity by Sector and Social Groups

|                    | $M_0$ | H     | A     | Pop Share (%) |
|--------------------|-------|-------|-------|---------------|
| <b>National</b>    | 0.321 | 0.649 | 0.494 | 100.0         |
| Rural              | 0.393 | 0.784 | 0.502 | 71.6          |
| Urban              | 0.138 | 0.311 | 0.444 | 28.4          |
| Scheduled<br>Caste | 0.489 | 0.875 | 0.559 | 18.3          |
| Scheduled<br>Tribe | 0.410 | 0.808 | 0.507 | 9.1           |
| OBCs               | 0.306 | 0.645 | 0.474 | 40.7          |
| Muslims            | 0.283 | 0.562 | 0.504 | 11.7          |
| Other Caste        | 0.170 | 0.392 | 0.433 | 20.2          |

# MPI and Income Poverty by MPCE Quintiles (Rural)

| MPCE Quintiles | MPI Poor    | Income Poor | MPI Poor<br>Income Non<br>Poor | Income<br>Poor MPI<br>Non Poor | Both Poor | Population<br>Share |
|----------------|-------------|-------------|--------------------------------|--------------------------------|-----------|---------------------|
| 1 (poorest)    | 89.3        | 100.0       | 0.0                            | 10.7                           | 89.3      | 22.9                |
| 2              | 87.4        | 84.8        | 14.8                           | 12.2                           | 72.6      | 21.4                |
| 3              | 82.4        | 6.7         | <b>76.4</b>                    | <b>0.8</b>                     | 6.0       | 19.9                |
| 4              | 70.6        | 0.0         | <b>70.6</b>                    | <b>0.0</b>                     | 0.0       | 18.0                |
| 5 (Richest)    | <b>56.9</b> | 0.0         | 56.9                           | 0.0                            | 0.0       | 17.9                |
| Overall H      | <b>78.4</b> | <b>42.4</b> |                                |                                |           |                     |



# MPI and Income Poverty by MPCE Quintiles (Urban)

| MPCE Quintiles | MPI Poor    | Income Poor | MPI Poor<br>Income Non<br>Poor | Income<br>Poor MPI<br>Non Poor | Both Poor | Population<br>Share |
|----------------|-------------|-------------|--------------------------------|--------------------------------|-----------|---------------------|
| 1 (poorest)    | 47.6        | 100.0       | 0.0                            | <b>52.4</b>                    | 47.6      | 24.6                |
| 2              | 34.6        | 39.2        | 19.1                           | <b>23.7</b>                    | 15.5      | 24.7                |
| 3              | 31.8        | 0.0         | 31.8                           | 0.0                            | 0.0       | 19.6                |
| 4              | 20.1        | 0.0         | 20.1                           | 0.0                            | 0.0       | 16.5                |
| 5 (Richest)    | 8.9         | 0.0         | 8.9                            | 0.0                            | 0.0       | 14.6                |
|                | <b>31.1</b> | <b>34.3</b> |                                |                                |           |                     |

# MPI and Income Poverty by Asset Quintiles (Rural)

| Asset Quintiles | MPI Poor | Income Poor | MPI Poor<br>Income<br>Non Poor | Income<br>Poor MPI<br>Non Poor | Both<br>Poor | Population<br>Share |
|-----------------|----------|-------------|--------------------------------|--------------------------------|--------------|---------------------|
| 1 (poorest)     | 100.0    | 58.2        | 41.8                           | 0.0                            | 58.2         | 20.8                |
| 2               | 94.4     | 48.3        | 48.7                           | 2.7                            | 45.7         | 26.1                |
| 3               | 79.2     | 47.3        | 41.3                           | 9.5                            | 37.9         | 23.1                |
| 4               | 46.6     | 23.3        | 35.1                           | 11.8                           | 11.5         | 19.8                |
| 5 (Richest)     | 53.1     | 20.5        | 32.5                           | 0.0                            | 20.5         | 10.2                |

# MPI and Income Poverty by Asset Quintiles (Urban)

| Asset Quintiles | MPI Poor | Income Poor | MPI Poor Income Non Poor | Income Poor MPI Non Poor | Both Poor | Population Share |
|-----------------|----------|-------------|--------------------------|--------------------------|-----------|------------------|
| 1 (poorest)     | 75.8     | 71.2        | 22.7                     | 18.2                     | 53.0      | 3.7              |
| 2               | 58.7     | 70.7        | 8.7                      | 20.7                     | 50.0      | 8.4              |
| 3               | 46.1     | 50.6        | 20.6                     | 25.1                     | 25.5      | 13.7             |
| 4               | 33.6     | 46.0        | 15.3                     | 27.8                     | 18.2      | 25.3             |
| 5 (Richest)     | 17.5     | 14.5        | 15.0                     | 12.0                     | 2.5       | 48.9             |

# MPI and Income Poverty by Household Size (Rural)

| Household Size | MPI Poor | Income Poor | MPI Poor<br>Income Non Poor | Income Poor MPI<br>Non Poor | Both Poor | Population Share |
|----------------|----------|-------------|-----------------------------|-----------------------------|-----------|------------------|
| Upto 4         | 75.6     | 14.7        | 60.9                        | 0.0                         | 14.7      | 13.6             |
| 5              | 74.6     | 30.2        | 47.6                        | 3.2                         | 27.0      | 14.1             |
| 6              | 82.5     | 46.7        | 40.9                        | 5.1                         | 41.6      | 18.3             |
| 7              | 81.4     | 51.6        | 38.1                        | 8.3                         | 43.3      | 15.2             |
| 8              | 78.1     | 60.9        | 29.7                        | 12.5                        | 48.4      | 11.4             |
| 9 and Above    | 77.3     | 46.7        | 34.9                        | 4.2                         | 42.4      | 27.4             |

# MPI and Income Poverty by Household Size (Urban)

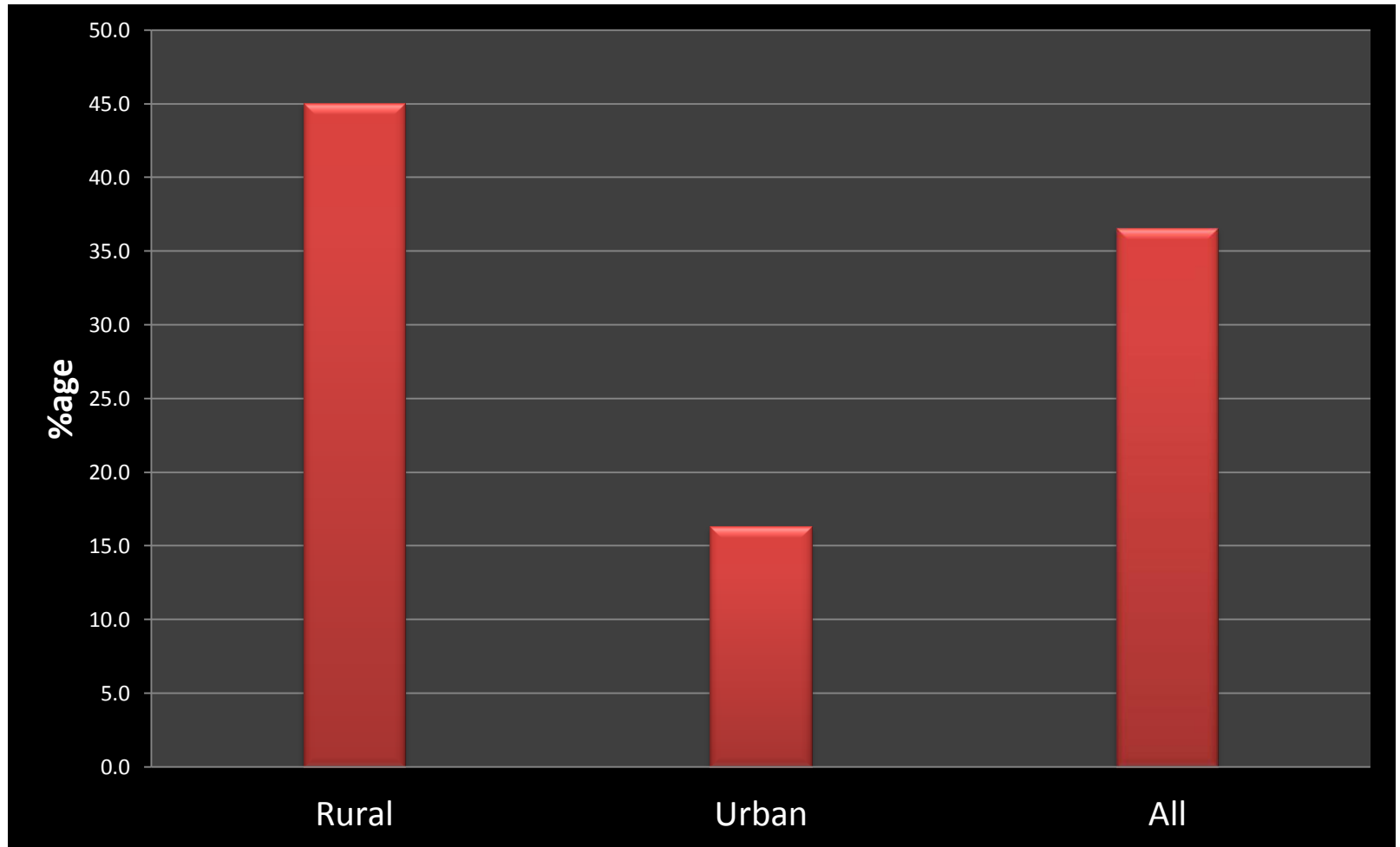
| Household Size | MPI Poor | Income Poor | MPI Poor<br>Income Non<br>Poor | Income<br>Poor MPI<br>Non Poor | Both<br>Poor | Population<br>Share |
|----------------|----------|-------------|--------------------------------|--------------------------------|--------------|---------------------|
| Upto 4         | 23.1     | 5.9         | 18.4                           | 1.3                            | 4.7          | 18.1                |
| 5              | 30.8     | 24.6        | 15.4                           | 9.2                            | 15.4         | 18.3                |
| 6              | 21.8     | 32.7        | 14.6                           | 25.5                           | 7.3          | 18.6                |
| 7              | 34.6     | 57.7        | 11.5                           | 34.6                           | 23.1         | 10.2                |
| 8              | 44.4     | 50.0        | 27.8                           | 33.3                           | 16.7         | 8.1                 |
| 9 and Above    | 37.8     | 47.3        | 12.4                           | 21.9                           | 25.4         | 26.8                |

# Correspondence Between MPI Poverty and Income Poverty (% of Population)

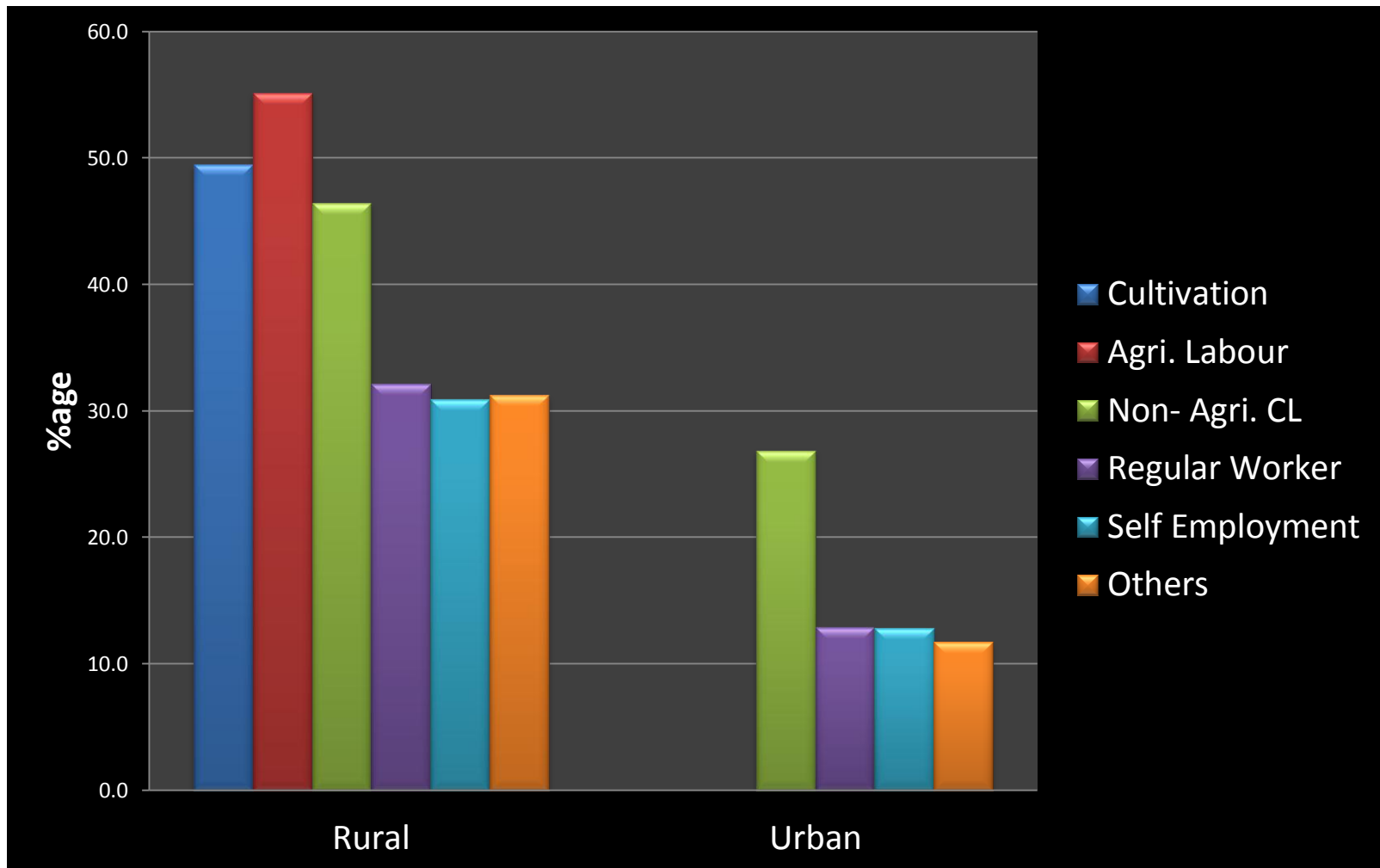
|              | Income Non Poor | Income Poor | All   |
|--------------|-----------------|-------------|-------|
| MPI Non Poor | 26.0            | 9.1         | 35.1  |
| MPI Poor     | 33.9            | 31.0        | 64.9  |
| All          | 59.9            | 40.1        | 100.0 |

**52.2% of MPI poor people are not income poor, but only  
22.6 % of income poor people are not MPI poor.**

# $M_0$ poor ( $k=33\%$ ) but *not* income poor (By Sector)

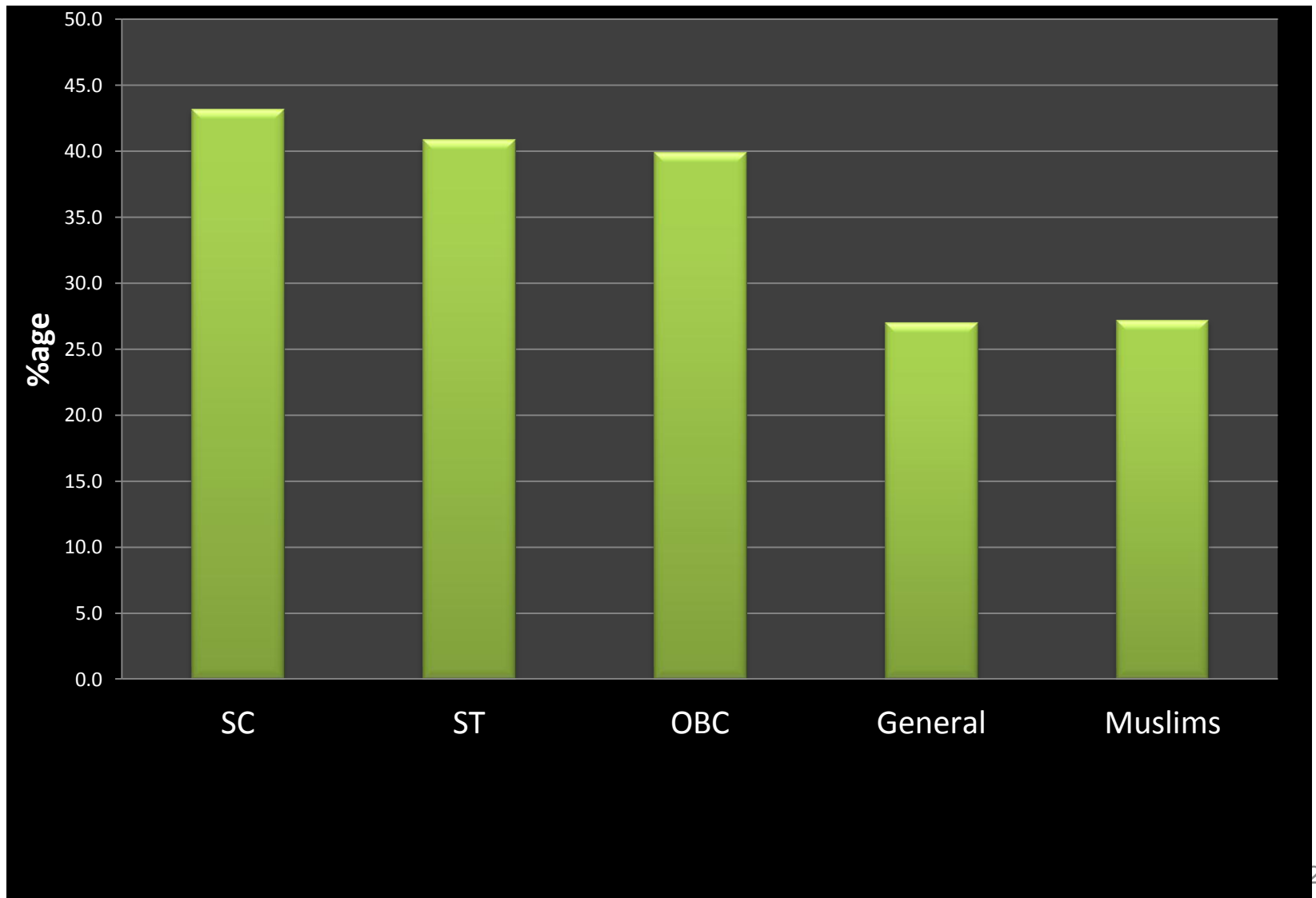


# M<sub>0</sub> poor but *not* income poor (By HH Occupation)





# $M_0$ poor but *not* income poor (By Social Group)



# Conclusion

- Relative deprivations are similar across individual indicators in rural and urban areas, but rural areas face greater of deprivation in sanitation, cooking medium and assets.
- Malnutrition is almost equally high in rural and urban areas.
- 70% of the MPI poor are ‘ultra’ poor; 50% are severe poor.
- Rural-urban differences in MPI much higher than in income
- Mismatch in crosstabs between MPI and income poverty is significant
- Asset ownership and income or MPI poverty are also distinct
- Household size doesn’t have strong link to MPI poverty in rural areas, unlike the urban areas.

# Further Scope in this Study

- Can look at individual deprivations, especially across gender (Individual data on training, employment income, health, subjective well being, social attitudes, empowerment etc. available)
- Can compare the association of MPI poverty and income poverty with other outcomes.