
Analysis of Household Consumption & Expenditure Patterns in Rural and Urban India (2022-23)

Approach towards Data analysis and Data visualization

1. Introduction

The [Household Consumption Expenditure Survey \(HCES\) 2022-23](#) provides insights into the **Monthly Per Capita Expenditure (MPCE)** across different socio-economic groups in rural and urban India. This report presents a **comparative analysis of MPCE using various data visualization techniques** to highlight spending patterns across regions, income fractiles, and social groups.

2. Methodology

The analysis was conducted using the following steps:

Data Extraction:

- Relevant data was extracted from the **HCES 2022-23** report using python script which extracts specific tables from a PDF report using the **pdfplumber library** and saves them as a CSV file using **pandas**

Data Cleaning & Processing:

- The extracted data was organized manually and processed using **Python (Pandas library)** to structure it into a usable CSV format.
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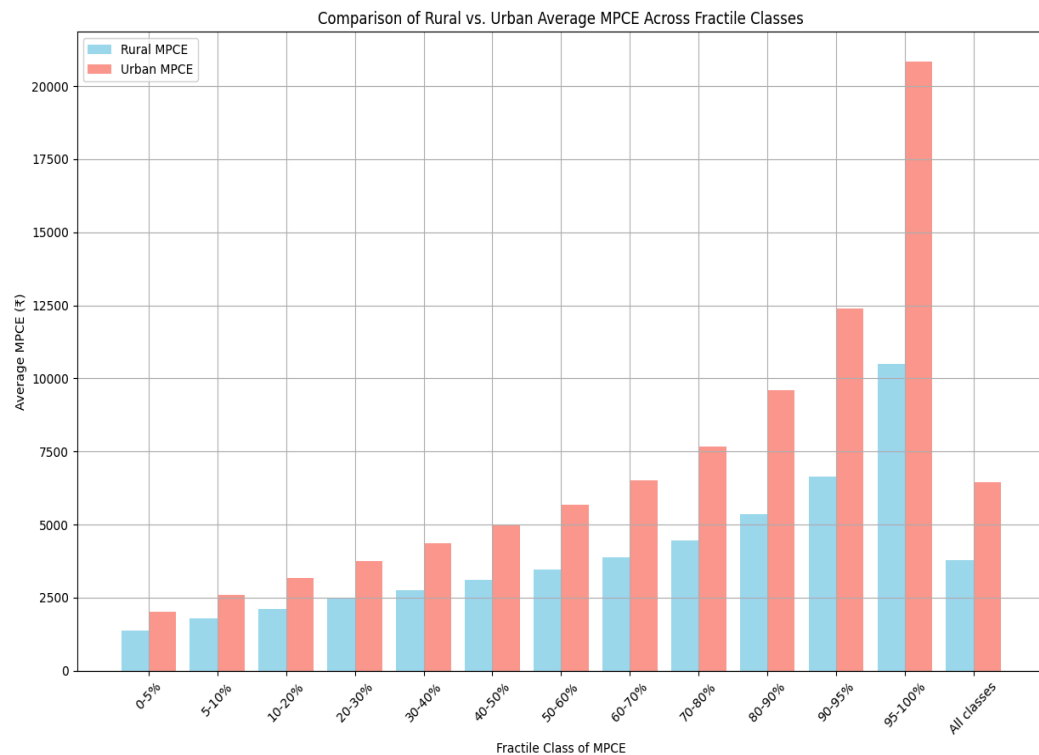
Visualization:

Different types of charts were used to effectively present the data trends, including:

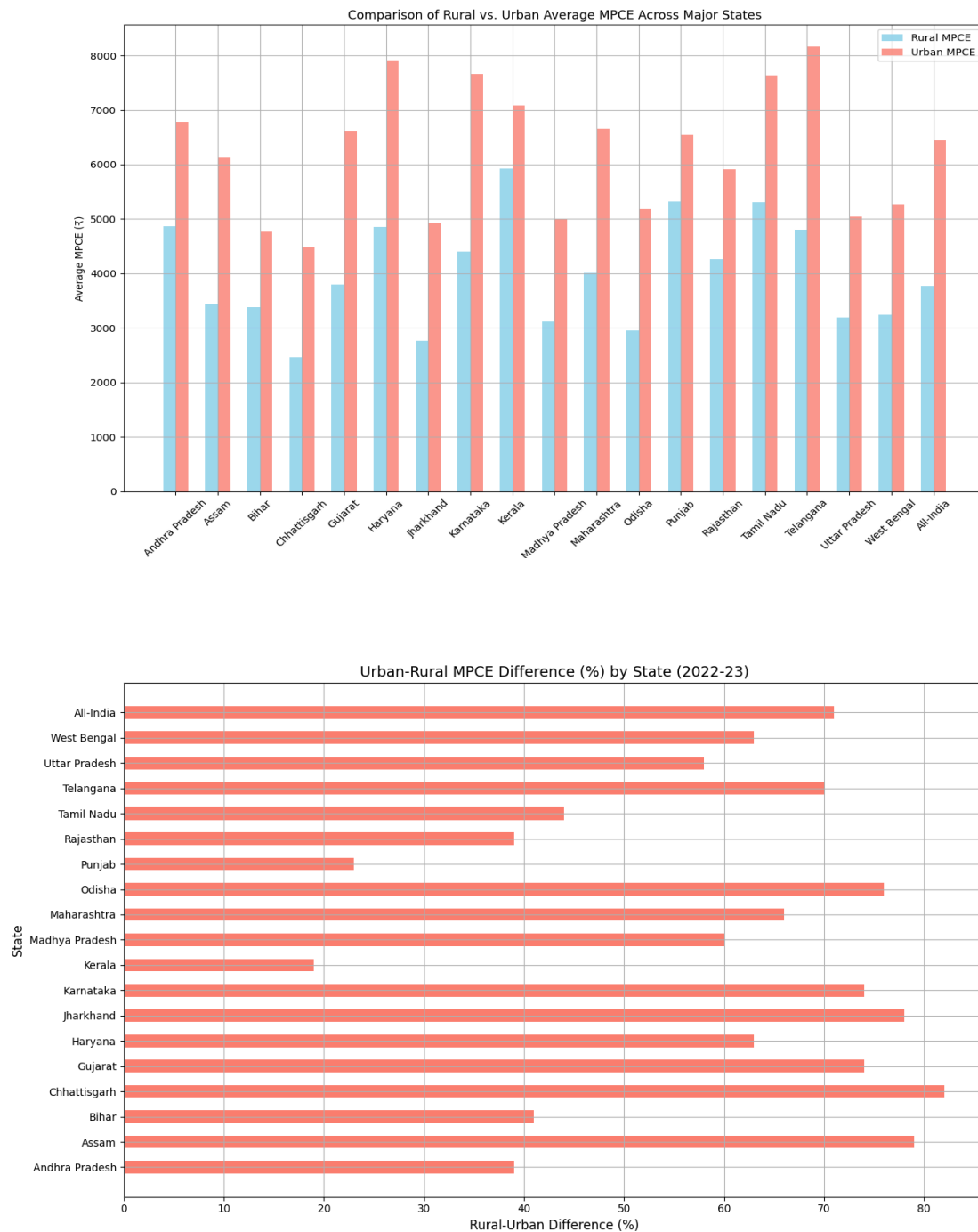
- **Bar Graphs** (Vertical & Horizontal): Used for comparing MPCE across different states and fractile classes.
- **Nested Pie Chart**: Used for understanding the percentage breakup of MPCE by item groups.
- **Heatmaps**: Used to show variations in MPCE across states and social categories.

3. Data Visualizations

3.1 Comparison of Rural vs. Urban Average MPCE Across Fractile Classes

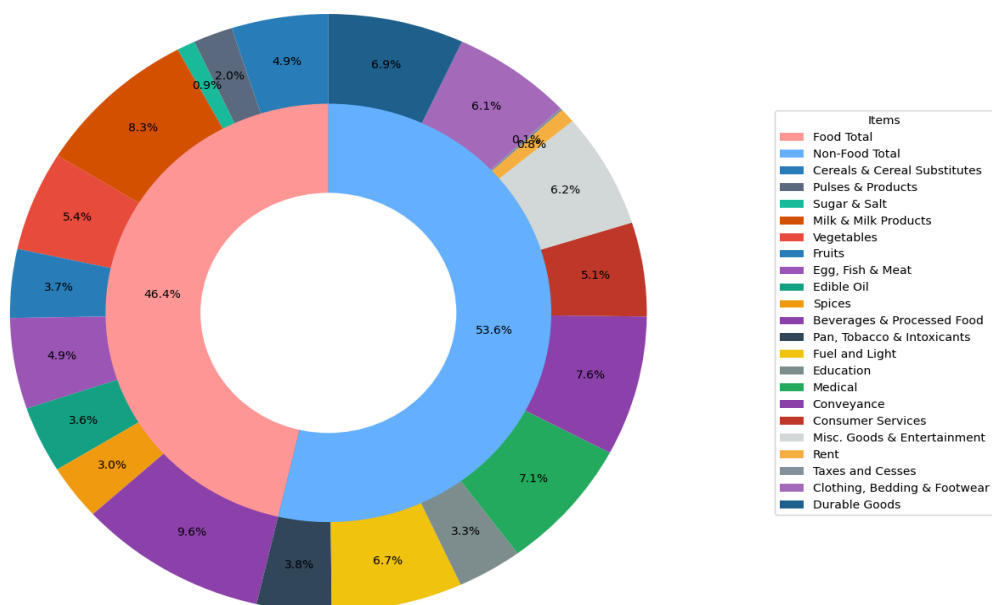


3.2 Comparison of Rural vs. Urban MPCE Across Major States

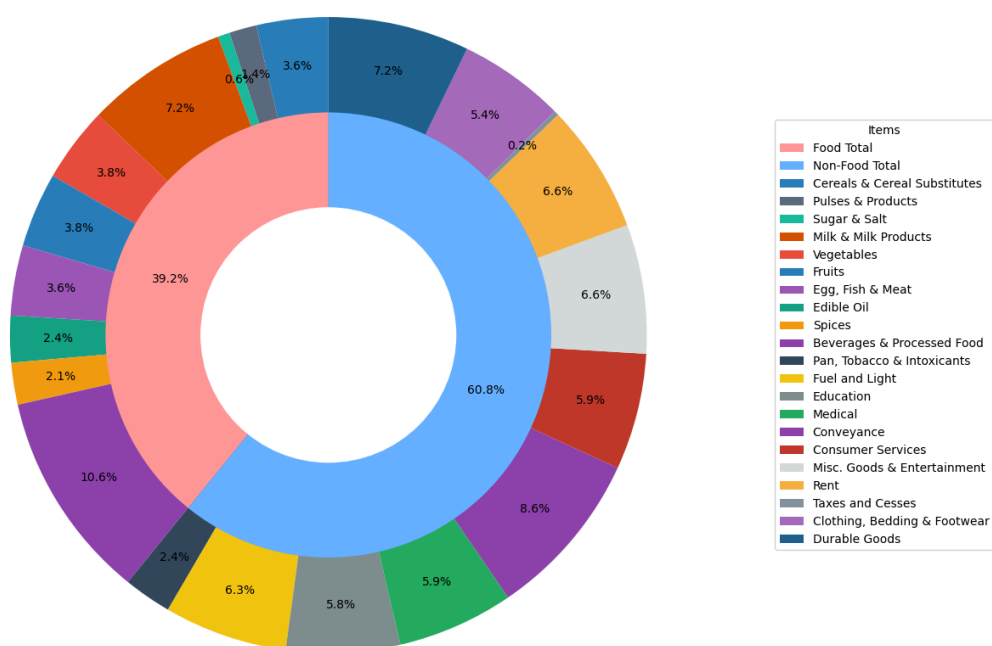


3.3 Percentage Break-up of MPCE by Item Groups in Rural & Urban India

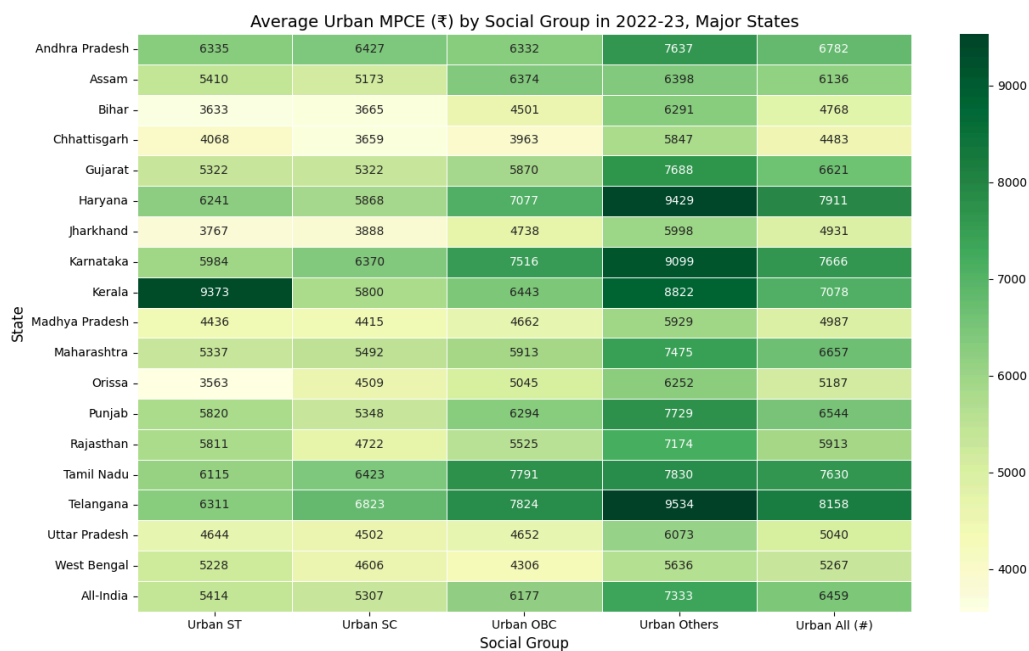
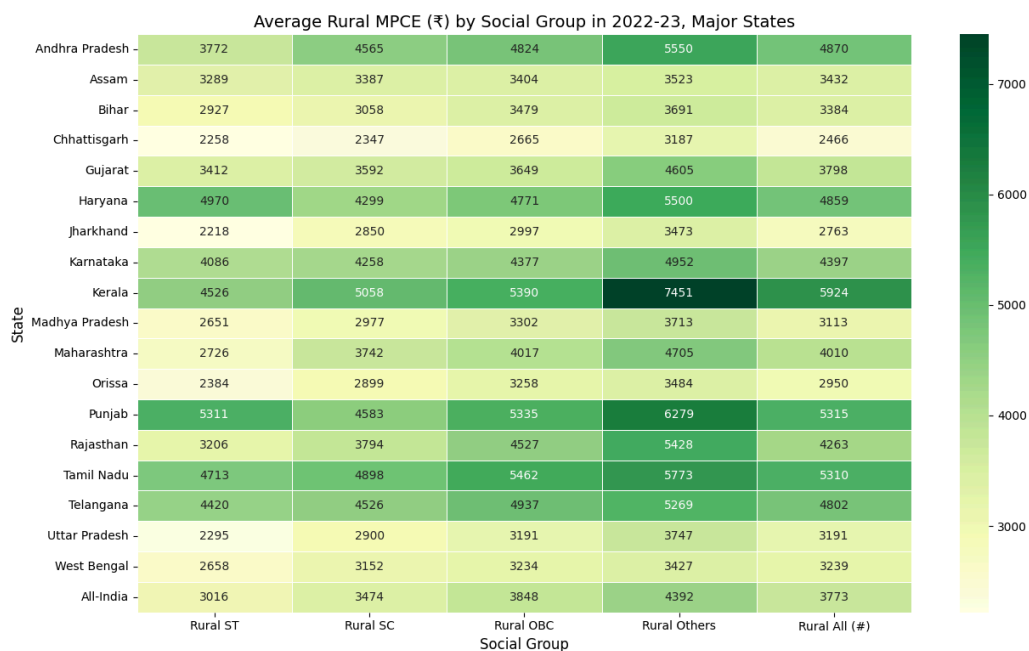
Percentage break-up of MPCE by item groups in Rural India in 2022-23: All-India



Percentage break-up of MPCE by item groups in Urban India in 2022-23: All-India



3.4 Average MPCE by Social Group in Major States





4. Conclusion

The data analysis and visualizations effectively **illustrate key economic disparities and trends across demographics, regions, and consumption patterns**. By transforming complex datasets into clear visual representations, we have identified patterns that highlight regional inequalities, spending behavior, and socio-economic gaps. The visual approach **enhances data interpretation**, making it easier to **draw meaningful conclusions** and inform policy decisions.