

Week 3: Exploratory Data Analysis (EDA)

During the third week of our project, we performed Exploratory Data Analysis (EDA) to understand patterns, trends, and outliers in Nepal's inflation data for the fiscal year 2022–23.

Data Cleaning and Structuring

We began by extracting monthly and yearly inflation statistics from the NRB report. These included:

- Monthly inflation rates
- Annual inflation for food vs non-food categories
- Sectoral inflation (e.g., health, education, transportation, housing)
- Regional inflation differences (Terai, Hills, Kathmandu, Mountain)

Descriptive Statistics & Visual Trends

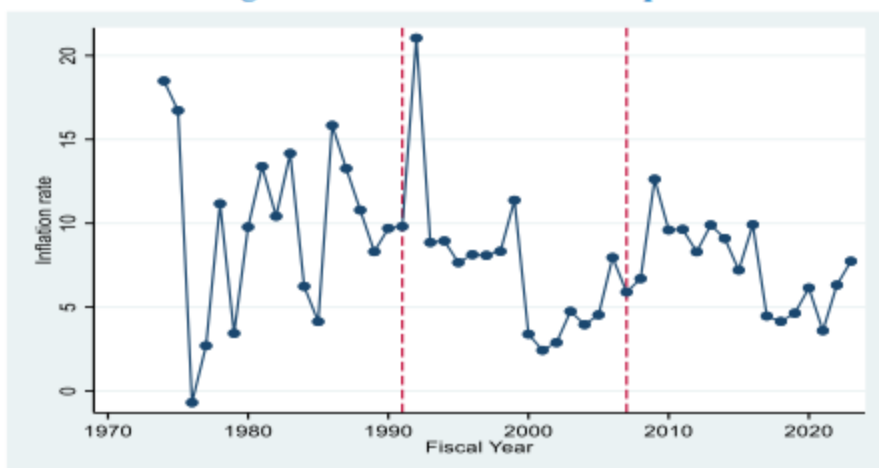
The average inflation rate in Nepal during 2022–23 was 7.74%, with:

- Food and Beverages inflation averaging 6.62%
- Non-Food and Services inflation at 8.62%

Key observations:

- Inflation peaked at **8.64%** in the second month (Shrawan) and dropped to 6.83% by the eleventh month.
- Non-food inflation remained consistently higher than food inflation throughout the year.

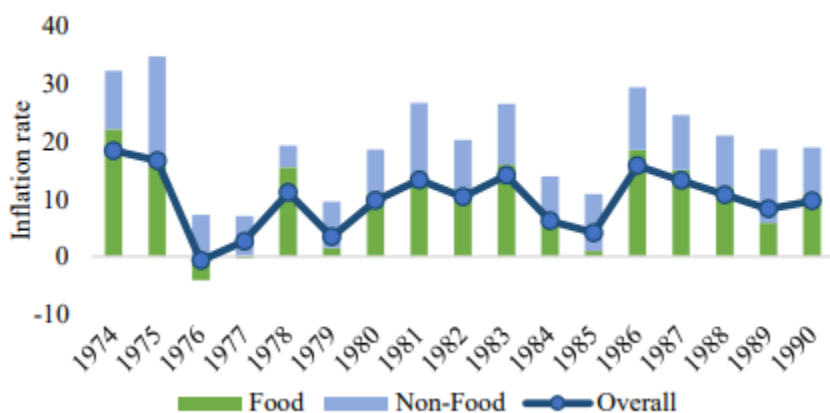
Figure 1: Inflation trend in Nepal



This figure shows how frequently certain inflation rates appeared throughout the year.

- Headline inflation was highest in Ashwin (8.5%) and lowest in Ashadh (6.08%).
- The histogram shows that most inflation values fall between 6% to 8.5%, meaning inflation stayed high throughout the year.
- This figure helps us see the distribution and common levels of inflation during the fiscal year.

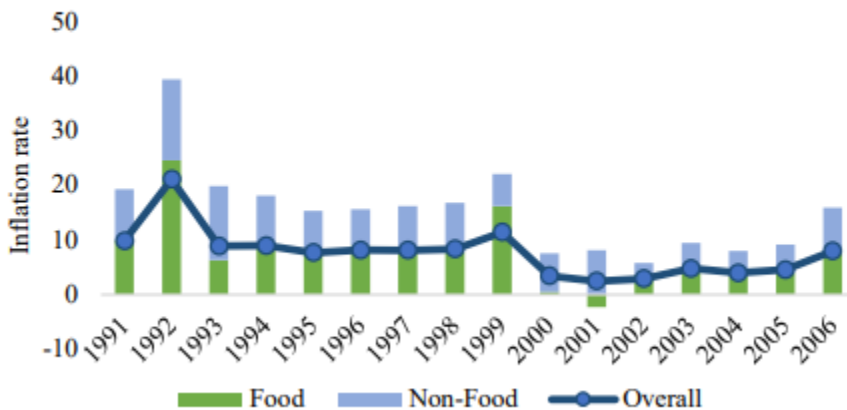
Figure 2: Inflation trend during 1974-75 to 1989-90



This plot compares the range and consistency of food and non-food inflation.

- Food inflation was more stable, ranging from 4.54% to 7.60%.
- Non-food inflation was higher and more spread out, ranging from 8% to 9.47%.
- The box plot shows that non-food inflation had a wider range, indicating it fluctuated more than food inflation.

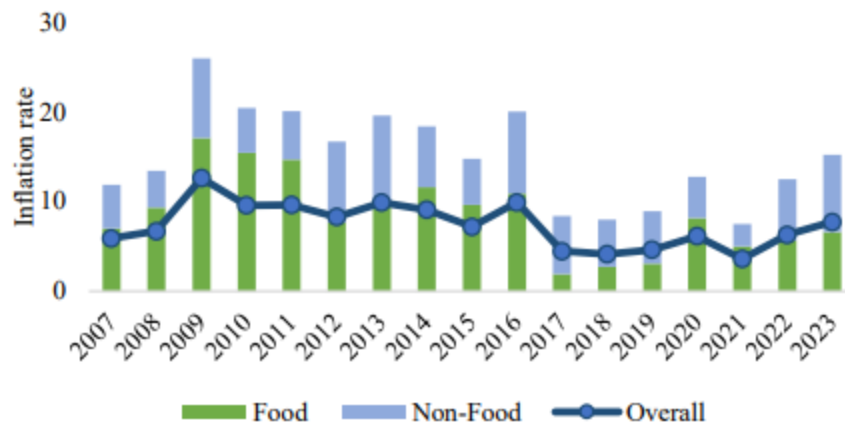
Figure 3: Inflation trend during 1991-92 to 2005-06



This line chart shows how inflation changed month-by-month.

- The overall trend shows a gradual decline in headline inflation from the start (Shrawan) to the end (Ashadh).
- Food inflation dipped sharply in the last three months (Jestha and Ashadh).
- Non-food inflation stayed relatively high and stable, explaining why headline inflation didn't drop too drastically.

Figure 4: Inflation trend during 2006-07 to 2022-23



This plot helps us understand if food and non-food inflation are closely related.

- Even if both types rise or fall, the scatter plot shows no strong pattern or correlation.
- This tells us that food and non-food items are influenced by different factors (e.g., seasonal crops, import prices, fuel, housing, etc.).

Key Insights from EDA

1. During the year, inflation in Nepal was steady and remained at a high level, just in non-food items.
2. High inflation tends to make people spend less since prices are going up and their money is worth less.
3. Knowing about seasonal inflation helps guides the actions of investors and policy-makers.
4. The findings themselves confirm that our project aims to study to how inflation affects investments in Nepal.