

Assessing Food Price Dynamics through the Balanced Diet Consumer Index

Why this study of food prices?

- Analysing food prices is crucial in addressing financial and health issues.
- By understanding the impact on different population segments, policymakers and stakeholders can develop policies to stabilise prices and ensure food security.
- Data-driven insights can guide the creation of policies that protect vulnerable populations from price shocks.
- Identifying inefficiencies and opportunities in the agricultural supply chain can lead to better resource management and increased productivity.
- By monitoring and controlling food prices, steps can be taken to ensure that all sections of society have access to affordable and nutritious food, thereby improving overall public health.
- Stabilising food prices can help reduce the financial burden on the poorest households, enabling them to allocate resources to other critical areas and break the cycle of poverty.

Data Sources and Objective

- The data for food prices was obtained from the website of the Department of Consumer Affairs (DCA): https://fcainfoweb.nic.in/reports/Report_Menu_Web.aspx and available for analysis at: <https://atlasag.respirer.in/map>.
- To build an index named Balanced Diet Consumer Index (BDCI).
- Helps producers set fair prices based on market trends.
- Provides insights into consumer demand for balanced diet components.
- Enables consumers to make informed decisions regarding their food purchases.
- Assists consumers in planning their food budget to maintain a balanced diet.
- Evaluates the accessibility and affordability of a balanced diet for various populations.

Methodology and Data

- Daily food price data from all Indian states for the period 1st Jan 2018 – 30th June 2024 was collected with the help of <https://atlasag.respirer.in/map>.
- The breakdown for balanced diet is:

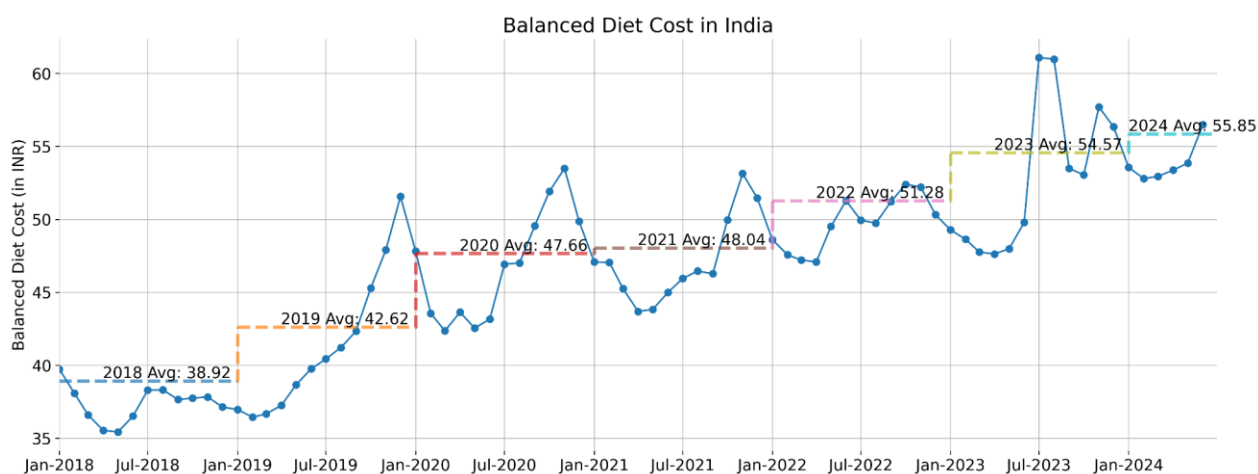
Food	Quantity (grams or ml)
Nuts and seeds	35
Fats and oils	27
Milk/curd	300
Pulses and legumes	85

Fish and flesh foods	30
Cereals and nutri-cereals	250
Vegetables	400
Salt	5
Sugar	25
Fruits	100

- The crops were grouped as per the following categories

Category	Crops in the category
Cereals and nutri-cereals	Rice, Wheat, Atta (Wheat)
Milk/curd	Milk
Pulses and legumes	Gram Dal, Tur/Arhar Dal, Urad Dal, Moong Dal, Masoor Dal
Fats and oils	Groundnut Oil, Mustard Oil, Vanaspati (Ghee), Soya Oil, Sunflower Oil, Palm Oil
Salt	Salt
Sugar	Sugar
Vegetables	Potato, Onion, Tomato

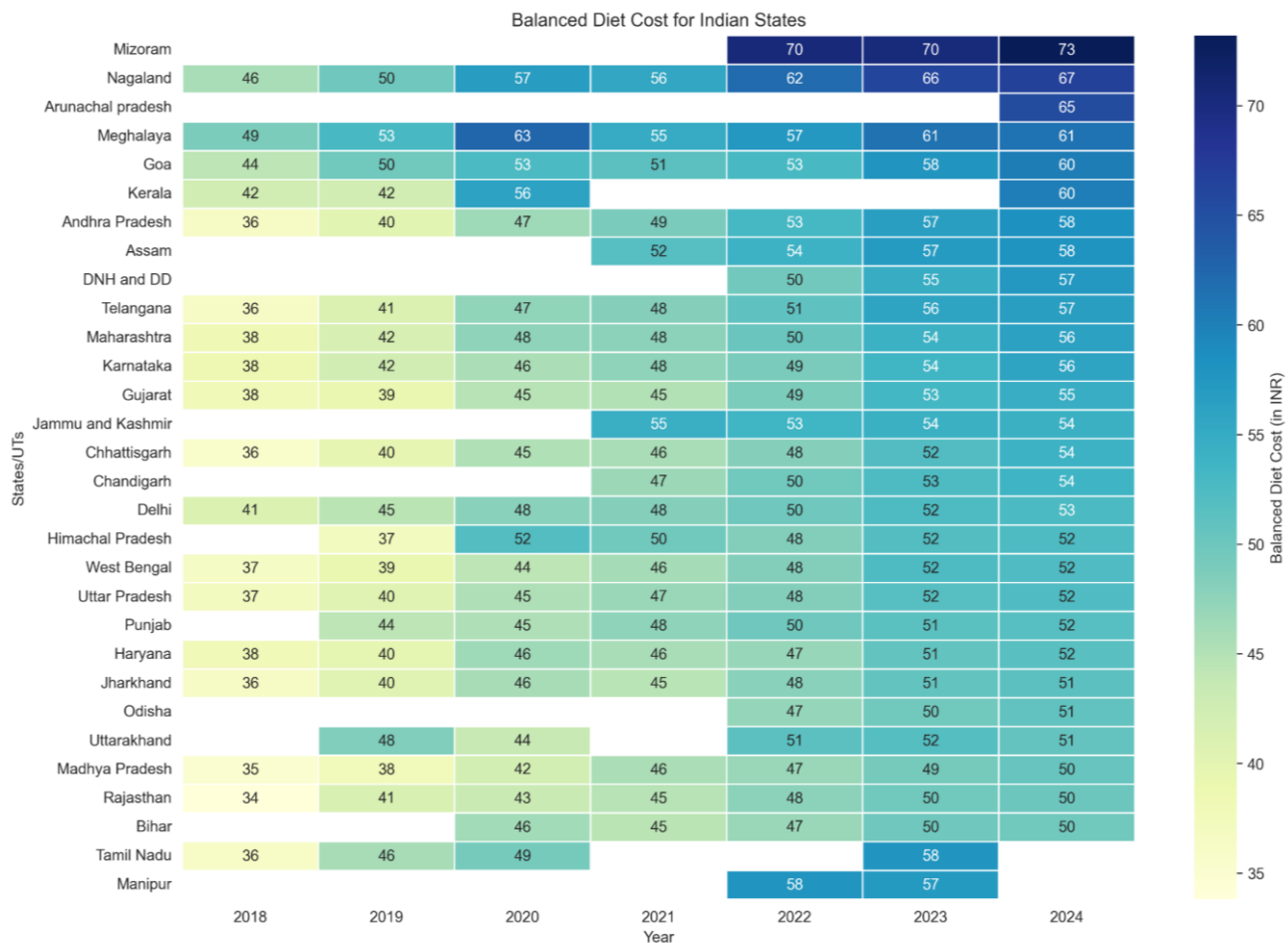
Balanced diet cost = $\text{Sum}(\text{weightage of category in the BD} \times \text{average cost of foods in the category})$



The increase in Balanced Diet cost in the periods **June 2022 to June 2023** and **June 2023 to June 2024** are as following:

Rank	June 2022 & June 2023				June 2023 & June 2024			
	States/UTs	Balance Diet cost in June 2022	Balance Diet cost in June 2023	% Increase	States/UTs	Balance Diet cost in June 2023	Balance Diet cost in June 2024	% Increase
1	Goa	53.53	56.71	5.94	DNH and DD	49.75	62.73	26.10
2	Gujarat	48.58	50.34	3.62	Maharashtra	50.83	61.13	20.27
3	Telangana	52.42	53.24	1.56	Karnataka	50.48	59.94	18.75
4	Chandigarh	48.07	48.68	1.28	Telangana	53.24	61.29	15.13
5	Nagaland	62.83	63.58	1.20	Odisha	47.60	54.75	15.01
6	Himachal Pradesh	48.28	48.29	0.02	Gujarat	50.34	57.87	14.96
7	West Bengal	49.87	49.78	-0.17	Chhattisgarh	49.36	56.64	14.74
8	Andhra Pradesh	55.19	54.79	-0.73	Chandigarh	48.68	55.51	14.04
9	Uttar Pradesh	48.90	48.52	-0.76	Goa	56.71	64.56	13.84
10	Assam	54.73	54.27	-0.85	Punjab	46.67	52.96	13.49

The list for the complete rankings for the % increase in June: [June increases.xlsx](#)



The Balanced Diet cost was plotted for all the states across different timeframes.

Here’s a folder of graphs that contain the **daily** Balance Diet prices plotted for every state: [Daily BD Cost Plots](#)

Here’s a folder of graphs that contain the **monthly-averaged** Balance Diet prices plotted for every state: [Monthly BD Cost Plots](#)

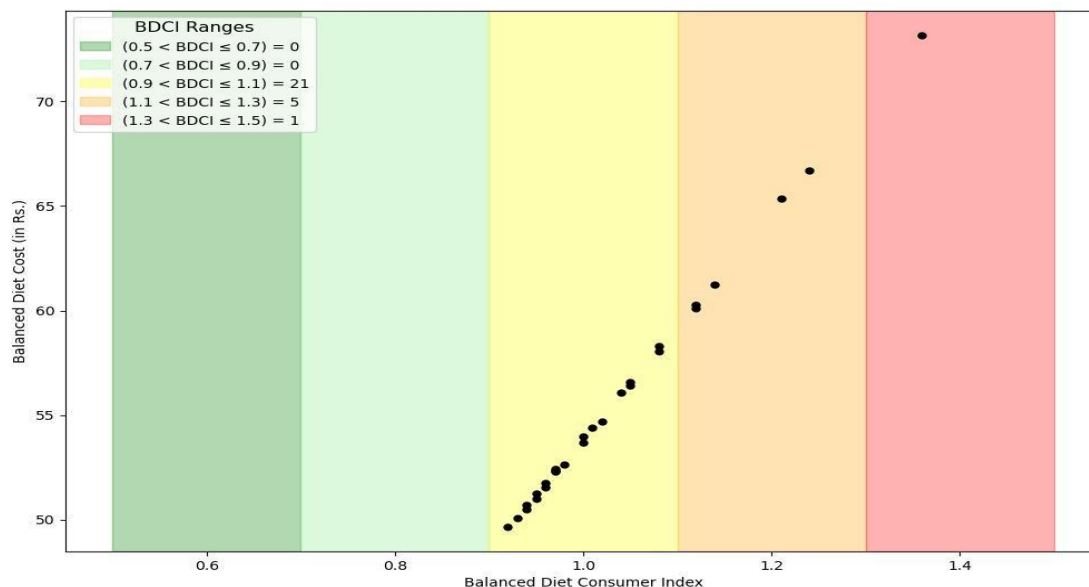
Here’s a folder of graphs that contain the **yearly-averaged** Balance Diet plotted for every state: [Yearly BD Cost Plots](#)

Here’s a folder of rankings based on BD Cost: [BD Cost Rankings](#)

What is Balanced Diet Consumer Index (BDCI)?

- Balance Diet Consumer Index is a numeric score that tracks the performance of a particular location with respect to the overall average of the country in terms of Balance diet prices. The range for the index is (0, ∞).
- This formula can be used to calculate the BDCI:

Distribution of States in different Zones of BDCI in 2024



The state in the red zone is Mizoram, with a BDCI of 1.36 (BD cost = 73.18). The five states in the orange zone are Nagaland, Arunachal Pradesh, Meghalaya, Goa, and Kerala, with BDCIs of 1.24, 1.21, 1.14, 1.12, and 1.12, respectively. This indicates that the North-Eastern states are highly affected by food price inflation, likely due to climate conditions and supply chain disruptions.

BDCI Rank	2023			2024		
	States/UTs	Balance Diet Cost	BDCI	States/UTs	Balance Diet Cost	BDCI
1	Mizoram	70.31	1.33	Mizoram	73.18	1.36
2	Nagaland	66.11	1.25	Nagaland	66.72	1.24
3	Meghalaya	61.48	1.16	Arunachal Pradesh	65.35	1.21
4	Goa	57.89	1.1	Meghalaya	61.23	1.14
5	Tamil Nadu	57.8	1.09	Goa	60.29	1.12
6	Manipur	57.26	1.08	Kerala	60.12	1.12
7	Assam	57.07	1.08	Andhra Pradesh	58.29	1.08
8	Andhra Pradesh	56.58	1.07	Assam	58.05	1.08
9	Telangana	55.87	1.06	DNH and DD	57.35	1.07
10	DNH and DD	54.86	1.04	Telangana	56.59	1.05

Here's a folder of rankings based on BDCI: [BDCI Rankings](#)

Sources

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3. <https://www.narayanseva.org/what-is-the-poverty-line-in-india/#:~:text=Depending%20upon%20the%20country's%20social,per%20month%20for%20rural%20areas.>
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