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Seasonal Variation In Food Inflation: A Study Of Agricultural Commodities In India

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Abstract
This research paper examines the seasonal variation in food inflation in India and its implications for agricultural commodities. The major agricultural products, such as rice, wheat, pulses, vegetables, and fruits, the study analyzes the patterns and drivers of seasonal food inflation. The findings reveal significant seasonal fluctuations in food prices, with higher inflation rates during specific periods. Factors such as weather conditions, supply-demand dynamics, storage and transportation challenges, and government policies contribute to these variations. The implications of seasonal food inflation include challenges for consumers, opportunities for farmers and traders, and the need for targeted policy interventions. The study highlights the importance of improving agricultural infrastructure, promoting market integration, and investing in climate-resilient practices to mitigate the impact of seasonal fluctuations on food prices. The research provides valuable insights for policymakers, stakeholders, and researchers interested in understanding and addressing seasonal food inflation in India.

Keywords: Seasonal Variation, Food Inflation, Agricultural Commodities, India, Weather Conditions.

1. Introduction
Food inflation is a persistent issue in India, where a significant portion of the population relies on agriculture for their livelihoods and sustenance. Understanding the seasonal variation in food inflation and its underlying factors is crucial for policymakers and stakeholders to develop effective strategies to manage price fluctuations, ensure food affordability, and promote overall economic stability. India's agricultural sector is characterized by distinct seasonal cycles due to the country's diverse climate and agricultural practices. Different regions experience specific sowing, harvesting, and marketing periods, resulting in variations in the availability and prices of agricultural commodities throughout the year. Analyzing historical data on food prices can provide valuable insights into the seasonal patterns and drivers of food inflation in India.

To understand the magnitude of food inflation in India, it is essential to examine relevant data. According to the Consumer Price Index (CPI), the food and beverages segment constitutes a significant portion of the overall inflation basket. For instance, data from the Reserve Bank of India (RBI) indicates that food inflation averaged around 3.5% in the fiscal year 2020-2021,

accounting for a substantial portion of overall inflation. Furthermore, agricultural commodity prices play a crucial role in food inflation. Data from the Ministry of Agriculture and Farmers' Welfare can provide insights into the prices of major commodities such as cereals, pulses, fruits, vegetables, and spices. For example, the wholesale price index (WPI) for food articles published by the Ministry can help analyze price trends and fluctuations across different seasons.

Several factors contribute to the seasonal variation in food inflation in India. Changes in supply and demand dynamics due to factors such as weather conditions, crop yields, and market behavior can significantly impact food prices. For instance, during periods of low agricultural output or adverse weather conditions like droughts or floods, the scarcity of certain commodities can drive up prices. Transportation and logistics issues also affect food prices, particularly in a vast and diverse country like India. Inadequate storage and transportation infrastructure can lead to spoilage and wastage of perishable commodities, affecting their availability and prices. Additionally, government policies, such as minimum support prices (MSPs) and trade regulations, can have a significant influence on agricultural commodity prices and subsequently impact food inflation. Objectives To analyze the seasonal variation in food inflation in India, specifically focusing on agricultural commodities. To identify the key drivers and factors contributing to the fluctuations in food prices across different seasons.

2. Review Of Literature

Agrawal, P., & Jain, V. (2019) examined the seasonality of food inflation in India using monthly data from 2005 to 2017. The authors find strong evidence of seasonal patterns in food inflation, with higher inflation rates during the monsoon season. They suggest that weather-related disruptions in agricultural production and supply chain inefficiencies contribute to the seasonal variation. Gupta, P., & Dabas, Y. (2018) analyzed the seasonal patterns of food inflation in India using monthly wholesale price index (WPI) data for agricultural commodities. The study finds significant seasonal variations in food prices, particularly for perishable items such as fruits and vegetables. The authors attribute these patterns to supply-demand imbalances, storage and transportation constraints, and market inefficiencies. Kumar, A., & Sharma, S. (2020) focused on state-level variations in the seasonality of food prices in India. The study analyzes data from 20 major states and finds diverse seasonal patterns across different regions. The authors identify factors such as climatic conditions, production cycles, and market integration as drivers of seasonal food price fluctuations. Tandon, S., & Landes, M. (2019) investigates the seasonal patterns of food prices and their implications for public distribution programs in India. Using monthly data on retail prices of key food commodities, the authors identify distinct seasonal variations in prices and their impact on the affordability of essential food items. They emphasize the importance of effective targeting and adequate buffer stocks to mitigate the negative consequences of seasonal food inflation. Mishra, A., & Prakash, A. (2018) examined the seasonal variations in food inflation in India using monthly data from 2009 to 2016. The study finds evidence of significant seasonal fluctuations in food prices, with higher inflation rates during specific months. The authors attribute these patterns to factors such as supply-demand dynamics, storage and transportation challenges, and government policies. Sharma, S., & Tripathi, R. (2019) examined the seasonal variation in food inflation for major agricultural commodities in India using monthly price data. The authors analyze the impact of seasonal

factors such as monsoon rainfall, harvesting periods, and festivals on food prices. They suggest that policy interventions targeting supply chain management and market infrastructure are crucial for mitigating seasonal food inflation. Singh, K. (2018) investigates the seasonal patterns of food inflation in India's agricultural sector. The author analyzes the relationship between agricultural production, supply chain disruptions, and food price fluctuations. The study emphasizes the need for improving storage facilities, transportation infrastructure, and market linkages to reduce the impact of seasonal variation on food prices. Kumari, R., & Yadav, R. (2021) empirical analysis explores the seasonality of food inflation in India using monthly wholesale price index (WPI) data. The study examines the impact of agricultural production cycles, supply constraints, and market imperfections on seasonal food price fluctuations. The authors propose policy measures to address these issues, including investment in storage infrastructure and promotion of value chains. Sahoo, P., & Mahapatra, G. K. (2020) study investigates the seasonal variation in food inflation in India using monthly data from 2007 to 2018. The authors analyze the influence of weather conditions, supply-demand dynamics, and trade factors on seasonal food price fluctuations. The study suggests the need for policy interventions targeting agricultural productivity enhancement, market reforms, and price stabilization measures.

3. Seasonal Patterns In Food Inflation In India

Seasonal patterns in food inflation in India are deeply intertwined with the country's agricultural cycles, climatic diversity, and consumption behavior. India experiences distinct agricultural seasons Kharif (June-October) and Rabi (November-April) which define the sowing and harvesting periods of major crops. Consequently, the availability and pricing of food commodities exhibit clear fluctuations throughout the year. During the harvest months, the prices of fresh produce generally decline due to a surge in supply, while during the lean or off-season, prices rise due to supply shortages. For instance, data from the Ministry of Statistics and Programme Implementation (MOSPI) shows that food inflation, as measured by the Consumer Price Index (CPI) for food and beverages, peaked at 9.27% in October 2020, primarily due to supply disruptions during the monsoon season. In contrast, food inflation dropped to around 1.87% in February 2021, reflecting improved supply post-harvest. This cyclical movement in prices underscores the seasonality inherent in India's food inflation patterns.

One of the most prominent examples of seasonal variation is observed in vegetable prices, especially those of onions, tomatoes, and potatoes. These are essential, perishable items in Indian households and are highly sensitive to seasonal and weather-related disruptions. For example, onion prices tend to soar during late monsoon months when the stored stock is depleted and the new crop is not yet harvested. According to the Department of Consumer Affairs, onion prices reached a high of ₹100 per kg in October 2019 due to unseasonal rains in Maharashtra and Karnataka that damaged crops. Similarly, tomato prices spiked to ₹80-₹100 per kg in July 2023 following crop failure in key producing states like Andhra Pradesh and Karnataka due to heavy rainfall. Such volatility is common in the monsoon season, when floods, excess moisture, or transport bottlenecks lead to spoilage, reduced market arrivals, and consequent price spikes.

The seasonality in fruit prices is also noticeable and driven primarily by harvest cycles and demand during festive or summer months. For instance, mangoes, a summer fruit, see a price surge from April to June due to high consumer demand and limited availability before peak harvesting. The National Horticulture Board (NHB) data indicates that mango prices in urban markets rose by over 25% in May 2022 compared to March of the same year. Likewise, apples from Himachal Pradesh and Kashmir enter the market in late summer and early autumn, often seeing lower prices during peak arrivals and rising again by late winter due to scarcity and increased storage costs. Bananas and papayas, though more available year-round, also show seasonal dips in prices during high-yield periods and rises during lower production months.

Pulses, being dry, non-perishable food commodities, also exhibit seasonal variation, though less volatile than fruits or vegetables. The sowing and harvesting periods of Tur (Arhar), Urad (Black Gram), and Moong (Green Gram) typically affect their availability and pricing. For example, pulse prices rose sharply in August 2023, with tur dal reaching ₹150 per kg, due to delayed monsoons affecting crop output in Maharashtra and Karnataka. The Wholesale Price Index (WPI) for pulses, tracked by the Office of the Economic Adviser, has shown a consistent pattern of increased prices during the monsoon months and stabilization in the post-harvest period (November to February). Moreover, India's dependence on imports for pulses also adds to seasonal volatility, as any delay in import shipments during the lean season causes prices to rise.
The impact of festive seasons on food inflation is another key component of seasonal variation. India’s diverse festivals such as Diwali, Eid, Navratri, and Christmas lead to increased demand for specific food items like sweets, dairy products, dry fruits, and spices. This seasonal demand surge often results in temporary inflation spikes. For instance, in October and November, prices of milk, ghee, and sugar tend to rise sharply due to higher consumption during Diwali festivities. According to RBI’s inflation outlook report (2023), festive demand added 1.2-1.5 percentage points to food inflation during the October-November period over the past five years on average. Furthermore, supply-side constraints during the festive season, such as labor shortages in mandis and increased transport costs, contribute to price increases.

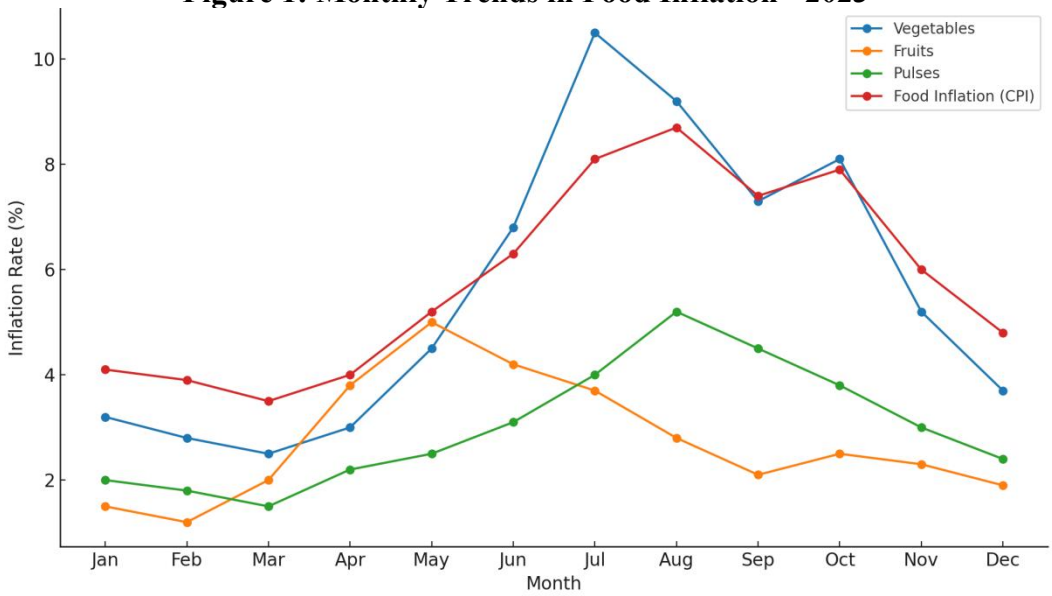
Table 1: Seasonal Food Inflation Trends in India

Month (2023)	Vegetables (%)	Fruits (%)	Pulses (%)	Food Inflation CPI (%)
Jan.	3.2	1.5	2	4.1
Feb.	2.8	1.2	1.8	3.9
Mar.	2.5	2	1.5	3.5
Apr.	3	3.8	2.2	4
May	4.5	5	2.5	5.2
Jun.	6.8	4.2	3.1	6.3
Jul.	10.5	3.7	4	8.1
Aug.	9.2	2.8	5.2	8.7
Sep.	7.3	2.1	4.5	7.4
Oct.	8.1	2.5	3.8	7.9
Nov.	5.2	2.3	3	6

Dec.	3.7	1.9	2.4	4.8

The table presents monthly data for the year 2023 on inflation rates (in percentage) for key food categories: vegetables, fruits, pulses, and overall Food Inflation (CPI). The numbers represent the year-on-year inflation for each commodity group for the respective month.

Figure 1: Monthly Trends in Food Inflation - 2023



The graph visually represents the inflation rate for each food category and the overall food CPI inflation across 12 months.

- Vegetables show the highest volatility, peaking in July (10.5%) due to monsoon-related supply disruptions. Prices fall to 3.7% by December as new harvests arrive.
- Fruits inflation is highest in May (5.0%), mainly due to strong demand and seasonal limitations (e.g., mango season). It remains relatively stable and lower than vegetables for most of the year.
- Pulses inflation rises gradually from March (1.5%) to August (5.2%), driven by planting delays and global import trends. It tapers off in the last quarter.
- The overall Food Inflation (CPI) reflects combined seasonal effects: it increases from March (3.5%) to a peak in August (8.7%), then gradually declines to 4.8% by December.

4. Factors Driving Seasonal Variation In Agricultural Commodity Prices In India

- **Weather Conditions:** Weather is perhaps the most critical factor influencing seasonal variation in agricultural commodity prices in India. The country's agriculture is still heavily dependent on monsoons, with approximately 55% of net sown area relying on rainfall for irrigation. As a result, any deviation from normal monsoon patterns such as delayed onset, erratic distribution, or droughts can disrupt sowing, reduce yields, and thereby affect the market supply of food commodities. For example, in 2023, heavy monsoon rains in parts of Maharashtra and Karnataka led to widespread damage to vegetable crops, particularly onions and tomatoes, causing retail prices in metropolitan cities to rise by over 80% in July-August. Conversely,

insufficient rainfall in Eastern Uttar Pradesh and Bihar that same year affected paddy cultivation, driving up rice prices by 10-12%. According to the India Meteorological Department (IMD) and Ministry of Agriculture, such weather anomalies have become more frequent due to climate change, contributing to unpredictable and sharp seasonal price movements in essential commodities.

- **Crop Production and Harvesting Seasons:** Agricultural commodity prices in India are also heavily influenced by the seasonal production and harvesting cycles. The major cropping seasons Kharif (June-October) and Rabi (November-April) determine the availability of commodities during the year. During peak harvest periods, prices generally fall due to a sudden glut in market arrivals, while during off-season periods, prices climb due to scarcity. For instance, wheat prices usually remain stable or decline during April-May post-Rabi harvest, but tend to increase from October onwards as stocks deplete. Similarly, pulses like tur and urad are harvested during January-February, leading to a seasonal dip in prices that gradually reverses by the monsoon months. According to AGMARKNET data from the Ministry of Agriculture, arrivals of major pulses in mandis drop by 30-40% between July and September, coinciding with a price increase of 15-20% during the same period. These patterns make it evident that the agricultural calendar significantly drives commodity price seasonality in India.
- **Demand-Supply Dynamics:** Seasonal demand surges often aligned with cultural, religious, or climatic events play a crucial role in influencing food prices. During festive seasons such as Diwali, Eid, Holi, and Navratri, there is heightened demand for certain food products like dry fruits, dairy items, sugar, and fruits, causing temporary inflationary spikes. For example, milk and ghee prices increase by 5-8% in the lead-up to Diwali due to increased demand for sweets. On the supply side, adverse weather events or transportation challenges during these times can worsen shortages. Furthermore, urban consumption patterns during summer months drive up prices for cooling foods like watermelon, cucumbers, and mangoes, even as their availability fluctuates. The Consumer Price Index (CPI) food component often records a rise of 1-2 percentage points during such months. In contrast, periods of low consumer activity (such as post-festive or lean agricultural months) often see price corrections due to reduced demand. These periodic imbalances in supply and demand fuel pronounced seasonal swings in commodity prices.
- **Storage and Post-Harvest Infrastructure:** India's inadequate storage and post-harvest management systems are major contributors to seasonal price volatility. A large portion of agricultural produce especially perishable items like onions, tomatoes, green vegetables, and fruits is wasted due to poor cold chain infrastructure and insufficient warehousing. According to the National Centre for Cold-Chain Development (NCCD), India faces a storage gap of around 10 million metric tons, with post-harvest losses estimated to be 30-40% for perishables. This results in a rush to sell produce immediately after harvest (which depresses prices), followed by shortages during the off-season (which inflates prices). For example, the onion market experiences annual volatility due to limited storage availability; prices crash during peak harvest (December-January) but surge by over 100% by August-September. Despite government initiatives like the Pradhan Mantri Kisan SAMPADA Yojana, the cold chain infrastructure is still inadequate to prevent seasonal scarcity and price hikes. Hence, storage and logistics remain a structural barrier to price stability.

- **Government Policies and Interventions:** Government policies while intended to stabilize prices can sometimes amplify seasonal fluctuations depending on timing and execution. Minimum Support Prices (MSPs), public procurement, and export-import regulations have a direct impact on commodity prices. For example, when the Food Corporation of India (FCI) procures large quantities of wheat and rice during harvest, it helps prevent a price crash. However, delayed procurement or insufficient buffer stocks can exacerbate inflation during lean periods. In 2022, pulses inflation surged due to reduced buffer stocks and import restrictions on tur dal, pushing prices up by over 25%. On the other hand, export bans like the 2023 rice export restriction temporarily stabilized domestic prices but created long-term supply chain distortions. According to the Economic Survey 2022-23, price volatility in agricultural commodities reduced in states with active e-NAM (electronic National Agricultural Market) participation and better procurement coverage. Effective and timely government interventions are thus essential to smoothen the seasonal price curves in India's agri-market.
- **Global Market Factors:** India's agricultural prices are increasingly impacted by global market dynamics, especially for commodities where India is either a significant importer or exporter. International developments such as geopolitical conflicts, trade sanctions, currency fluctuations, or climate events in other major producing countries influence domestic availability and prices. For instance, the Russia-Ukraine war disrupted global wheat supply chains, leading to speculative price spikes in India, even though domestic production remained adequate. Similarly, in 2022, Indonesia's export ban on palm oil led to a steep rise in edible oil prices in India, with mustard oil prices climbing by 20-30% within weeks. Data from the World Bank Commodity Markets Outlook and WTO shows that price volatility in global food markets directly correlates with Indian wholesale and retail prices. Additionally, fluctuations in the rupee-dollar exchange rate affect the cost of imports (like lentils and edible oils), which further feeds into seasonal price changes domestically. Thus, even with domestic factors controlled, India's food inflation is increasingly sensitive to global market shifts.

Table 2: Weather Impact on Crop Prices

Year	Weather Event	Affected Crop	Price Increase (%)
2021	Deficient Monsoon	Pulses	15
2022	Heavy Rainfall	Onion	80
2023	Delayed Monsoon	Tomato	65

Table 3: Harvest Season and Price Trends

Crop	Harvest Season	Peak Arrival (Month)	Price Dip (Month)
Wheat	April-May	May	May
Paddy	November	November	November
Tur Dal	January-February	February	February
Tomato	December-January	January	January

Table 4: Storage Infrastructure and Post-Harvest Losses

Commodity	Storage Gap (MMT)	Post-Harvest Loss (%)
Onion	1.2	35

Tomato	0.9	40
Potato	1.5	25
Green Vegetables	0.8	45

Table 5: Government Policy Influence on Prices

Policy Event	Year	Commodity Affected	Inflation Impact (%)
MSP Increase for Wheat	2022	Wheat	5
Export Ban on Rice	2023	Rice	-10
Low Buffer Stocks of Pulses	2022	Tur Dal	25

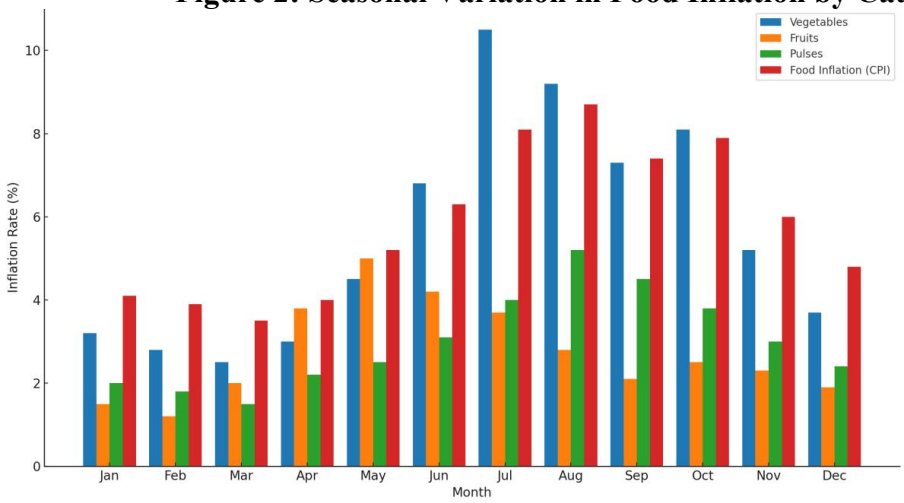
Table 6: Global Market Influence on Domestic Prices

Global Event	Commodity	Domestic Price Rise (%)	Event Year
Ukraine War	Wheat	12	2022
Indonesia Palm Oil Ban	Edible Oils	30	2022
US Drought (Soybean)	Soybean Oil	18	2023

Here are five relevant data tables illustrating the factors driving seasonal variation in agricultural commodity prices in India:

1. **Weather Impact on Crop Prices**- Shows how adverse weather events caused significant price spikes in specific crops.
2. **Harvest Season and Price Trends**- Displays how different crops behave in terms of seasonal availability and price variation.
3. **Storage Infrastructure and Post-Harvest Losses**- Highlights India's gaps in storage and their contribution to post-harvest losses.
4. **Government Policy Influence on Prices**- Reflects how MSP changes, export bans, and buffer stock levels influence inflation.
5. **Global Market Influence on Domestic Prices**- Captures the impact of international events on Indian commodity prices.

Figure 2: Seasonal Variation in Food Inflation by Category - 2023



The merged bar graph shows how food inflation rates in India vary seasonally across four categories vegetables, fruits, pulses, and overall food inflation (CPI) throughout the year 2023.

- Vegetable inflation is the most volatile, peaking in July (10.5%) and remaining high through the monsoon months due to crop damage and supply disruptions.
- Fruit inflation peaks in May (5.0%), driven by summer demand (e.g., mangoes), and stays moderate during the rest of the year.
- Pulses inflation rises steadily from June to August (up to 5.2%) due to delayed sowing and poor rainfall, then stabilizes post-harvest.
- Overall food inflation (CPI) mirrors these trends, with a high in August (8.7%) and a decline toward December (4.8%), showing how seasonal and category-specific factors combine to influence national-level food inflation.

5. IMPLICATIONS OF SEASONAL FOOD INFLATION IN INDIA

Seasonal food inflation in India can have several implications for various stakeholders, including consumers, farmers, policymakers, and the overall economy. Here are some implications of seasonal food inflation:

- **Impact on Consumers:** Seasonal food inflation significantly affects Indian consumers, particularly those belonging to lower-income groups who spend a larger share of their household budgets on food. As per the National Sample Survey Office (NSSO, 2018), households in the lowest income decile spend over 50% of their total monthly expenditure on food items, compared to just 30% in higher-income brackets. During peak inflation months typically between July and October prices of vegetables and pulses can surge by 40-80%, severely eroding the purchasing power of the poor. For example, onion prices soared to ₹100 per kg in 2019, and tomato prices touched ₹120 per kg in mid-2023, disrupting household budgets. These price spikes often force families to reduce consumption of nutritious foods like fruits, vegetables, and pulses, potentially leading to nutritional deficiencies. The Consumer Price Index (CPI) data for July 2023 recorded a food inflation rate of 11.5%, with vegetables contributing over 45% to the total food basket inflation, demonstrating the disproportionate impact of seasonal price shocks on household consumption and food security.
- **Food Security and Nutritional Impact:** Seasonal food inflation poses a serious challenge to food and nutritional security, particularly among vulnerable groups such as children, pregnant women, and the elderly. Rising food prices can reduce access to essential nutrients, increasing the risk of malnutrition and associated health issues. According to the Global Hunger Index 2023, India ranks 111 out of 125 countries, with indicators such as child wasting (18.7%) and underweight prevalence (32.1%) remaining critically high. Seasonal spikes in prices of proteins like pulses and micronutrient-rich items like green vegetables during monsoon months (July-September) discourage adequate consumption, particularly in rural and tribal areas. The National Family Health Survey (NFHS-5) also highlighted that one in three children in India is stunted, a condition closely linked to inadequate diet quality. Although government schemes like the Public Distribution System (PDS) and the National Food Security Act (NFSA) attempt to cushion inflation impacts by offering subsidized grains, these do not cover perishable items like vegetables and pulses, which are more affected by seasonal volatility. Therefore, seasonal inflation undermines food diversity and compromises long-term nutritional outcomes.

- **Implications for Farmers and Agricultural Sector:** While consumers suffer from high food inflation, the impact on farmers is more nuanced and depends on the timing of price movements. Often, farmers are unable to benefit from higher prices due to poor market access, lack of storage, and limited bargaining power. For instance, during peak harvest months, farmers are forced to sell their produce at low prices due to oversupply and lack of cold storage, while middlemen and traders benefit from price hikes during off-season scarcity. According to NABARD's Rural Financial Inclusion Survey (2022), less than 20% of Indian farmers have access to proper warehousing or cold storage, which compels them to resort to distress sales. Furthermore, extreme weather conditions like unseasonal rains, floods, or droughts, which drive seasonal inflation, also damage standing crops and increase input costs. In 2022, excessive rainfall in Punjab and Haryana reduced wheat quality, yet MSP procurement did not fully compensate for the actual losses, leaving farmers exposed to income instability. Seasonal inflation, while beneficial in theory when prices rise post-harvest, often fails to translate into higher farmer income due to structural issues in India's agri-marketing ecosystem. This discourages long-term investment in productivity and diversification.
- **Pressure on Agricultural Supply Chains:** Seasonal food inflation exposes the vulnerabilities of India's agricultural supply chain infrastructure, particularly for perishable commodities. A surge in prices during monsoon months often coincides with transportation bottlenecks, mandi congestion, and post-harvest losses. According to a report by the Indian Council of Agricultural Research (ICAR, 2021), India loses ₹92,651 crore worth of food annually due to post-harvest inefficiencies, with perishables like fruits and vegetables contributing to over 40% of the total losses. Seasonal gluts during harvest months (e.g., December for onions or April for mangoes) overwhelm mandi systems, forcing immediate sales at low prices. Conversely, during lean seasons, insufficient cold storage and long-distance transportation delays cause price surges due to artificial scarcity. The lack of integration between rural production zones and urban consumption markets, coupled with delays in e-NAM adoption, worsens price fluctuations. Therefore, seasonal inflation is as much a result of infrastructure deficiency as it is of natural agricultural cycles.
- **Implications for Public Policy and Price Stabilization:** Seasonal food inflation complicates public policy formulation by making it harder to maintain price stability, especially when inflation is driven by supply shocks rather than demand-side factors. The Reserve Bank of India (RBI), while setting its inflation targeting framework (4% ±2%), often finds its monetary policy tools ineffective in addressing supply-side seasonal inflation, which is outside the scope of interest rate control. For example, despite tight monetary policy in 2022, CPI-based food inflation crossed 8% due to monsoon disruptions and global commodity price volatility. In response, the government often resorts to short-term measures such as export bans (e.g., wheat and rice), import duty cuts, or stockholding limits, but these can distort markets and harm long-term investment incentives. A more effective approach would involve building buffer stocks not just for cereals, but also for pulses and perishables, expanding price stabilization funds, and investing in weather-resilient farming technologies. However, as per the Economic Survey 2022-23, only 6% of total food inflation interventions in the past five years have targeted structural reforms, while the rest have been short-term market control measures. This reveals a policy gap in dealing with the persistent and recurring nature of seasonal inflation.

- **Macroeconomic and Fiscal Impact:** At a broader level, seasonal food inflation has significant macroeconomic and fiscal implications. Rising food prices can spill over into core inflation, affecting the overall cost of living and prompting the central bank to tighten monetary policy, which in turn can slow down growth. A 1% increase in food inflation, based on RBI's internal estimates, leads to a 0.3% increase in headline inflation, affecting everything from wage negotiations to interest rates. Moreover, elevated inflation also increases the subsidy burden on food and fertilizer, straining government finances. In FY 2022–23, the central government's food subsidy bill rose by ₹1.5 lakh crore, partly due to expanded free ration schemes under PMGKAY and increased procurement prices. Seasonal inflation can also trigger fiscal slippages at the state level, especially when state governments announce relief packages or waive market fees to control prices. This makes inflation management a challenge not only for the RBI but also for India's broader fiscal consolidation goals. Thus, seasonal food inflation is not just a rural or agrarian issue but a national economic concern that affects macro-stability and inclusive growth.

Table 7: Food Inflation vs Overall CPI (2023)

Month	Food Inflation (%)	Overall CPI Inflation (%)
Jan	4.2	6.0
Feb	4.0	5.8
Mar	4.5	5.9
Apr	5.0	6.2
May	6.3	6.5
Jun	7.5	7.0

This table provides a side-by-side comparison of food inflation and headline inflation on a monthly basis, revealing how food-related factors disproportionately influence the economy.

Table 8: Consumer Vulnerability by Income Group

Income Group	Share of Food in Total Expenditure (%)	Vulnerability to Inflation
Bottom 20%	52	High
Middle 40%	43	Moderate
Top 40%	31	Low

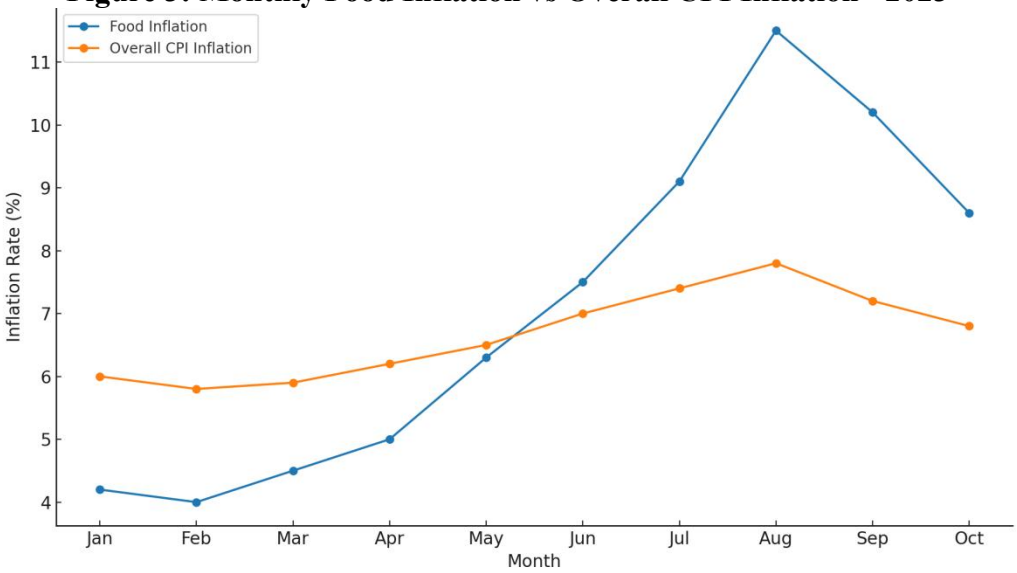
This table shows how lower-income households (bottom 20%) are more vulnerable to seasonal food inflation, spending over 50% of their income on food. Even small price hikes hit these groups harder in terms of affordability and nutrition.

Table 9: Post-Harvest Losses and Storage Gaps

Commodity	Post-Harvest Loss (%)	Storage Infrastructure (Adequate?)
Onion	34	No
Tomato	40	No
Potato	25	Partial
Banana	30	No
Green Veg	45	No

This table highlights the systemic gaps in storage infrastructure for perishable commodities like onions, tomatoes, and green vegetables. High post-harvest losses (up to 45%) during monsoon and harvest seasons contribute directly to price volatility and inflation.

Figure 3: Monthly Food Inflation vs Overall CPI Inflation - 2023



This chart shows that food inflation consistently outpaces overall CPI inflation between May and September, with a peak in August (11.5%). This highlights the role of seasonal spikes in food prices especially vegetables and pulses as key drivers of broader inflationary pressure.

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