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Hard to digest

Food prices may not climb down this fiscal and that has takeaways for the monetary policy

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Analytical contacts:

Dharmakirti Joshi
Chief Economist, CRISIL Ltd
dharmakirti.joshi@crisil.com

Dipti Deshpande
Principal Economist, CRISIL Ltd
dipti.deshpande@crisil.com

Pankhuri Tandon
Economist, CRISIL Ltd
pankhuri.tandon@crisil.com

Monetary policy has a food inflation nightmare

India's headline inflation typically follows movements in food inflation, as food occupies 39% share in the average consumer's basket.

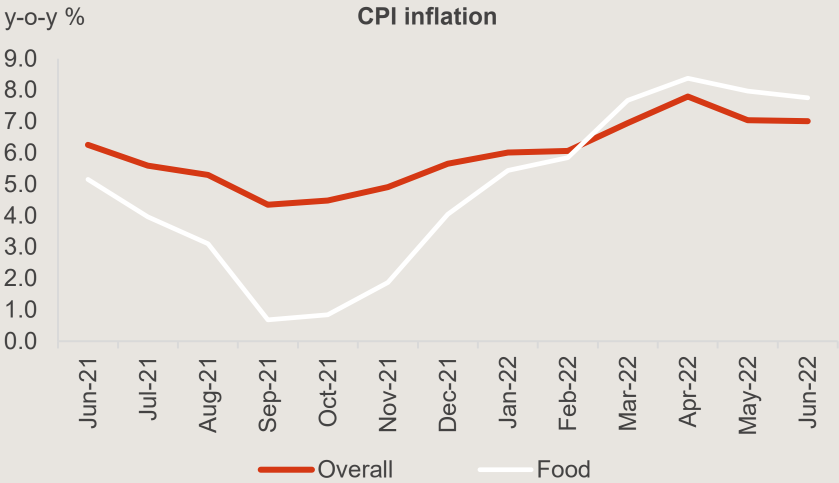
Thus, understanding food inflation dynamics becomes critical to gauge the overall inflation outlook, especially in a year it has been driving the surge in the Consumer Price Index-based (CPI) inflation.

Our analysis in this Insight brings us to the following key conclusions:

- The recent rise in food inflation is mainly supply shortages-led, driven by both global (geopolitical conflicts) and domestic (impact of heat wave) factors. We expect overall CPI inflation at 6.8% and food inflation at 7% for the current fiscal
- A normal and well-distributed monsoon can help cap the upside to food inflation. But other factors such as rising input costs and global prices, and government interventions have gained importance in shaping the inflation outlook this fiscal
- Among these, high cost of inputs in agriculture production (fertilisers, pesticides, animal feed and diesel) is expected to maintain pressure on food inflation through this fiscal. Despite recent softening in international prices of several food items, they remain higher than last year so far and the rupee has weakened offsetting some of the impact of falling international prices for imported food items. The government's targeted interventions such as restrictions on wheat exports and import duty cuts on edible oils and pulses, could mildly help dampen the pass-through of global price pressures on major imported items
- But beyond the current shock, data suggests that extreme weather events are increasingly adding uncertainty to the food price outlook. It has, therefore, become imperative for central banks, particularly inflation-targeting ones, to take heed of the increasing role of climate change and weather disruptions while forecasting inflation

Why food inflation matters

Food is now the biggest mover of consumer price inflation



39.1% Share of food in CPI

8.0% Average food inflation in current fiscal so far

High food inflation pinches the poor

Food's share in consumption basket

Rural areas			Urban areas		
53%	49%	38%	51%	41%	25%
Low income	Middle income	Upper income	Low income	Middle income	Upper income
Food inflation in FY23YTD: 8.0%			Food inflation in FY23YTD: 8.1%		

Note: Low income refers to bottom 20% of population by monthly per capita expenditure, middle income refers to middle 60%, and upper income top 20%; FY23YTD refers to April-June 2022

Source: National Statistical Office (NSO), National Sample Survey Organisation, CEIC, CRISIL

How food drove the recent inflation surge

Food inflation started picking up from sub-1% in September 2021, all the way up to 7.7% in June 2022. In sync, CPI inflation rose from 4.3% to 7.0%. This fiscal so far (April-June 2022), food inflation has averaged 8%, compared with 3.8% in fiscal 2022 and 3.6% in the five years preceding the pandemic (i.e., fiscals 2016-2020).

Thus, food has become the top contributor to CPI inflation this fiscal, unlike the previous year and between fiscals 2016 and 2020, when core inflation was predominant.

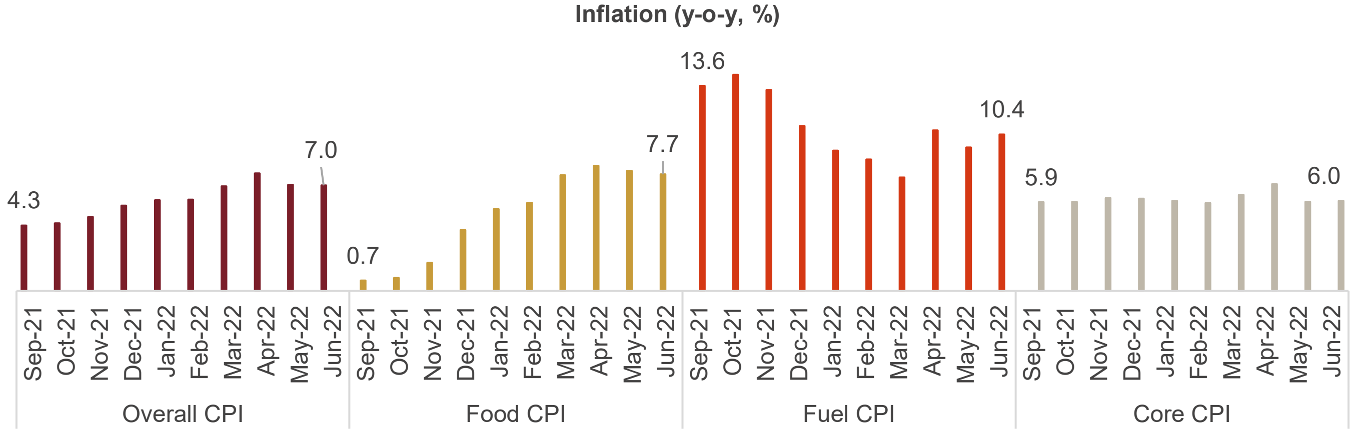
For India, a food price shock, even of the current magnitude, is not new. For years, uneven pattern of rains and other weather disruptions have hurt food production and prices.

In five of the past 10 fiscal years, food inflation hovered between 6-12%. In several of these instances, government intervention through release of buffer stocks, opening up of imports, or restrictions on exports were deployed to bring food inflation under control.

This time, however, the surge in food prices is accompanied by high fuel and core inflation, keeping inflation consistently above the Reserve Bank of India's (RBI) target band for the past two quarters.

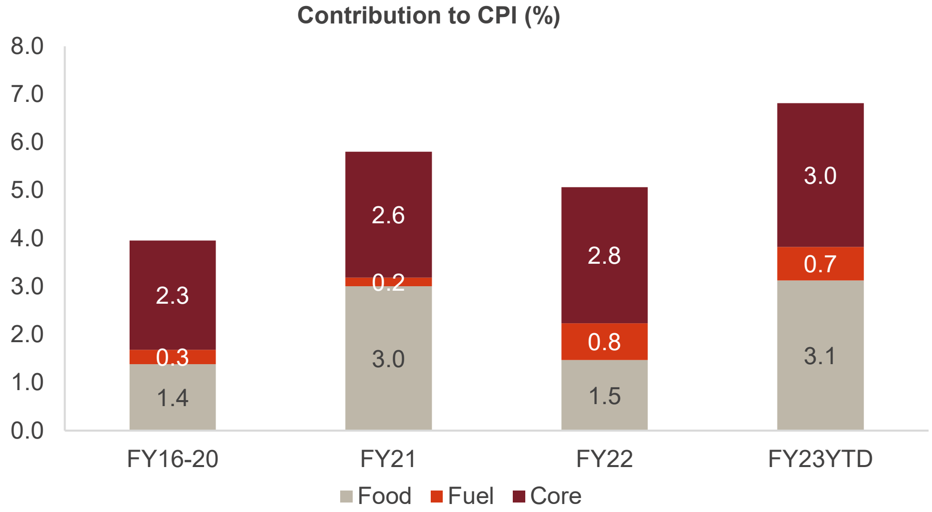
This has put monetary policy in a quandary and made it imperative for the central bank to look closely at factors pushing up food prices.

Surging food inflation, accompanied by high fuel and core inflation



Source: NSO, CEIC, CRISIL

Food has become the top contributor to CPI inflation this fiscal



Note: FY23YTD refers to April-June 2022

Source: NSO, CEIC, CRISIL

Why has food inflation risen so much?

Commodities driving the rise

- Most major categories — cereals, fruits and vegetables, meat and fish, and spices — have seen a sharp rise in inflation since the fourth quarter of fiscal 2022 (see table below)
- Inflation in edible oils, pulses, and sugar has trended down. However, the combined weight of these categories is lower than that of those witnessing rising inflation
- While edible oil inflation is decelerating, it remains in double digits till date, since over two years now

Causes for the rise

- **Impact of heatwave on domestic production**: An unusual heatwave between February and April 2022 impacted domestic production of cereals, vegetables and spices, such as wheat, tomatoes, mangoes, and cumin. This jacked up inflation in the first quarter of this fiscal
- **Impact of geopolitical tensions:**
  - **Skyrocketing global food and commodity prices:** The Russia-Ukraine conflict has created supply shortages of several agriculture items. As a result, global food prices, as indicated by Food and Agriculture Organisation's (FAO) Food Price Index has soared 13.8% in 2022 so far, with prices of cereals, oil and dairy products rising the most. Domestic food prices felt the heat, too, led by rising exports (by wheat and sugar producers who cashed in on higher global prices), which tightened supplies in the domestic market. In January-April (before the export ban), wheat exports averaged 903,690 tonne, much higher than 515,267 tonne in 2021. Similarly, surging global prices of edible oils amid a depreciating rupee pushed up the imported component of food inflation.
  - **Rising input cost pressures**: Prices of several inputs used in agriculture production have risen significantly since last fiscal. The weighted average WPI of farm inputs shows a consistent rise from 9.4% on-year in April 2021 to 28.4% in June 2022. Key commodities driving the rise are fertilisers, pesticides, diesel, cattle feed, and fodder. While government subsidy on fertilisers eases the pain, other input costs remain elevated. Higher transportation costs on account of rising petrol and diesel prices further exerted an all-round pressure on retail agricultural prices. CRISIL Research's CRISFrex — a freight index — registered a 20-24% on-year rise in freight costs for agricultural products this fiscal so far, suggesting transporters have been passing on higher diesel prices by raising freight rates.

Decoding the rise in food inflation

		CPI inflation (y-o-y %)						Reasons for rise
	Weight	Pre-pandemic average (FY16-20)	Q1 FY22	Q2 FY22	Q3 FY22	Q4 FY22	Q1 FY23	
Food	*39.1*	3.6	4.0	2.6	2.2	6.3	8.0	☼ ↑ 🌐
Cereals	*9.7*	2.9	-2.1	-1.2	1.5	4.1	5.6	☼ ↑ 🌐
Fruits and vegetables	*8.9*	3.7	-0.5	-8.4	-8.0	5.9	12.3	☼ ↑
Edible oils	*3.6*	3.0	30.5	33.3	29.2	18.0	13.2	🌐
Milk	*6.6*	3.6	0.8	2.9	3.4	4.2	5.7	↑
Eggs, meat and fish	*4.0*	5.5	10.6	9.1	5.1	7.1	6.9	↑
Pulses	*2.4*	4.4	9.0	8.9	3.7	2.9	0.1	
Spices	*2.5*	4.4	5.6	5.0	4.2	6.4	10.5	☼
Sugar and confectionery	*1.4*	2.5	-2.2	0.6	5.7	5.5	4.5	

☼ Heatwave ↑ Cost pressure 🌐 Global factors ■ Low ■ Neutral ■ High

Source: NSO, CEIC CRISIL

Factors capping further rise

On the flip side, are factors exerting downward pressure on prices:

- **Low pulses inflation:** Pulses has seen the sharpest fall in inflation among food categories. The easing has been a result of multiple factors improving the supply situation. First, domestic pulses production has risen since fiscal 2020, reaching a record high of 27.8 million tonne last fiscal. Second, pulses import too increased, driven by trade agreements and cuts in import duties. India remains the largest producer and consumer of pulses. Data on domestic production and international trade of pulses suggests that per capita pulses consumption continued to grow over past year (see table below).
- **Government interventions**: The Indian government has tried to ease pressure on food prices by cutting import duties (edible oils and pulses), forging trade agreements (for imports of pulses), and restricting exports (wheat and sugar). The impact of these interventions is apparent in pulses and edible oils, where inflation has decelerated in recent months. The government has also subsidized fertilisers for farmers, which has dampened the pass-through of high international prices to end-consumers.

  Additionally, the Pradhan Mantri Garib Kalyan Anna Yojana, a food security welfare scheme to transfer foodgrains, has been welcomed during this high food inflation period. The scheme, launched in March 2020, has been extended till September 2022, and provides rice, wheat and pulses to the poorest segments of the population. Under this, 78.9 million tonnes of foodgrains have been given to the poor so far.

- **Base effect**: High inflation in the first quarter of last fiscal statistically dampened inflation numbers in the same quarter this fiscal for some food commodities (pulses, edible oils, fruits, and eggs). However, in many of these, such as edible oils, inflation remains high.

Improving supply of pulses contributed to falling inflation

	Quantity (million tonne)		
Crop year (July-June)	Domestic production	Exports	Imports
2017-18	25.4	0.2	4.3
2018-19	22.1	0.3	2.7
2019-20	23.0	0.3	2.7
2020-21	25.5	0.2	2.4
2021-22*	27.8	0.5	2.6

Note: *For 2021-22, export and import data is for 11 months until May

Source: Ministry of Agriculture and Farmers Welfare, Directorate General of Commercial Intelligence and Statistics, CEIC, CRISIL

Can rains cool down food prices?

Monsoon could ease supplies, but not costs

As on July 29, the southwest rains stood at 9% above the long period average, improving from a deficiency of 8% in June-end. While most agriculturally important parts of the country have been covered, late rains resulted in some delay in sowing, especially of paddy, in producing states such as Uttar Pradesh, Odisha, and Bihar. Regions where rainfall has been delayed or stayed deficient account for 33% of overall paddy production. If rains do not normalize in these states soon, paddy production could be hit. Fingers crossed on that.

The southwest monsoon waters the kharif crop and improves the water table, which helps the rabi crop. The kharif crop, which arrives at the markets in October-November, may start cooling prices as supplies rise. This augurs well for crops such as rice (if rains normalize in deficient regions soon), oilseeds and maize that are seeing inflation rates higher than their pre-pandemic averages.

Where monsoon might help restrict an upside to inflation

Crops	Weight in consumer food inflation basket	Kharif share in total output*	Rabi share in total output*	Inflation rate in past 3 months (↑ if rate is higher than pre-pandemic average)
Rice	12%	88%	12%	3.5% ↑
Oilseeds	9.1%	66%	34%	16.4 ↑
Wheat	7%	-	100%	8.9% ↑
Pulses	6.1%	37%	63%	1.3%
Sugar	3.5%	100%	-	5%
Maize	2.5% (maize & animal feed for eggs and meat)	70%	30%	9.5% ↑ (maize, eggs and meat)

Crops where monsoons might bring some relief / cap upside to prices
Crops where monsoons may not bring near-term relief to prices

Note: *As per FY19 and FY20 data

Source: Ministry of Agriculture, NSO, CRISIL

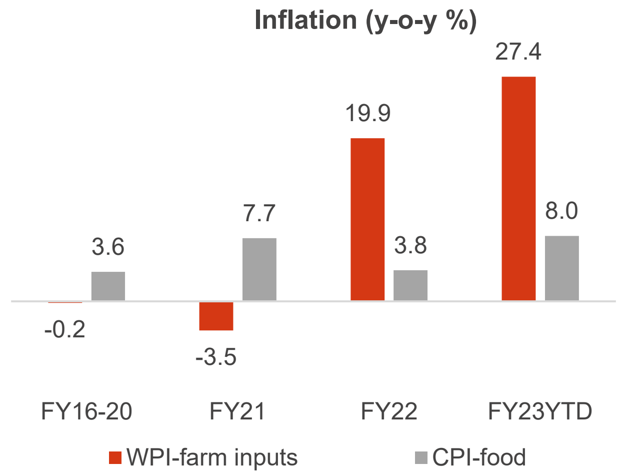
Inflation in wheat — a rabi crop (where yields fell 5-6% on-year due to the heatwave, according to CRISIL Research) — is already high. Fresh supplies will only arrive after March. Meanwhile, stocks with the Food Corporation of India (FCI) have shrunk to the lowest since 2008 and are barely above the stipulated norms for operational and strategic purposes, as of July 2022. FCI's wheat procurement dropped in the past few months due to surging exports and rising market prices. No relief can be expected from imports either as global supplies remain tight.

This means if prices were to shoot higher, the ability of the government to offload stocks in the open market and bring down prices, is low.

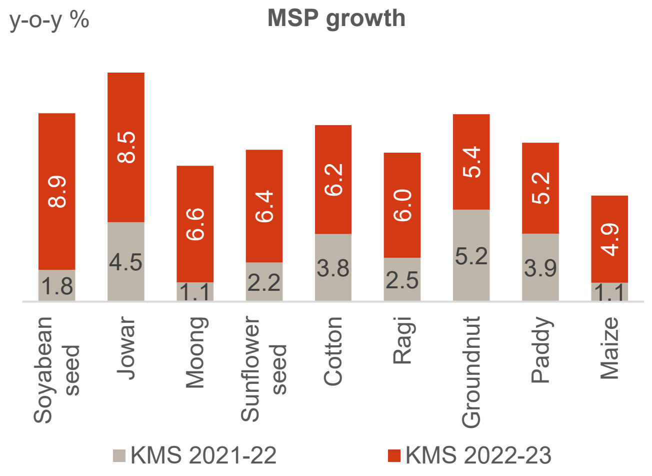
Higher costs will continue to exert pressure on market prices

We expect the higher cost pressures described above to get reflected in higher minimum support prices (MSPs) and market prices. The setting of MSPs every year factors in changes in the cost of production. Revisions in MSPs have a bearing on market prices as well. The government has already announced a sharper rise in MSPs for several kharif crops relative to last year, including for paddy, moong dal, coarse cereals and oilseeds.

Farm input costs have risen faster than retail food prices



MSPs recording a sharper rise this fiscal



Note: FY23YTD refers to April-June 2022; KMS refers to kharif marketing season (eg. KMS 2022-23 refers to July 2022-June 2023)

Source: Office of Economic Advisor, Ministry of Agriculture, NSO, CEIC, CRISIL

International supplies severely strained, but government interventions can dampen the pass-through

Globally, food supplies faced several disruptions this year. First, the Russia-Ukraine war affected supplies of commodities which these countries are major producers of (including wheat, maize, sunflower oil, fertilisers, and pesticides). Moreover, several countries put export restrictions on food items (for e.g. Indonesia's brief ban on palm oil exports). The global food supply situation remains volatile and dependent on outcomes of war, weather, and countries' trade restrictions.

Where are prices headed?

Our forecast of CPI inflation at 6.8% is premised on food inflation at 7.0%, which is double last fiscal's.

While we assume a normal monsoon for this forecast (based on the India Meteorological Department's predictions) which can cap the upside to inflation this fiscal, the intensity and distribution will need monitoring.

Recent inflation data shows some softening in food prices, but most of that was on account of some commodities benefitting from easing international prices, government interventions, and receding heatwave effects. CRISIL believes that food prices could continue to stay firm this fiscal, keeping overall inflation elevated, as factors driving food prices high remain broadly unfavourable.

The role of monsoon remains important but has somewhat diminished in the context of bringing down food inflation this year. To be sure, while truant rains can cause food prices to flare up further, healthy rains may not be able to materially bring overall food inflation down.

The Food and Agriculture Organization expects global supplies to remain tight for wheat, dairy, and poultry products this year. This is partly attributable to disruptions around Russia-Ukraine trade and weather factors.

Wheat yields have been hit globally due to unusually higher temperatures. This, coupled with disruption in supplies originating from Russia-Ukraine region will maintain pressure on wheat prices this year. As Europe sizzles under a heatwave this year, some key crops are reportedly withering. At risk are crops such as rice, corn, animal fodder, in addition to vegetables output.

The past two months saw prices of some agri commodities such as cereals, edible oils and sugar ease from post-war highs, yet they remain higher than last year. The sequential easing was driven by seasonal improvement in production and weakening demand[1].

The impact of high global prices could continue to be felt in items where India is highly import dependent, such as edible oils and fertilizers. Here, the impact might be blunted to some extent by government interventions of easing import duties and providing subsidies. On the flipside, export curbs would hinder farm profits, especially in an environment of surging costs of production.

Global agriculture prices remain on the higher side

	As on June 2022	
	m-o-m %	y-o-y %
Wheat	-13.3	44.2
Rice	-3.7	-3.1
Edible oils and meals*	-5.7	24.0
Sugar	-2.6	8.8
Maize	-2.6	14.8
Cotton	-5.9	63.1
Fertilizers*	-0.9	84.7

Declining Rising

*Based on World Bank index

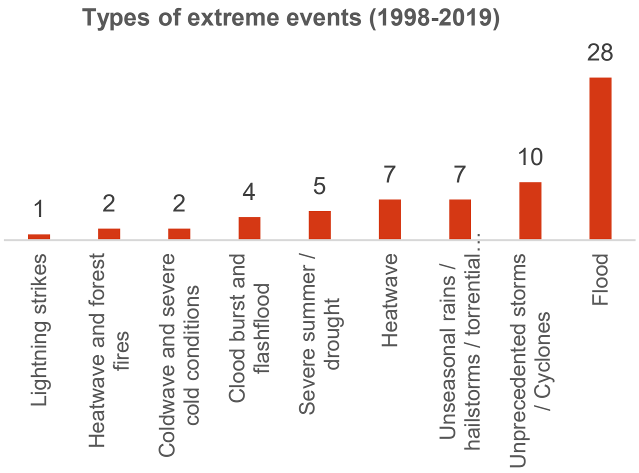
Source: World Bank, CRISIL

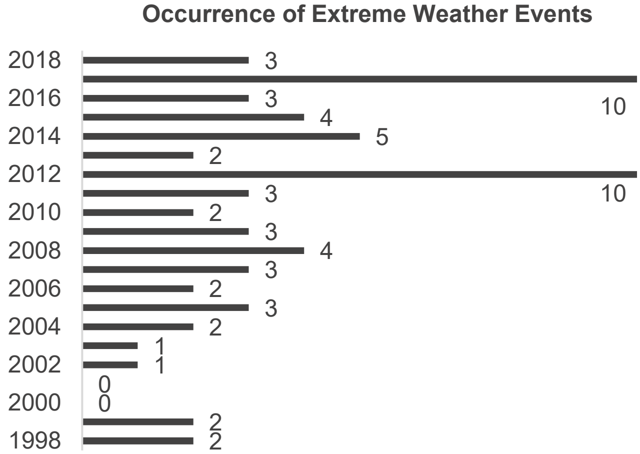
Impact of 'climateflation' on future monetary policy

Climateflation is a term coined by German economist, Isabel Schnabel, Member of the Executive Board of the European Central Bank (ECB). It refers to an increase in prices (especially of food) due to climate or weather-related natural disturbances, a phenomenon that monetary policies (especially inflation targeting central banks) cannot ignore for long, as climate change amplifies the severity of shocks making them more persistent and frequent.

Extreme weather events in India and their frequency in the past two decades

[1] FAO's Food Price Index report, June 2022





Source: RBI Bulletin

This year, the extreme heatwave during February and April spoilt prospects of the Indian wheat crop, otherwise expected to be bumper. In April, the average maximum temperature over northwest and central India (regions where wheat is mostly grown) was the highest in 122 years. CRISIL's analysis found that, in addition to wheat, severe damage to yields was also caused to several field crops like groundnut and bajra, and horticultural crops like mango.

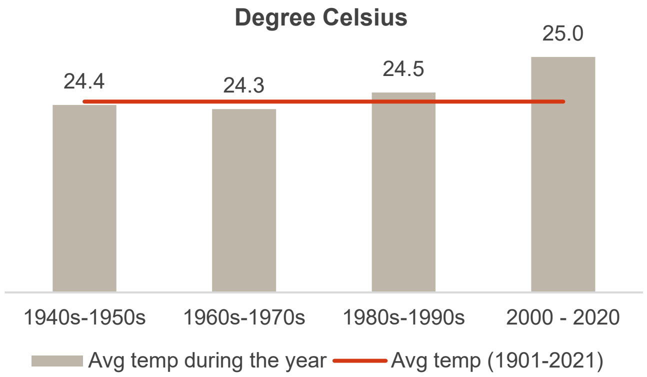
The heatwave was the key domestic factor responsible for pushing up food prices this year. But crop damage from volatile weather events such as excessive rains or floods, droughts, dry spells, erratic rainfall patterns during the southwest monsoon season, heat waves, dry spells, and droughts, is not uncommon for India. In fact, the frequency and intensity has only been on the rise, imparting large volatility to food inflation.

An RBI study[2] finds that the macroeconomic impact of climate change on food inflation has been statistically significant for India over the past two decades. The magnitude of increase in average temperature, it notes, is much more than any other 20-year time period since 1901. It further highlights that floods, cyclones, unseasonal rainfall and heatwaves are the more common weather events, and the frequency of these has also increased since 2008. Naturally, the more agricultural states have been the most affected.

Crop-wise, there appears to be a stronger correlation between unfavourable or unseasonal rainfall and vegetables prices inflation (especially in onions and tomatoes). In fact, the contribution of vegetable inflation to volatility in headline inflation is considerably higher than other items.

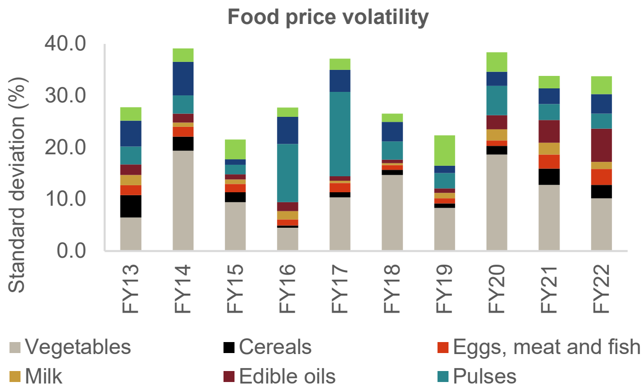
[2] April 2020, Dilip, A. and Kundu, S., "Climate Change: Macroeconomic Impact and Policy Options for Mitigating Risks, RBI Bulletin

Sharp rise in average temperatures in the past two decades in India



Source: World Bank Climate Knowledge Portal, CRISIL computation

Vegetables contribute most to price volatility



Note: Volatility is measured by standard deviation. Source: NSO, CRISIL

The food inflation category also faces larger price volatility relative to other inflation categories. Historically (2012-2019) food inflation has, on average, shown 1.7 times and 4.1 times more volatility than fuel and core inflation categories, respectively. Moreover, volatility in the past three years has been on the rise, with segments such as vegetables and edible oils, contributing the most to overall volatility.

Therefore, it is imperative that central banks, particularly inflation-targeting ones, take heed of the increasing role of climate change and weather disruptions in influencing food prices, while forecasting inflation.

An ECB study[3] finds an interesting link between climate change and inflation in the short and medium term, the latter influencing monetary policy actions. Covering 48 advanced and emerging market economies (EMEs), the study looks at data between 1990 and 2018, to find that among all weather disturbances, the largest and most durable negative impact on inflation is from hot summers. In the short-term, the impact is most notable on food prices via supply shortages, particularly in EMEs.

The least-bothersome component of CPI last year — food prices — is thus threatening to undermine the RBI's efforts to stabilise prices. Though the firming up of prices due to the geopolitical event may be seen as a one-time shock, one cannot discount the impact of successive shocks, especially that from weather anomalies, on food prices.

So far, the RBI has already raised the policy repo rate by 90 basis points to temper inflation and anchor expectation. Studies[4] find that the frequency of purchase of items — rather than their expenditure share — is what shapes inflation expectations. Food fit this thesis neatly. Studies also show rising prices have a stickier impact on inflation expectations than the other way around. Therefore, so long as food inflation continues to rise or remains high, it will be that much more difficult for monetary policy to anchor inflation expectations.

This underscores the importance of deliberating the impact of climate change on inflation and on monetary policy.

[3] December 2021, Faccia, D. Parker, M. and Stracca, L., "Working Paper Series No 2626 / Feeling the heat: extreme temperatures and price stability

[4] 2020, F. D'Acunto, U. Malmendier, J. Ospina, and M Weber. "Exposure to Grocery Prices and Inflation Expectations",

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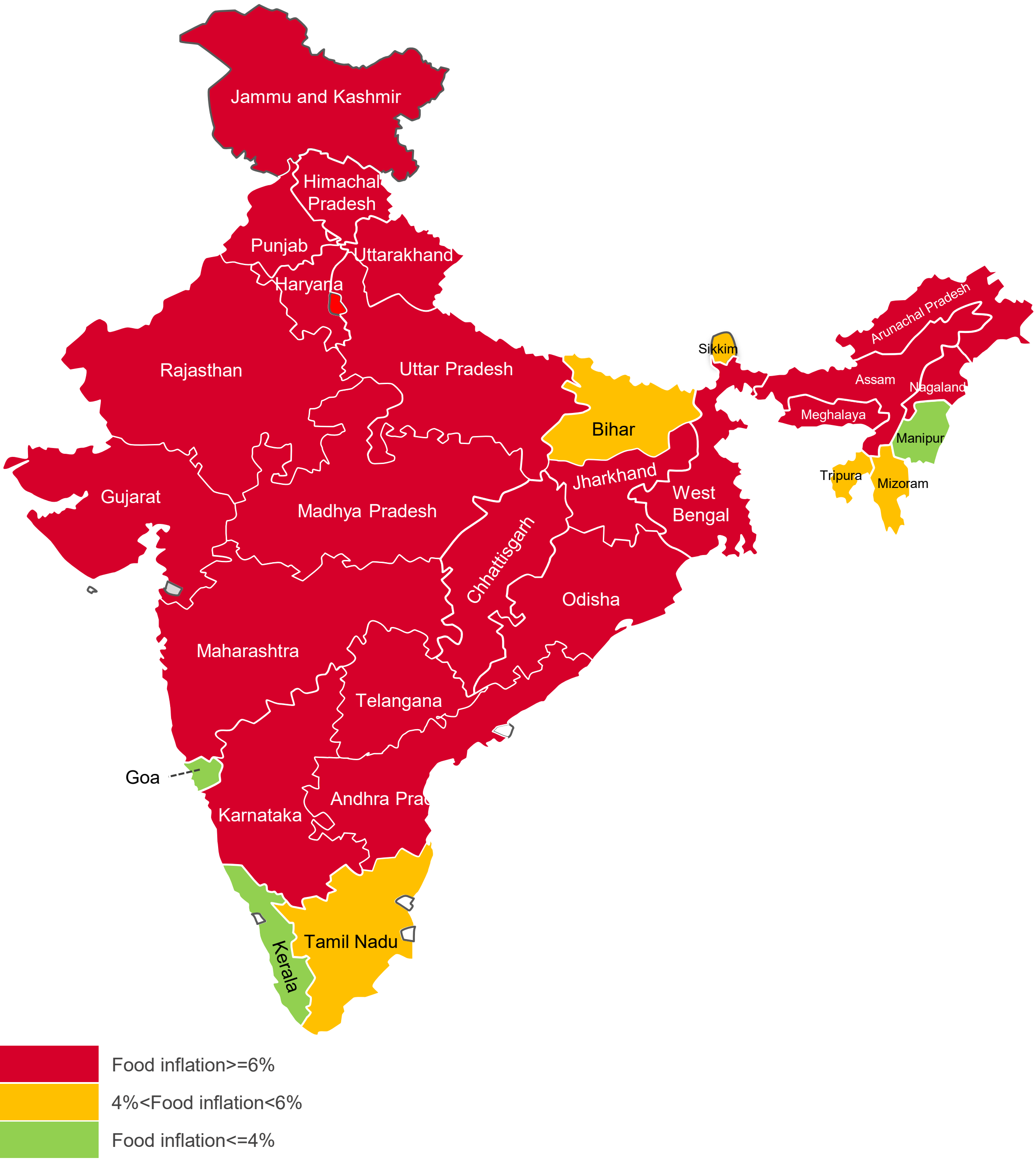
Annexure

The affliction is widespread

Food CPI inflation across states



Note: Food inflation here includes beverages

Source: NSSO, NSO, CEIC, CRISIL

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