

GS FOUNDATION FOR CSE 2024

ECONOMY-4

INFLATION

TABLE OF CONTENTS

1. <i>Small Correction from Previous Class</i>	2
2. <i>Price INDICES AND Inflation</i>	2
1) Consumer Price Index (CPI).....	3
2) CPI Industrial Worker (CPI-IW).....	4
3) CPI for Rural Laborers and Agricultural Laborers (CPI-AL).....	5
4) Wholesale Price Index (WPI).....	5
A) why the methods of CPI/WPI calculation needs to change regularly	6
5) Difference between CPI, WPI and GDP Deflator.....	7
6) Difference between Wholesale Prices and Retail Prices inflations	7
7) Other Basic Terms to Understand	7
8) Factors Affecting Inflation	8
A) Who benefits from High Inflation	8
B) Who suffers from High Inflation	8
C) Other Impacts of High Inflation	9
D) Factors which contribute towards Inflation Control	9
E) Inflation and Base Effect	9
F) Cobweb Phenomenon	9
9) Housing Sector Prices	10
10) Pharmaceutical Prices (Control Efforts)	10
11) Efforts to Control Inflation	11
12) Different	11
3. <i>Some Mains Topics</i>	11
1) Analyzing the causes and consequences of Inflation.....	11
2) India's Tomato and Onion Conundrum	13
3) RBI and Inflation Targeting (will be done with Monetary Policy).....	14

1. SMALL CORRECTION FROM PREVIOUS CLASS

Capital (stock) vs **Investment** (Flow)

2. PRICE INDICES AND INFLATION

- A **price index** measures the average change in prices of a basket of goods and services with respect to a **base year**.
 - Any Price Index (CPI or WPI) is calculated by measuring the rise in price of current year with respect to base year.
 - $\text{Price Index} = (\text{Weighted Price for current Year} / \text{Weighted Price for base year}) * 100$
- **Inflation** is defined as an upward movement in the general prices of goods and services and is estimated as the percentage rate of change in a price index over the reference time period.
 - It can be measured on the basis of Consumer Price Index or Wholesale Price Index.
 - $\text{Inflation} = [(\text{Current Period Price Index} - \text{Last Period Price Index}) / \text{Last Period Price Index}] * 100$
- **Note:** Base year is only used for calculation of index and not for the calculation of inflation.
- **Weight** in CPI is decided on the basis of expenditure surveys conducted by NSSO.

Various Indices Calculated in India	Calculating Authority
CPI- Combined (CPI-C)	CSO
CPI-Urban	CSO
CPI-Rural	CSO
Wholesale Price Index (WPI)	Office of Economic Advisor, Ministry of Commerce and Industry
Consumer Price Index for Industrial Worker (CPI-IW)	Labor Bureau , Shimla, Ministry of Labor
Consumer Price Index for Urban Non-Manual Employees (CPI-UNME)	CSO (it WAS discontinued in 2012)
Consumer Price Index for Agricultural Laborers (CPI-AL)	Labor Bureau , Shimla, Ministry of Labor
Consumer Price Index for Rural Laborers (CPI-RL)	Labor Bureau , Shimla, Ministry of Labor

- **Note:** **CPI-AL/RL** is used for determining the minimum wages and those for the government's rural jobs under the MGNREGA.
 - **Note:** CPI-AL is a subset of CPI-RL and is used for revising minimum wages of agricultural laborers.
 - **Note:** CPI-IW is used for wage indexation in organized sector and government jobs.
- **Core Inflation:**

- Core inflation is the change in the costs of goods and services but **doesn't include** those from **food and energy sector**. These items are excluded as they are very volatile and temporary/seasonal.
- Core inflation is studied to understand the long-term trend of price rise which can help in better framing of long-term policies.

1) CONSUMER PRICE INDEX (CPI)

- Consumer Price Index** measures the average change of prices paid by the final consumer for a basket of goods and services.
 - $$\text{CPI} = (\text{Weighted Price for Current Year} / \text{Weighted Price for base year}) * 100$$
- CPI** (Rural, Urban and Combined) are three new all India indices.
 - The indices such as CPI-AL/RL or CPI-IW only covered a segment of population and didn't give complete countrywide picture.
 - CPI (Rural, Urban and Combined) cover all segments of population and gives a general idea about the price rise in the country.
 - These are published at all India as well as state wise levels.
- In Feb 2015, Central Statistical Organization (CSO), Ministry of Statistics and Programme Implementation has made some changes in the method of calculation of CPI.
 - Base Year:** Base year has been changed from 2010 = 100 to 2012 = 100.
 - The Basket of Items and their weights**
 - The basket of items and their weight diagrams have been prepared using the Modified Mixed Reference Period (MMRP) data of Consumer Expenditure Survey (CES), 2011-12, of the 68th Round of National Sample Survey (NSS).
 - Earlier**, the weighing diagrams of old series of CPI were based on the Uniform Reference Period (URP) data of CES, 2004-05, of the 61st round of NSS.
 - Benefits**
 - The new method is more consistent with the international practice of shorter reference period for most of the food items and longer reference period for the items of infrequent consumption/purchase.
 - The gap between weighing reference year and price reference year (Base Year), which was six years in the old series, has now been reduced to six months only.
 - Increase in number of groups.**
 - Earlier, number of groups were 5.
 - Now, they have increased to 6.
 - Pan, tobacco and intoxicants, which was a subgroup under the Group 'Food, beverages and Tobacco', has now been made as a separate group.

S No.	Subgroup	Description	Weight Rural	Weight - Urban	Weight- Combined
1.	Food and Beverage		54.18	36.29	45.86

2.	Pan, tobacco and intoxicants		3.26	1.36	2.38
3.	Clothing and footwear		7.36	5.57	6.53
4.	Housing			21.67	10.07
5.	Fuel and Light		7.94	5.58	6.84
6.	Miscellaneous	Household goods and services, health, transport and communication, recreation, education, personal care and effects	27.26	29.53	28.32

iv. Increase in number of items in the basket.

- 437 to 448 (Rural)
- 450 to 460 (Urban)

v. The weight of the Core group (CPI ex-food and fuel) increased.

- From 42.9% to 47.3%

2) CPI INDUSTRIAL WORKER (CPI-IW)

- CPI-IW is a price index released by **Labour Bureau** to measure the impact of price rise on cost of living for working class families spread across certain select industries. It is disseminated on monthly basis.
- **Significance**
 - Guide for policy formulations
 - Fixing/revising wages
 - Regulation of dearness allowances (DA) paid to large number of manual workers and Central/State government employees.
- **Revision of base year from 2001 to 2016 (Oct 2020)**
 - Why? To capture the latest consumption pattern.
 - FROM CPI-IW Series 2001 = 100 to a more recent base year 2016 = 100.
 - The new Series of CPI-IW covers the industrial workers from existing seven sectors viz. **Factories, Mines, Plantation, Public Motor Transport Undertaking, Electricity Generating & Distribution Establishments and Ports & Docks**.
 - The new series has a wider coverage in terms of sample size, number of centres, markets/outlets, items etc.
 - As recommended by **Technical Advisory Committee on Statistics of Prices and Cost of Living (TAC on SPCL)**, Labour Bureau has revised the **classification of items in CPI-IW into different Groups and Sub-Groups** in line with NSO's Classification of Individual Consumption by Purpose (COICOP). The revised six groups based on the COICOP classification and their respective weights for different series are as follows:

All India group weight distribution for different series of CPI-IW

Groups	Weights (%)		
	1982	2001	2016
Food & Beverages*	57.0	46.2	39.17
Pan, Supari, Tobacco & Intoxicants	3.15	2.27	2.07
Fuel & Light	6.28	6.43	5.5
Housing	8.67	15.27	16.87
Clothing & Footwear**	8.54	6.57	6.08
Miscellaneous	16.36	23.26	30.31
General Index	100.00	100.00	100.00

3) CPI FOR RURAL LABORERS AND AGRICULTURAL LABORERS (CPI-AL)

- It measures the changes in price of commodity basket consumed by rural laborers like agri laborers, laborers of village and cottage industries etc.
 - Consumer Price Index for Agricultural Laborers (CPI-AL) is a subject of CPI for Rural Laborers. It is used for revising minimum wages for agricultural laborers in different states.
- **Authority:** Labour Bureau, Shimla, Ministry of Labour.
- **Recent Updates:**
 - The All-India Consumer Price Index Number for Agricultural Labourers and Rural Labourers (Base: 1986-87) for the month of Oct 2022 increased by 10 points and 9 points to stand at 1159 (one thousand one hundred and fifty-nine) and 1170 (one thousand one hundred and seventy) points respectively.

4) WHOLESALE PRICE INDEX (WPI)

- The index measures the change in the price of commodities supplied to wholesale market. It is based on the value of production adjusted for net imports.
 - For e.g., price of mineral at ex-mines, price of manufactured products at ex-factory, price of agri products at mandi price are considered for the calculation of WPI.
- **Some features**
 - Captures inflation closest to producers and has a broader coverage of manufactured goods.
 - Doesn't capture price inflation in services.
 - It is measured **year on year** basis i.e., rate of change in present level in a given month vis a vis corresponding month of last year. This is also known as point-to-point inflation.
 - **Indirect taxes** are excluded from the price.
- **Authority responsible for compilation and release**
 - Office of the Economic Advisor, DPIIT, Ministry of Commerce and Industry.
- **Base Year:** 2011-12 = 100.
- **Recent Changes in WPI calculations (May 2017)**
 - i. **Change in base year:** 2004-05 => 2011-12

- More recent base year is more in keeping with international best practices and also provide more representative and accurate data.
- ii. **Updating the weight basket and weighting structure** conforming to the structure of economy in 2011-12
- a. **Number of items:** Increased to 697 from earlier 676.
 - b. **Increase in weight of primary items.**
 - From 20.1% to **22.6 percent**
 - c. **Decrease in the weight of fuel and power.**
 - From 14.9% to **13.1%.**
 - d. **Decrease in weight of manufacturing items.**
 - From 64.9 percent to **64.2 percent.**

Table showing new commodity group and their weights in WPI.

S. No	Commodity Groups	Weight	No of Articles
1	Primary Products	22.6%	117
2	Fuel, Power, Light & Lubricants	13.1%	16
3	Manufactured Products	64.2%	564

iii. **Doesn't include Indirect taxes.**

- In the new series of WPI, prices used for compilation do not include indirect taxes in order to remove impact of fiscal policy. This is in consonance with international standards and will make the WPI conceptually closer to Purchasing Price Index

iv. **A new WPI food Index** is compiled to capture the rate of inflation in food items.

v. Seasonality of fruits and vegetables has been updated to account for more months as these are now available for longer duration

vi. Item level aggregate for new WPI are compiled using geometric mean (GM) following international best practices and as is currently used for compilation of all India CPI

vii. **A High-level technical review committee**

- Government has also set up a high-level technical review committee for dynamic review in order to keep pace with the changing structure of the economy

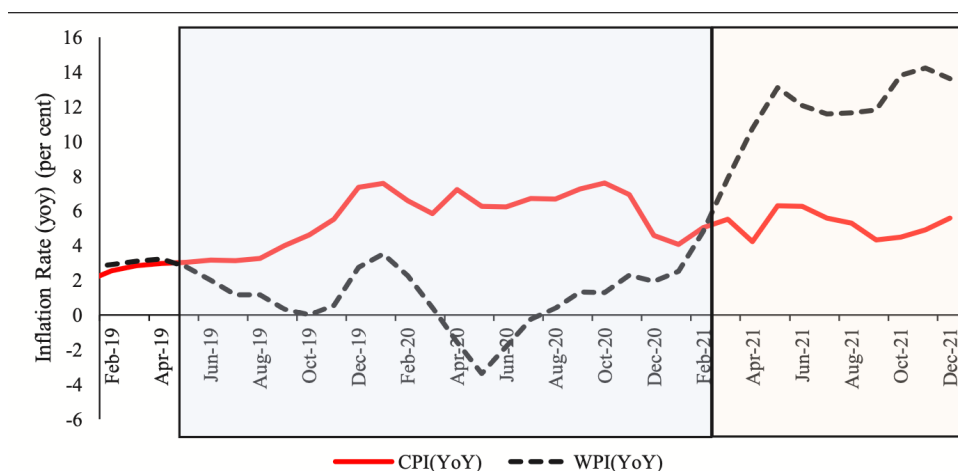
A) WHY THE METHODS OF CPI/WPI CALCULATION NEEDS TO CHANGE REGULARLY

- The changes are aimed at capturing the structural changes in the economy and improving the quality, coverage and representativeness of the indices.
- The new methods are more in consonance with International standards and hence international comparison also becomes easier.
- **Changes GDP numbers**
- WPI is used as deflator for many sectors of the economy for estimating real GDP and the earlier GDP estimates were based on inflation calculated on 2004-05 base.
- Technical review committee will ensure that the changes in the economy are captured more frequently, and you do not wait for next revision of the base year.

5) DIFFERENCE BETWEEN CPI, WPI AND GDP DEFLATOR

- CPI measures prices at consumer level and WPI does it at whole sale level.
- CPI includes services, WPI doesn't
- CPI includes impact of indirect taxes, WPI doesn't
- WPI also includes capital goods (goods not directly consumed by consumers), CPI doesn't
- Both CPI and WPI take into consideration the imported goods but GDP deflator only takes into consideration the domestically produced goods and services.
- **Note:** GDP deflator is released by CSO

6) DIFFERENCE BETWEEN WHOLESALE PRICES AND RETAIL PRICES INFLATIONS



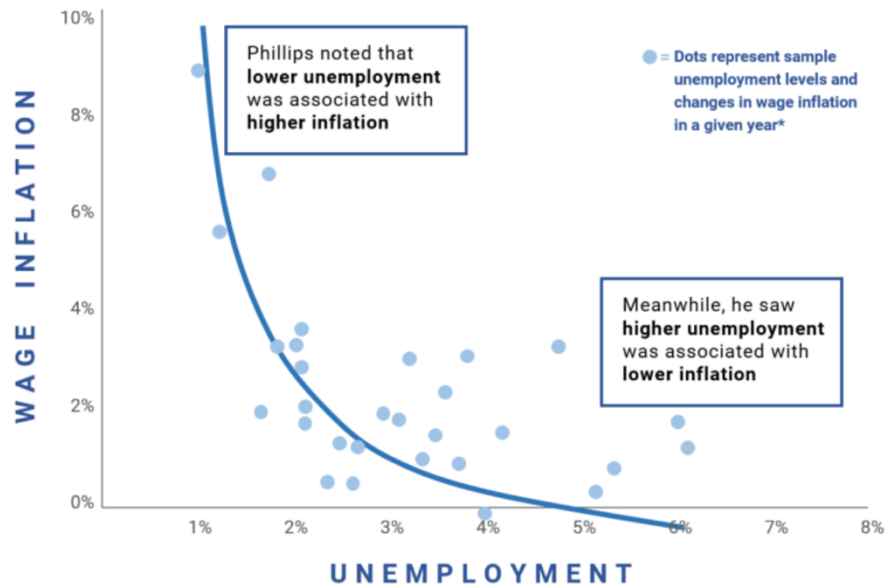
- **Why retail inflation becomes higher than whole sale inflation?**
 - **High Transaction cost**
 - **Weak infrastructure system**
 - **Weak information system**
 - **Poor marketing facilities**
 - **Huge margin of middlemen**
 - **Collusion among traders** -> Poor competition
 - **Asymmetry** in the transmission of price signals from wholesale to retail prices and vice versa

7) OTHER BASIC TERMS TO UNDERSTAND

- Deflation -> Opposite to inflation (fall in prices i.e. rate of change in price index is negative)
- Reflation -> deliberate action of government to increase the rate of inflation. Done to redeem the economy from deflationary situations
- Disinflation -> decreasing rate of inflation (but inflation is still positive)
 - E.g. inflation last month 6%, this month 5% -> it is termed as disinflation.
- **Phillips Curve**

UNDERSTANDING THE PHILLIPS CURVE

In the 1950s, A.W. Phillips plotted decades' worth of data on wage inflation and unemployment. He noticed an inverse relationship between these two indicators.



– Stagflation

- Situation of co-existence of stagnation and inflation in the economy. Stagnation means low National Income growth and high unemployment.

8) FACTORS AFFECTING INFLATION

– Increase in Demand of a product/service.

- More money with people -> cheap loans (i.e., cheap monetary policy), increased disposable income etc.
- Fiscal Stimulus by government i.e., increase in government expenditure
- Repayment of public debt by government

– Decrease in Supply

- Natural disasters, calamities
- Lack of production (e.g., pulses)
- Industrial disputes
- Hoarding
- Trade War -> high duties, restriction on imports etc.

A) WHO BENEFITS FROM HIGH INFLATION

Debtor, producer, Groups whose income is linked to inflation (flexible income groups); Equity Holders

B) WHO SUFFERS FROM HIGH INFLATION

Creditors, Consumers, Fixed income groups, Equity holders (monetary tightening may reduce the money supply and hence stock prices), debentures or bond holders.

C) OTHER IMPACTS OF HIGH INFLATION

- **Depreciation of Rupee**
- **Imports become expensive** (BoP issues) etc.

D) FACTORS WHICH CONTRIBUTE TOWARDS INFLATION CONTROL

- **Resilient Fiscal and Monetary Policy Framework**
- **Structural Reforms** of labor and product markets that **strengthen competition**.
- Adoption of **Monetary Policy Framework** for fiscal targeting
 - According to World Bank, there are 24 emerging market and developed economies which have introduced monetary policy framework for inflation targeting, since the late 1990s.

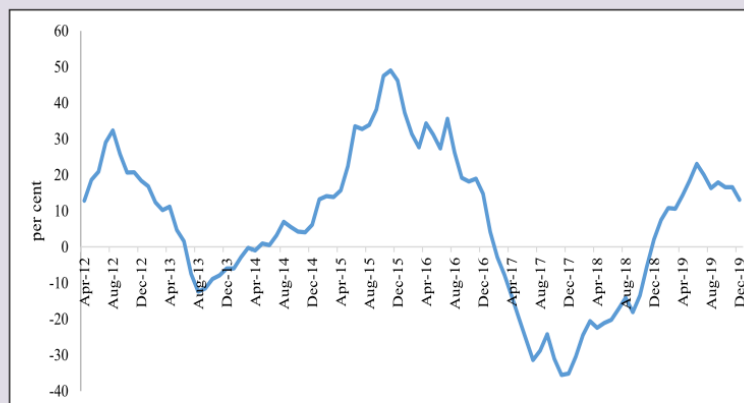
E) INFLATION AND BASE EFFECT

- When changes in the CPI in the base month have a considerable impact on changes in YoY inflation, this is referred to as base effect.
 - Base effects are therefore the contribution to changes in the annual rate of measured inflation from abnormal changes in the CPI in the base period.

F) COBWEB PHENOMENON

- **Cobweb** theory is the idea that **price fluctuations can lead to fluctuations in supply** which cause a **cycle of rising and falling prices**.
 - The farmers are caught in the cobweb phenomenon when they base their sowing decisions on prices witnessed in the previous marketing period.

WPI inflation rate of Pulses from April 2012 to December 2019



Source: Office of Economic Advisor, DPIIT.

- So, if the farmer observes a higher price for a specific crop in period 't-1', he would opt to produce more of it in period 't'. However, if the production of the crop exceeds market demand, prices fall in period 't', signaling farmers to produce less of the commodity in period 't+1'.

9) HOUSING SECTOR PRICES

- **ESI 2022-23:**
 - The **National Housing Bank (NHB)** publishes **two housing price indices** with FY18 as the base year.
 - HPI Assessment Price
 - HPI Market Price Quarterly
- **HPI Assessment Price** is based on the valuation of prices of residential units collected from primary lending institutions.
- **HPI Market Price** is based on the market prices for **unsold inventories** collected from developers.
- A **composite index** is calculated for 50 cities across India using the population of the cities as weight.

HPI Market price have shown a general increasing trend in most cities.

COVID-19 crisis had significantly impacted the residential real estate market. The real estate industry started gaining momentum from Sep 2020 on wards and peaked at the end of March 2021. But, the second wave again impacted it. However, timely policy intervention by the government coupled with low home loan interest rates propped up demand and attracted buyers more readily in the affordable segment in FY23.

The **overall increase** in composite HPI assessment and HPI market prices indicate a revival in the housing finance sector. A stable to moderate increase in HPI also offers confidence to homeowners and home loan financiers in terms of the retained value of the asset.



10) PHARMACEUTICAL PRICES (CONTROL EFFORTS)

a. National Pharmaceutical Pricing Policy, 2012

- The principles for the regulation of the prices of drugs are based on the **National Pharmaceuticals Pricing Policy, 2012**, administered by the Department of Pharmaceuticals. The key principles of the policy are the essentiality of drugs, control of formulation prices and market-based pricing.
- **NLEM 2022** was promulgated by Ministry of Health and Family Welfare in September 2022 and **revised Schedule I of Drugs (Prices Control) Order (DPCO) was notified on 11 November 2022** by Department of Pharmaceuticals incorporating NLEM, 2022. **Ceiling prices of 119 formulations under NLEM, 2022**

have been fixed until 31 December 2022. In addition, retail prices for 2,196 formulations have been fixed under the DPCO, 2013.

b. Jan Aushadhi Scheme (Now known as Pradhan Mantri Jan Aushadhi Yojna (PMJAY))

11) EFFORTS TO CONTROL INFLATION

- Monetary and Fiscal Policy measures
- Advisories to state governments for strict action against hoarding & black marketing and effectively enforce the Essential Commodities Act, 1955 & the Prevention of Black-Marketing and Maintenance of Supplies of Essential Commodities Act, 1980 for commodities in short supply.
- **Higher MSPs to incentivize production of food items** in short supply.
- **Price Stabilization Fund Scheme (PSF)** is being implemented to control price volatility of agri commodities like Potato, Onion, pulses etc.
- Enhancement of **buffer stocks** of pulses
- Export duties on export of certain food items.
- Essential Commodities Act

12) DIFFERENT

Creeping (< 3%), Walking or Trotting (3-7% to less than 10%), Running (10-20%), Hyper/Runaway/Galloping (20 - 100% Or more)

3. SOME MAINS TOPICS

1) ANALYZING THE CAUSES AND CONSEQUENCES OF INFLATION

- **Introduction:**
 - Inflation refers to rate of increase in the average price of goods and services in an economy. The recent past have seen an increase in inflation in both advanced and emerging economies including India.
- **Reasons for Rise in Inflation:**
 - **Demand Side Factors:**
 - **Expansionary Fiscal Policy** has led to rise in aggregate expenditure. E.g. Atmanirbhar Bharat, PMGKAY etc.
 - **Expansionary Monetary Policy** by RBI in 2021 ensured easy credit flow in the market. Though, this has changed in 2022, with RBI tightening the policy rates.
 - **Pent up Demand during COVID-19** has also fueled consumer spending
- **Supply Side Factors:**

- **High logistical cost in India**, especially cost of storage and grading, due to **infrastructural constraints**.
- **Disruption in global supply chain** due to **COVID-19** lockdowns in countries like China, **war in Europe** and rising price of **freight cost**.
- **Agri-commodities** like **fruits, vegetables and edible oils** have pushed the **food side inflation**.
 - India's **huge dependency on vegetable oil import** and **disruptions in edible oil availability** due to temporary disruptions in Indonesia.
- **Shortage of Industrial Raw materials** like **pharma-ingredients, semi-conductors, rare earth metals** etc.
- **Increasing Crude Oil Prices** has not only increased the **price of transportation** but it also has **cascading effect on other sectors**. The crude oil prices increased due to:
 - Disruptions due to **Russia-Ukraine war** and **sanctions imposed on Russia**
 - **Supply Cut by OPEC+ Countries**
 - **Rise in demands due to revival of economy**
- **While both**, demand side and supply side factors are responsible for the rise of inflation in India, **the supply side factors are more prominent**.
- **Negative Impact of Inflation:**
 - **Increase in prices** of basic goods and services **impact the vulnerable and poor section the most** and creates **further inequality**.
 - **Negatively hampers Investment:** **Withdrawal of FPIs** from the country.
 - For e.g. in 2022 when inflation increased all over the world, **India saw record withdrawal of FPIs**.
 - **Impacts Economic Growth and Employment:** With inflation, RBI would increase policy rates, leading to borrowing becoming more expensive.
 - Inflation causes **depreciation of rupee** which further contributes to **Current Account Deficits**.
- **Key steps that can be taken** to fight inflation:
 - **Prudent Fiscal Policy:** Government needs to direct more expenditure **towards capital creation** and **reduce the wasteful expenditure**.
 - **RBI's monetary policy** should be tightened whenever there is a inflation.
 - **RBI's Monetary policy has to be tightened further.** This will not only **reduce the flow of easy money** but also **decrease scope of hoarding** which pushes inflation.
 - **Logistical Reforms** to reduce logistic cost of Indian industries and businesses. Effective implementation of **National Logistic Policy, 2023**.
 - **Increasing India's participation in global supply chain** with **diversified sources to prevent sudden shortages**.
 - **Rational and Stable Trade Policy:**
 - Knee jerk reaction to price rise in the form of **ban on exports of wheat, and imposed restrictions on sugar exports** etc. may **help consumers in short run**, but in long run it creates **problems as producers are discouraged**.
 - **Long term consistent import policy** would be crucial.
 - A knee jerk reaction to price rise in the form of **import duty/tariff** etc. may help consumers in short term, but in long term it sends **wrong signals to domestic producers** and **create an environment of uncertainty**.

- **Initiating and Implementing Structural Reforms** like labor law reforms, swamitva, land use clarity, ease of doing business etc. This will reduce cost of production and counter supply side inflation.
- **Focus on Transportation and storage infrastructure** (especially in rural areas) for perishable commodities.
- **Reduce dependence on imported fossil fuels.** This can be done by increased focus on renewable energy in the country.
- **Encouraging MSME to scale up** to reduce cost of production.
- **Agriculture Reform -**
 - **Changing Production Pattern:**
 - Encourage farmers to diversify from wheat, rice etc. to pulses, oilseeds, etc. This will not only reduce import dependency but would also improve buffer management and reduce subsidy burden.
 - **Agri-Marketing Reforms,** strengthening storage and transportation infrastructure.

2) INDIA'S TOMATO AND ONION CONUNDRUM

- **Introduction:**
 - Onion and Tomato are two of the three most consumed vegetables in India. But the prices of onion and tomatoes fluctuate regularly. Sometimes, we see instances of farmers dumping truck load of tomatoes due to low prices and the very next year we see tomato prices going sky-high.
- **The reasons for price shocks of Onion and Tomato can be divided under three heads:**
 - i. **Seasonality:**
 - It refers to varying pattern of production of these crops during different months of a year.
 - 70% of tomatoes and 70% of onions are grown in Rabi season (this feeds people from March where prices will be low). But by July-Aug there is an upward trend in prices.
 - ii. **Irregular Shocks:** These shocks originate from:
 - Uncertain weather conditions and Unpredictable weather events.
 - For e.g. in 2023, despite ample stock of onion in the country, a high proportion of bad quality onions due to a prolonged period of excess summer heat had made good quality onions expensive.
 - Disease/pests.
 - iii. **Poor Infrastructure -> lots of wastage**
 - Lack of proper cold storage and transportation facilities lead to a large percentage of perishable food items getting wasted.
- **Some steps which have been taken:**
 - i. Mission on **Integrated Development of Horticulture** envisages holistic development of horticulture and provides assistance of 50% of total cost of Rs 1.75 lakh per unit for low cost onion storage structure having a capacity of 25 tonnes each.

- ii. **Scheme for Agriculture Marketing and Infrastructure for rural godowns**: It enables small farmers to enhance their holding capacity to sell their produce at remunerative prices and avoid distress sale.
- iii. **Operation Greens** - Initially it was focused on the integrated development of Tomato, Onion and Potato (TOP) value chain. It provided 50% subsidy on transportation and storage. Later it has been extended to other vegetables and fruits as well.
- iv. **Kisan Rail and Krishi Udan** are also focused on speedy movements of perishables.
- v. **Immediate/Temporary steps**:
 - In Aug 2023, Govt imposed a **40% duty on Onion exports**.
- **Seasonality can be dealt with policy actions**:
 - Incentivize production during lean season.
 - Investment in better storage and processing facilities.
 - Better supply chain management and cutting of wastage.
- **Other steps that can be taken**:
 - Promote Food Processing Industries

3) RBI AND INFLATION TARGETING (WILL BE DONE WITH MONETARY POLICY)