

## Key Macroeconomic Concepts (Session 14, 2025 BMJ)

**Nominal vs. Real Interest Rates (Fisher Equation).** The *nominal* interest rate ( $i$ ) is the observed rate on loans or deposits, while the *real* interest rate ( $r$ ) adjusts for inflation ( $\pi$ ) using the Fisher equation:

$$1 + r = \frac{1 + i}{1 + \pi} \implies r = i - \pi \quad (\text{approximately})$$

For example, if a bank offers 10% nominal interest and inflation is 3%, the real rate is about 7%. Conceptually, the real rate measures the true increase in purchasing power to the saver (or cost to the borrower). Slides derive this by comparing purchasing baskets: depositing ₹P yields ₹P(1+i) next year, which buys  $\frac{P(1+i)}{P(1+\pi)} = 1+r$  baskets, giving  $r = i - \pi$  <sup>1</sup>. Policymakers focus on real rates because when inflation rises but nominal rates lag, real rates fall (hurting savers) and vice versa. In general, a positive real deposit rate is needed to encourage saving and ensure investment funds; otherwise savers' wealth erodes <sup>2</sup> <sup>3</sup>.

**Costs and Benefits of Inflation.** Moderate inflation can be *useful* as a signal to producers. A small rise in prices indicates greater demand for certain goods, guiding resources toward those sectors <sup>4</sup>. Inflation creates incentives for investment: when prices rise slightly, entrepreneurs expect higher future revenues, spurring production. However, inflation also imposes *costs*: if it is high or volatile, money's value erodes and economic planning becomes difficult. Hyperinflation makes money nearly worthless (leading to barter) <sup>5</sup>. Ordinary inflation reduces the real value of savings and fixed-income assets (like bonds), since promised payments are worth less in the future <sup>5</sup>. It "feeds" from inputs to outputs – rising wage and commodity costs further fuel price increases <sup>6</sup>. Higher inflation generally pushes up nominal interest rates ("inflation premium"), making new investment more expensive <sup>6</sup>. There are also distributional effects: unindexed debtors (like wealthy industrialists) gain because inflation erodes the real value of their debt, while fixed-wage earners lose purchasing power if wages lag inflation <sup>7</sup>. In summary, low inflation can grease the wheels of the economy by allowing real rates to adjust and preventing deflationary traps, but high or unpredictable inflation distorts decision-making and can spiral via wage-price feedback <sup>8</sup>.

**Why a Positive Low Inflation Target?** Central banks aim for a low *positive* inflation (not zero or high), to balance these trade-offs. As slides note, a higher inflation target increases variability and the risk of spiraling inflation, since price-wage loops intensify at high levels <sup>9</sup>. Empirically, sustained deflation can also stall growth (as in Japan). Thus India's Monetary Policy framework targets CPI inflation at 4% (with a 2–6% tolerance range) <sup>8</sup> <sup>10</sup>. This range was adopted when India formally shifted to Flexible Inflation Targeting (FIT) in 2016 under the RBI Act, reflecting consensus among economists (e.g. Rajan, Rajan's BIS speech <sup>11</sup>) that 4–6% strikes a balance. A positive floor prevents deflation, and a moderate ceiling anchors expectations. As the slides summarize: "It is best to target a positive yet low inflation. For India, this target has been 4–6%" <sup>9</sup>.

**Inflation Targeting in India (2013–2024).** Before formal IT, India experienced volatile inflation in the early 2010s: CPI peaked around 11–12% in late 2013. Recognizing inflation's harm to growth and incomes, the RBI Act (2016) mandated FIT with 4%  $\pm$  2%. Since then, policy has generally sought to keep CPI in this band. For example, in 2014–15, RBI tightened policy aggressively: it used open market

operations (selling government bonds) and raised the repo rate from 7.75% to 8.00% (and reverse repo from 6.75% to 7.00%) <sup>12</sup> . This helped bring inflation down from double digits to around 6% by late 2015, after which RBI began cutting rates (repo to 6.75% by 2015 end) as inflation eased <sup>12</sup> . Similarly, during the recent 2022–24 inflation surge, RBI raised the repo from 4.00% (May 2022) to 6.50% (Feb 2023) <sup>13</sup> <sup>14</sup> . These moves align with its 4% target and were aimed at tempering demand. Official data confirm this strategy: CPI inflation fell from about 5.4% (in FY 2023–24) to 4.6% (FY 2024–25) after the hikes <sup>14</sup> . Moreover, the government has highlighted that quarterly inflation remained within the 2–6% band <sup>10</sup> . Thus India's IT experience has shown the importance of credible policy: when inflation exceeded 6%, policymakers acted to cool it; when it fell too low (e.g. mid-2024 CPI ~3–5%), they signaled support for growth by pausing or easing. The period also underscores challenges: global shocks (oil price swings, food shortages) have sometimes pushed inflation outside target, requiring policy responses beyond routine adjustments.

**Monetary Policy Instruments (Repo, Reverse Repo, OMOs).** Central banks primarily use interest-rate and liquidity tools to control inflation. In India, the **repo rate** is the rate at which banks borrow overnight from the RBI. Raising the repo makes credit more expensive: banks will charge higher rates to borrowers, which dampens investment and consumption demand, thus lowering inflation pressure. Conversely, lowering repo stimulates demand. The **reverse repo** is the rate at which RBI absorbs excess liquidity from banks. A higher reverse repo encourages banks to park funds with RBI (reducing money in the system), tightening liquidity. For example, in 2014 the RBI raised both repo and reverse repo (repo 7.75→8.00%, reverse repo 6.75→7.00%) while selling bonds (open market sale) to withdraw money <sup>12</sup> . These actions together contracted money supply and helped slow prices. Open Market Operations (OMOs) are another tool: by selling government securities, RBI reduces banks' cash (again tightening), whereas buying securities injects liquidity. The slides note that in 2014 RBI used OMOs "selling of bonds to tighten money supply" <sup>12</sup> . In short, monetary policy can curb inflation by raising the cost or reducing the quantity of credit. However, it operates with lags: a policy rate hike mainly affects demand after several quarters. Slides acknowledge concerns over high rates raising borrowing costs ("I falls ⇒ Y falls"), but argue that without tight policy, inflation remains high, which itself depresses real incomes and competitiveness <sup>15</sup> . Empirical evidence from India's tightening episodes shows higher policy rates coincided with eventually lower CPI growth (e.g. 2015 and 2023).

**Non-Monetary (Supply-Side) Measures for Inflation.** Especially when inflation is driven by supply shocks (food or fuel), monetary policy alone can be insufficient. In India, food and fuel together comprise a large share of CPI (about 57% <sup>16</sup> ), so their price swings heavily influence headline inflation. To manage such volatility, governments use non-monetary tools:

- **Administrative price measures:** The government has at times imposed stock limits on essential commodities, restricted or subsidized exports, or released buffer stocks. For example, during 2014–16 the government used "export restrictions on grains, minimum export price policy for onions and potatoes" and released rice stocks to stabilize prices <sup>17</sup> . Similarly, when global oil prices plunged in late 2014, inflation fell sharply; conversely, cutting fuel taxes or reducing LPG/petrol prices can directly lower domestic inflation, as seen in 2022–24 <sup>18</sup> .
- **Price Stabilization Fund (PSF):** Established in 2003 (Agriculture Ministry), the PSF buys commodities (pulses, onions, etc.) directly from farmers to create buffer stocks <sup>19</sup> . It bypasses middlemen to ensure fair prices for farmers, then sells these stocks when prices surge. This mechanism "safeguard[s] against price surges" by smoothing seasonal supply variations <sup>20</sup> .
- **Agricultural production support:** Raising procurement, improving storage/transport, and encouraging production can ease supply constraints. The slides note that when past prices rose, farmers expanded acreage and production, eventually causing an oversupply that pulled prices

down <sup>16</sup> . On the flip side, poor monsoons or logistics bottlenecks can constrict supply, boosting food inflation and feeding into wages and general prices <sup>21</sup> . In such cases, RBI commentary emphasizes that “this constraint in supply cannot be corrected through monetary policy” <sup>21</sup> .

In sum, India’s experience shows a mix of policies: monetary tightening to manage broad demand, plus targeted supply-side interventions (stock releases, import/export policies, buffer funds) to directly tackle food and fuel inflation <sup>17</sup> <sup>18</sup> . Official reports echo this dual approach: recent government statements list measures like expanding buffer stocks, export curbs and price interventions alongside RBI’s repo rate hikes to keep inflation in check <sup>22</sup> <sup>14</sup> .

**The Taylor Rule: Policy Guidance.** The Taylor rule is a policy formula linking the nominal interest rate to inflation and output gaps. Its canonical form (Taylor, 1993) is:

$$i = r^* + \pi + 0.5(\pi - \pi^*) + 0.5\frac{(Y - Y^*)}{Y^*},$$

where  $i$  is the nominal policy rate,  $\pi$  is current inflation,  $\pi^*$  is the target inflation (e.g. 2%),  $r^*$  is the equilibrium real interest (often ~2%),  $Y$  is actual output and  $Y^*$  potential output. Simplified (with  $r^*=2\%$ ), this becomes:  $i = \pi + 2\% + 0.5(\pi - \pi^*) + 0.5\frac{Y - Y^*}{Y^*}$  <sup>23</sup> . Thus if inflation or output rises above their desired levels, the rule prescribes a higher policy rate. Slide annotations explain: if  $Y < Y^*$  (output below potential), interest should fall to stimulate growth; if  $\pi > \pi^*$  (inflation above target), interest should rise\* to cool prices <sup>24</sup> . The Taylor rule is not law but a benchmark; it helps ensure the real rate remains positive and countercyclical. Historically, adherence to such a rule kept inflation and output fluctuations modest. Notably, Fed Chair Taylor criticized the US Fed for keeping rates too low relative to this rule in 2003–05; this “excess liquidity” helped fuel the subprime housing bubble <sup>25</sup> . In practice, RBI does not mechanically follow a Taylor formula, but its MPC implicitly balances current inflation against growth gaps when setting rates.

**Supply-Side Constraints in Agriculture.** In economies like India, agricultural output is vulnerable to weather and infrastructure. A poor harvest (due to drought or floods) can sharply cut food supply, spiking food inflation. Because food is a large consumption share, this raises headline CPI. Furthermore, rural wage inflation often accompanies food inflation, indirectly pushing up non-food prices as well <sup>21</sup> . Thus a supply shock has broad macro effects. Monetary tightening cannot increase food output; in fact, raising rates in such a situation can depress overall growth without alleviating the shortage. Slides emphasize this: **“When the economy is supply-constrained...this cannot be corrected through monetary policy”** <sup>21</sup> . Instead, supply-side remedies (better irrigation, logistics, crop insurance) and the aforementioned policy interventions (exports, buffer stocks) are crucial. For example, India’s experience around 2014 shows that higher food prices led farmers to plant more, eventually easing inflation <sup>16</sup> , whereas an external shock like the 2020 monsoon failure or recent global food trends required policy support.

In summary, the lecture emphasizes that managing inflation requires both clear policy rules (like IT and guidelines such as the Taylor rule) and flexibility to use supply-side measures. India’s recent history illustrates these lessons: credible inflation targets and rate policies anchor expectations, but food/fuel shocks demand targeted interventions (PSF, subsidies, trade measures) to prevent inflation from hurting the vulnerable. Together, monetary and non-monetary tools form a toolkit for stable prices and sustained growth.

## Multiple-Choice Questions (MCQs)

1. If India's nominal interest rate is 9% and inflation is 4%, what is the approximate real interest rate?

A. 13% B. 5% C. 4% D. -5%

**Answer: B. 5%.** Real rate  $\approx 9\% - 4\% = 5\%$ .

2. Which of the following illustrates a *benefit* of low/moderate inflation?

A. Erodes the value of savings held in bank deposits.  
B. Signals producers to allocate resources toward in-demand goods.  
C. Leads to higher nominal interest rates on bonds.  
D. Disproportionately benefits debtors over savers.

**Answer: B.** Inflation acts as a price signal to producers (slides: "It signals which commodity is demanded" <sup>4</sup>). Option A, C, D are costs of inflation <sup>26</sup>.

3. India's inflation target is set at 4% ( $\pm 2\%$ ). Suppose actual inflation unexpectedly rises to 7% while output is near potential. According to inflation-targeting rationale, the RBI should likely:

A. Decrease the repo rate to support growth.  
B. Increase the repo rate to cool demand.  
C. Focus on currency devaluation to stabilize prices.  
D. Use fiscal policy only, since inflation is high.

**Answer: B.** With inflation above 6%, RBI would tighten policy (raise repo) to bring inflation back towards target <sup>8</sup> <sup>27</sup>.

4. Under the Taylor rule (with  $r = 2\%$ , target inflation = 4%), if actual inflation is 6% and output is 4% below potential ( $Y - Y^* = -4\%$ ), the recommended policy rate  $i$  is:

A. 6.0% B. 7.0% C. 8.0% D. 9.0%

**Answer: C. 8.0%.** Using  $i = \pi + 2 + 0.5(\pi - \pi^*) + 0.5[(Y - Y^*)/Y^*]$ : here  $\pi=6$ ,  $\pi^*=4$ , output gap = -4%. Then  $i = 6 + 2 + 0.5(6-4) + 0.5(-4) = 8 + 1 - 2 = 7\%$ . Actually check arithmetic:  $\$6+2=\$8$ ,  $\$0.5(2)=\$1$ ,  $\$0.5(-4)=-\$2$ , so  $\$8+1-2=\$7$ . So correct answer is B: 7.0%. (Revised)

**Correction:** The calculated  $i = 7.0\%$ , so **B. 7.0%** is the recommended rate. This matches Taylor rule logic: inflation is above target (+2%), which adds 1% ( $\$0.5 \times 2\%$ ), but negative output gap subtracts 2% ( $\$0.5 \times -4\%$ ). Total  $\$6+2+1-2=\$7$ .

1. Which policy is an example of a *supply-side* intervention to curb inflation?

A. Raising the repo rate.  
B. Increasing the reverse repo rate.  
C. Imposing stock limits on food grains.  
D. Open-market purchase of government bonds.

**Answer: C.** Imposing stock limits on food items is a supply-management tool (slides mention export restrictions and stock limits on grains) <sup>17</sup>. Options A, B, D are monetary instruments.

2. If food and fuel prices make up 57% of the CPI, a sudden shortage in agriculture output is most likely to:

A. Primarily affect only rural agricultural wages.  
B. Cause general inflation without monetary expansion.  
C. Be easily fixed by reducing the repo rate.  
D. Have no impact on headline inflation.

**Answer: B.** A supply shock in food/fuel raises overall CPI inflation (slides: "Food prices rise  $\Rightarrow$  wages rise  $\Rightarrow$  all other prices rise...cannot be corrected through monetary policy." <sup>21</sup>). Lowering rates (C) could worsen inflation without raising output.

**3. What was a contributing factor to India's inflation falling in 2014–15, besides RBI's tight policy?**

- A. Global crude oil prices crashed by ~65%.
- B. A sharp depreciation of the rupee.
- C. A collapse in gold prices.
- D. Wage freezes across states.

**Answer: A.** The lecture notes state that falling oil prices (down 65% by Dec 2014) helped pull down inflation <sup>28</sup>.

**4. According to the slides, who tends to benefit from inflation?**

- A. Workers on fixed nominal wages.
- B. Owners of cash savings.
- C. Debtors with fixed-rate loans.
- D. Retirees on fixed pensions.

**Answer: C.** Debtors benefit because inflation erodes the real value of their debt <sup>7</sup>. Fixed-wage workers (A) and cash savers (B, D) lose out.

**5. The RBI's flexible inflation targeting framework (2023) mandates a CPI target of 4% with  $\pm 2\%$  tolerance <sup>10</sup>. If the CPI inflation was 5.4% in FY2023-24 and fell to 4.6% in FY2024-25 <sup>14</sup>, it means inflation:**

- A. Exceeded the upper band.
- B. Was below the target midpoint but within range.
- C. Was above target in 2023-24 and within range in 2024-25.
- D. Hit exactly the 4% target both years.

**Answer: C.** 5.4% (2023-24) was above 4% target but still within 6% tolerance; 4.6% (2024-25) is closer to target and within range <sup>14</sup> <sup>10</sup>.

**6. During the U.S. housing bubble (2003–05), Federal Reserve policy deviated from the Taylor rule by keeping rates too low. The slide suggests this deviation led to:**

- A. A rapid decrease in inflation.
- B. Excess liquidity and a subprime lending boom.
- C. A period of deflation and recession.
- D. Immediate wage-price spirals.

**Answer: B.** The slides explicitly note that rates were raised slower than Taylor's rule, causing "excess liquidity, subprime lending and the consequent housing bubble" <sup>25</sup>.

## Long-Answer Questions

**1. Explain the Fisher equation  $r = i - \pi$  and discuss why understanding the real interest rate is important for economic policy. How do inflation expectations affect savers and investors?**

**Answer:** The Fisher equation  $r = i - \pi$  relates the real interest rate ( $r$ ) to the nominal interest rate ( $i$ ) and inflation ( $\pi$ ). It shows that the real rate – the rate of growth of purchasing power – equals the nominal rate minus the inflation rate <sup>1</sup>. If a bank offers 10% nominal but inflation is 6%, the real gain for a depositor is only about 4%. For policymakers, targeting an appropriate real rate is crucial: a positive real deposit rate is needed to encourage saving and channel funds into investment <sup>3</sup>. When

inflation is high (or rising), the central bank must raise nominal rates sufficiently to keep real rates non-negative. If it doesn't, savers suffer (erosion of wealth) and spending can overheat the economy. Conversely, unexpectedly low inflation or deflation raises real rates, dampening borrowing and spending. Thus inflation expectations matter: if people expect higher inflation, they will demand higher nominal rates to protect real returns, or they may reduce saving, fearing erosion of value. For investors, expected inflation also shifts decisions: high expected inflation makes long-term projects less attractive unless nominal returns rise. In sum, central banks monitor inflation expectations to set nominal rates that achieve a desired real interest rate, balancing incentives for savers and borrowers.

**1. Outline the main costs and benefits of inflation. Why do most central banks target a positive inflation rate (around 2–4%) instead of zero inflation? Relate your discussion to India's inflation-target range.**

*Answer:* **Benefits:** Mild inflation can lubricate the economy. It allows relative prices to adjust smoothly (higher demand signals in key sectors, as noted in class: “inflation is a signal...what should be profitable to produce” <sup>4</sup>). A low positive inflation gives room for wage adjustments (real wages fall without nominal cuts) and prevents the economy from hitting a liquidity trap. It also ensures real interest rates can be positive even if nominal rates are near zero (avoiding the zero lower bound problem).

**Costs:** High or volatile inflation distorts decision-making. It erodes the real value of money and savings <sup>5</sup>, unfairly penalizing those on fixed incomes. It pushes up nominal interest rates (the Fisher effect <sup>6</sup>), making new investment more costly. Price/wage spirals can emerge: workers demand higher wages for past price rises, which in turn raises firms' costs and leads to more inflation <sup>8</sup>. Distributional impacts also matter: unexpected inflation benefits borrowers (inflation reduces real debt) and hurts lenders and fixed-wage workers <sup>7</sup>.

**Why target positive inflation?** Because a small inflation buffer avoids deflation and sticky downward wage cuts. Most central banks (including India's RBI) aim for around 4% (with a range) rather than zero to allow nominal wage flexibility and to accommodate measurement biases in CPI. The slides emphasize that “too high a target” raises inflation variability and risk of spirals <sup>8</sup>, so 4% ( $\pm 2\%$ ) is seen as a prudent compromise for India. This range was codified in RBI's FIT framework <sup>8</sup> <sup>10</sup>. India's experience (2013–15) showed why: double-digit inflation then undermined growth and incomes, so policymakers tightened to bring inflation into the target band. On the other hand, an inflation rate modestly above 0% helped India avoid deflationary pressures and supported nominal interest rates being above zero. In summary, the goal is to have inflation low enough to minimize costs, but above zero to maintain monetary policy flexibility and relative price dynamics.

**1. Describe the framework and rationale of inflation targeting. Critically evaluate India's adoption of inflation targeting (2016 onward) and its outcomes through 2024. What challenges has India faced under this regime?**

*Answer:* Inflation targeting (IT) is a monetary policy framework where the central bank publicly announces a numeric inflation goal and uses policy tools to achieve it. Its rationale is to anchor inflation expectations and improve transparency and credibility. By committing to a target, the central bank signals that it prioritizes price stability, which in turn can stabilize wage and price setting behavior. India's RBI formally adopted flexible IT in 2016 (4% target with 2% upper/lower band) <sup>8</sup> <sup>10</sup>.

**Outcomes:** Initially, IT helped bring down chronic high inflation. In 2014–15, RBI aggressively tightened (repo up to 8%) to combat ~10% CPI inflation <sup>12</sup>. Inflation fell to the mid-single digits by 2016, meeting the new targets, enabling RBI to cut rates and support growth. Post-IT, India enjoyed relatively stable

inflation (mostly within 2–6%). For example, by 2024, quarterly CPI inflation ranged 2.7–5.6%<sup>29</sup>, demonstrating anchored expectations.

**Challenges:** However, India still faces supply-driven inflation that tests IT. The COVID-19 era saw global supply disruptions: for instance, food inflation spiked due to logistic issues, and global oil shocks pushed fuel prices up. Under IT, RBI had to judge when to tolerate short-lived supply shocks versus when to tighten. In late 2021–22, global inflation surges (pandemic after-effects, Ukraine war) raised CPI above 6%, pressuring RBI to act. RBI hiked repo from 4% to 6.5% in 2022–23<sup>14</sup>. Another challenge is transmission: India's banking sector and bond market sometimes respond slowly, so aligning policy with targets can lag. Moreover, fiscal and administrative policies (food subsidies, MSP increases) can indirectly affect inflation, complicating RBI's task.

**Critique:** Overall, IT has arguably enhanced RBI's credibility: inflation has been lower and less volatile than before. But strict focus on CPI targets can undervalue output goals and complicate handling of imported inflation. Hence, India follows *flexible* IT – it also considers growth and employment. The coordinated approach (monetary tightening plus fiscal/admin measures) has largely kept inflation in band by 2024<sup>14</sup>. Still, critics argue more emphasis on supply-chain reforms is needed to complement IT, since RBI cannot fight supply shocks alone<sup>21</sup>.

**1. Explain the Taylor rule and its economic intuition. How does it differ from purely discretionary monetary policy? Discuss the example of the U.S. housing bubble (2003–05) in this context. What lesson does this hold for a country like India?**

*Answer:* The Taylor rule is an empirical policy guideline that prescribes setting the nominal interest rate based on inflation and output gaps<sup>23</sup>. Formulated by John Taylor (1993), it takes the form  $i = r^* + \alpha\pi + 0.5(\pi - \pi^*) + 0.5(\text{output gap})$ . Here, if inflation is above target or output above potential, it calls for higher rates; if below, for lower rates. The logic is to stabilize the economy by “leaning” against both demand-pull inflation and recessionary gaps. This contrasts with pure discretion, where central bankers use judgment without a rule. Discretion can adapt to new information, but may lack accountability and can be subject to policy inertia or biases.

In the U.S. case, Taylor argued that from 2003–05 the Fed kept interest rates too low relative to what the rule would suggest, given rising housing prices and inflation around 3–4%. This deviation ( $i_{\text{actual}} < i_{\text{Taylor}}$ ) meant there was “excess liquidity,” which fueled subprime lending and the housing boom<sup>25</sup>. The housing bubble eventually burst, causing the Great Recession. The lesson is that rule-based guidance can prevent the central bank from keeping rates too low for too long.

For India, the lesson is not to follow the Taylor formula mechanically (India's economy has different dynamics) but to be mindful of consistent policy. If inflation drifts above target and output is high, policy should tighten – deviations risk inflation or financial excesses. If inflation is low and growth weak, policy should ease to support demand. For example, in 2003–05 India did raise rates as inflation stayed high, roughly in line with Taylor logic. Currently, even without strict rule adherence, RBI's MPC cites both the inflation gap and output gap in decisions. The broader point is that transparent rules like the Taylor rule help communicate policy intent and anchor expectations. India's policymakers can use such benchmarks to check if their stance is too loose or tight, especially during asset booms or busts.

**1. Discuss the limitations of monetary policy in controlling inflation caused by supply shocks, using India's agriculture and fuel markets as examples. What alternative policies can be used in these situations, and how have they been applied in India?**

*Answer:* Monetary policy works by influencing demand (through interest rates and liquidity). When inflation is driven by supply shocks (e.g. poor crop yields, spikes in oil prices), raising interest rates may not reduce prices, and may instead contract the broader economy. India's slides point out: with "supply constraint in agriculture...Food prices rise  $\Rightarrow$  wages rise  $\Rightarrow$  all other prices rise," and "this constraint... cannot be corrected through monetary policy" <sup>21</sup> . For instance, a drought-driven drop in food supply causes food inflation that RBI cannot directly fix; raising rates might simply hurt growth and lower real incomes further.

**Alternative policies:** In such cases, fiscal and administrative measures are needed. These include increasing supply or smoothing prices: - **Buffer stocks and procurement:** Building strategic reserves of grains so that when harvests fail, the government can release stocks. India's Food Corporation maintains buffer stocks to stabilize prices.

- **Trade measures:** Imposing temporary import duty reductions or export bans. For example, India has sometimes limited exports of wheat or onions to keep domestic prices down, or reduced import tariffs to increase supply of edible oil. Slides note "export restrictions on grains, minimum export price policy" to address agri supply <sup>17</sup> .

- **Direct subsidies/price controls:** In fuel markets, India can reduce excise taxes or raise subsidies to cap retail prices (as in LPG/petrol cuts) <sup>18</sup> . Similarly, setting minimum support prices (MSP) in procurement can encourage farmers to produce more of needed crops.

- **Supply-side reforms:** Long-term measures like investing in irrigation, better storage, and market access lower volatility. Providing interest-free crop loans or insurance can mitigate farmers' risk and stabilize output.

In practice, India has used many of these: The Price Stabilization Fund (PSF) for pulses and onions acts as a buffer <sup>19</sup> ; in 2022–23 the government auctioned food grains and regulated exports to combat price rise. During fuel shocks, temporary fuel tax cuts were used. The recent PIB release enumerates measures like buffer stock augmentation, release of procured grains, stock limits and rationed sales under the "Bharat" scheme <sup>22</sup> . The combined effect has been to moderate pass-through of global price shocks into Indian inflation.

In summary, while RBI's rate tools influence demand, supply shocks require targeted interventions. India's experience shows active use of buffer stocks, trade policy, and subsidies when agri/fuel inflation surges. These policies complement monetary policy, helping keep headline inflation within the target band even when supply constraints exist <sup>21</sup> <sup>22</sup> .

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