



भारतीय रिज़र्व बैंक  
RESERVE BANK OF INDIA

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November 20, 2024

## RBI Bulletin – November 2024

Today, the Reserve Bank released the [November 2024](#) issue of its monthly Bulletin. The Bulletin includes five speeches, five articles, and current statistics.

The five articles are: I. State of the Economy; II. A Suite of Approaches for Estimating Equilibrium Exchange Rates for India; III. Dynamic Landscape of Monetary Policy Communication in India; IV. Agri-tech Startups and Innovations in Indian Agriculture; and V. Seasonality in Key Economic Indicators of India.

### I. State of the Economy

Global economic activity remained resilient during Q4:2024 amidst fragile confidence and rising protectionism. In India, the slack in speed observed in the second quarter of 2024-25 is behind us as private consumption is back to being the driver of domestic demand with festival spending lighting up real activity in Q3. Domestic financial markets are seeing corrections with relentless hardening of the US dollar and equities being under pressure from persistent portfolio outflows. The medium-term outlook remains bullish as the innate strength of the macro-fundamentals reasserts itself. Headline CPI inflation rose above the upper tolerance band in October 2024 with a sharp surge in the momentum of food prices along with an increase in core inflation.

### II. A Suite of Approaches for Estimating Equilibrium Exchange Rates for India

*By Michael Debabrata Patra, Dharendra Gajbhiye, Harendra Behera, Sujata Kundu and Rajas Saroy*

This article provides a comprehensive examination of India's equilibrium exchange rate through various approaches such as behavioural equilibrium exchange rate (BEER), permanent equilibrium exchange rate (PEER) and fundamental equilibrium exchange rate (FEER). It highlights the role of relative productivity differentials, net terms of trade, net foreign assets position and the fiscal balance in determining the Indian rupee's equilibrium value.

## **Highlights:**

- The suite of models offers policymakers a guiding framework to assess exchange rate movements.
- The findings of this article underscore the relevance of a range of estimates of the equilibrium exchange rate, which is not observable. The alternative approaches estimated here are preferable to static indicators such as the real effective exchange rate (REER) or others that belong in the genre of the simple purchasing power parity (PPP) framework.
- While using these estimates for policy purposes, it is useful to be cognisant of their limitations. The pragmatic approach is to use multiple methods and to interpret each carefully by taking into account both underlying assumptions and their applicability to country-specific circumstances.

## **III. Dynamic Landscape of Monetary Policy Communication in India**

*By Shweta Kumari and Sandhya Kuruganti*

This article analyses the bi-monthly monetary policy resolution documents using natural language processing (NLP) techniques to assess the evolution of monetary policy communication in India. It examines the topic prevalence over time and derives the tone of communication on inflation and growth using a customised dictionary. It also examines the impact of narrative communication on financial markets using an event-study framework.

## **Highlights:**

- The study sheds light on shifting contours of communication over time encompassing two recent major events viz., Covid-19 pandemic and Russia-Ukraine conflict.
- Results indicate that the content and emphasis on various topics deliberated in monetary policy meetings varied in response to the emerging economic conditions.
- The communication tone on inflation is found to play a significant role in shaping up market expectations, especially the medium-term overnight index swap (OIS) rates.

## **IV. Agri-tech Startups and Innovations in Indian Agriculture**

*By D. Suganthi, Jobin Sebastian and Monika Sethi*

This article examines the evolution of the Indian agri-tech landscape which has significant growth potential to emerge as an institutional innovation for bridging the technological gap. It provides a detailed overview of the existing agri-tech startup environment in India with special reference to its drivers, diversity, impediments, and policy alternatives. The article also discusses the agri-tech startups' perspectives on

fundraising, growth and scalability impediments using data from a primary survey on agri-tech startups in India.

### **Highlights:**

- India's agri-tech ecosystem witnessed a significant increase in investor interest post Covid-19, supported by venture capital funding.
- The share of e-commerce startups founded and funded is substantially higher among the agri-techs.
- Empirical analysis using cross-sectional data on 780 firms shows that employing advanced technologies, access to accelerators and incubators, founders' education and past experience, funding status and access to both domestic and foreign institutional investors positively influence the likelihood for a startup to develop innovative on-farm technologies.
- A survey of agri-tech startups shows that they benefit from governments' funding support, research and development and state support in the form of digital infrastructure, while fragmented land holdings and a longer time to revenue matrix are the major factors hindering their growth prospects.

## **V. Seasonality in Key Economic Indicators of India**

*By Shivangee Misra, Anirban Sanyal and Sanjay Singh*

This article provides estimates of seasonal factors of key economic indicators in India, analysing 78 monthly indicators across six sectors — monetary and banking, payment systems, prices, industrial production, merchandise trade, and services — along with 25 quarterly indicators. Latest estimates of seasonal factors (corresponding to 2023-24) are provided in the form of detailed tables.

### **Highlights:**

- Overall, seasonal pattern remains mostly stable across major economic variables although seasonal variations have become more pronounced across several indicators such as cash in hand and balances with the RBI, demand deposits, prices of major vegetables, industrial production, passenger vehicle sales, and merchandise exports.
- CPI faces seasonal pressure from July to November, mainly driven by rising vegetable prices during the monsoon season, while fruit prices tend to peak in the summer months.
- In industrial production, most items reach their highest levels in March, whereas consumer durables see a peak in October, coinciding with the festive season.
- Both exports and imports also peak in March, with exports exhibiting more pronounced seasonal fluctuations compared to imports.
- Quarterly data highlight increased seasonal variation in real GDP, especially in government expenditure, with agriculture showing the most significant seasonal

effects. Capacity utilisation in manufacturing peaks in the January–March quarter, which also coincides with a rise in services exports.

- Among the quarterly series, real GDP and GVA continue to record their seasonal peak during Q4. The seasonal variations in the national accounts aggregates have increased since the onset of the pandemic, even after adjusting for the pandemic-induced volatilities.

The views expressed in the Bulletin articles are of the authors and do not represent the views of the Reserve Bank of India.

**Press Release: 2024-2025/1540**

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