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RBI Bulletin – October 2024

Today, the Reserve Bank released the October 2024 issue of its monthly Bulletin. The Bulletin includes Monetary Policy Statement (October 7-9) 2024-2025, six speeches, seven articles, and current statistics.

The seven articles are: I. State of the Economy; II. Monetary Policy Transmission in India: The Recent Experience; III. Nowcasting Food Inflation in India: Leveraging Price and Non-Price Signals through Machine Learning; IV. How Indian Banks are Adopting Artificial Intelligence?; V. COVID-19 and Performance of MSME Clusters in India; VI. Cash Usage Indicator for India; and VII. New Digital Economy and the Paradox of Productivity.

I. State of the Economy

The global economy remained resilient in H1:2024, with declining inflation supporting household spending. Stable growth momentum amidst monetary policy easing is becoming the prevailing theme across most economies. In spite of geopolitical tensions, India's growth outlook is supported by robust domestic engines. Some high frequency indicators have, however, shown a slackening of momentum in the second quarter of 2024-25 partly attributable to idiosyncratic factors like unusually heavy rains in August and September. Looking ahead, private investment is showing some encouraging signs in terms of lead indicators while consumption spending is shaping up for a festival season revival. After remaining below target for two consecutive months, inflation surged in September, as an adverse statistical base effect was compounded by a resurgence in food price momentum.

II. Monetary Policy Transmission in India: The Recent Experience

By Michael Debabrata Patra, Indranil Bhattacharyya, Joice John, and Avnish Kumar

This article examines the impact of the monetary policy tightening that was undertaken since May 2022 in India, propagating through the spectrum of financial markets to the real economy.

Highlights:

- Monetary policy shocks significantly affected money, government securities, and corporate bond market segments with relatively smaller effects on the forex and stock market.

- Policy rate tightening could anchor inflation expectations – reducing aggregate demand and headline inflation by 160 bps each till Q2:2024-25.

III. Nowcasting Food Inflation in India: Leveraging Price and Non-Price Signals through Machine Learning

By Nishant Singh and Abhiruchi Rathi

The high share of food items in India's Consumer Price Index (CPI) and the associated large price volatility makes accurate forecasting of food inflation crucial for headline inflation projections. A valuable input for precise forecasts is nowcast – the current-period inflation projection. Leveraging the increasing availability of granular data, this study investigates predictive power of high frequency price and non-price indicators for nowcasting food inflation in India. The study further explores utility of machine learning (ML) techniques over traditional linear benchmarks.

Highlights:

- The empirical findings demonstrate that expanding the input information set and going beyond conventional univariate modelling to include high frequency retail and wholesale food prices, as well as non-price information including rainfall, wages and *mandi* crop arrivals, among others, improves nowcast accuracy.

- Nowcast accuracy is further enhanced by employing regularisation (shrinkage) methods and Deep Learning ML models which are known to excel in processing high-dimensional data and capturing non-linearities.

- Combining diverse models through combination nowcasts further boosts accuracy, advocating for the adoption of an ensemble approach in predictive modelling exercises.

IV. How Indian Banks are Adopting Artificial Intelligence?

By Shobhit Goel, Dirghau K. Raut, Madhuresh Kumar, and Manu Sharma

Artificial Intelligence (AI) and related technologies have witnessed rapid evolution and adoption across different sectors of the economy. The banking sector is also exploring potential use cases of AI to improve the service efficiency and quality. This article provides empirical reflections on AI adoption for major public and private sector banks in India, using text mining techniques on the banks' annual reports from 2015-16 to 2022-23. It also examines the relationship between financial indicators and AI exploration by the banks.

Highlights:

- Banks are exploring AI and related technologies for use cases such as customer service chatbots, predictive analysis, customer segmentation, risk assessment and fraud detection.

- The focus towards AI-related technologies by Indian banks has increased steadily in recent years, exploring newer technologies like Robotic Process Automation (RPA), Internet of Things (IoT) and Natural Language Processing (NLP).

- While private sector banks were initially more proactive towards AI and related technologies, there is increased frequency of AI-related technologies in

the annual reports of public sector banks, which suggests their increased focus on AI in recent years, with many public-sector banks now appearing to be broadly at par with their private sector peers.

- The size of total assets and capital to risk-weighted assets ratio (CRAR) of banks are found to be positively associated with AI adoption, reflecting the role of economies of scale and financial health in influencing technological adoption.

V. COVID-19 and Performance of MSME Clusters in India

By Rajib Das, Dhanya V, Amarendra Acharya, Ramesh Golait, Silu Muduli, and Arjit Shivhare

This article evaluates the performance of Micro, Small, and Medium Enterprises (MSMEs) in the post-COVID scenario, using data from a primary survey conducted among select MSME clusters in India. It also examines the state of formalisation of MSMEs across various clusters.

Highlights:

- A substantial portion of the MSMEs in the surveyed clusters have formalised their operations through registration.

- Based on the survey, the majority of MSME firms are found to be bank-linked with nearly 70 per cent of MSME units disbursing employee salaries through their bank accounts. About 98 per cent of medium enterprises made direct salary deposits into employees' bank accounts; this proportion was around 67 per cent for micro enterprises.

- The surveyed MSME firms mostly used personal savings, trade credit and retained earnings to manage their enterprises' expenses. Nearly 80 per cent of loans are taken from institutional sources, with 96 per cent of the quantum coming from institutional sources.

- The challenges faced by MSMEs are predominantly structural. Expenses related to electricity, rent, and debt service emerge as the key factors influencing the net profit margin of MSMEs.

- Liquidity and regulatory measures by the Reserve Bank and Government schemes such as the Emergency Credit Line Guarantee Scheme (ECLGS) supported these enterprises in the aftermath of the pandemic.

VI. Cash Usage Indicator for India

By Pradip Bhuyan

The anonymity of cash payments hinders the direct measurement of use of cash as a payment mode. This article explores various approaches to measure cash usage and develops a quarterly cash usage indicator (CUI) to measure the use of cash as a mode of payment in India.

Highlights

- Values of CUI reveal that cash usage in India is significant but steadily declining.

- The indicator proposed in the paper may be a useful tool to monitor the usage of cash in the country.
- The indicator could provide valuable insights to enhance policies on currency management in the country.

VII. New Digital Economy and the Paradox of Productivity

By Sadhan Kumar Chattopadhyay, Sreerupa Sengupta, and Shruti Joshi

Digital technologies are transforming economies and have the potential to substantially enhance the overall productivity of firms in many sectors of the economy. Ironically, the emergence of new digital technologies surrounding cloud computing, big data, and robotics coincided with a productivity decline in OECD countries – a phenomenon often known as the 'Solow productivity paradox'. Against this background, this article estimates the contribution of digitalisation to productivity growth and examines the Solow productivity paradox for India.

Highlights:

- The contribution of Information and Communication Technology (ICT) to output growth increased from 5.0 per cent in 1981-1990 to 13.2 per cent during 1992-2023.

- On average, the ICT sector's productivity fared better than the non-ICT sector for the whole sample period.

- The productivity impact of ICT was the highest from 1980 to 2000, refuting Solow's productivity paradox for India. During the post-global financial crisis (GFC) period, Solow's productivity paradox in India is observed in consonance with the global trend.

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

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