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RBI Bulletin – November 2022

The Reserve Bank of India today released the [November 2022](#) issue of its monthly Bulletin. The Bulletin includes eight speeches, five articles and current statistics.

The five articles are: [I. State of the Economy](#); [II. When a News Story is More Than Just Text: Evidence from Indian Economy](#); [III. Green Data Centres: Pathway to Sustainable Digitalisation](#); [IV. Payment Flows as Economic Indicators: Nowcasting Using a Hybrid Machine Learning Framework](#); and [V. Transmission of Financial Conditions to Fixed Investment in India: An Empirical Investigation](#).

I. State of the Economy

The outlook in the global economy remains clouded with downside risks. Global financial conditions have been tightening and deteriorating market liquidity is amplifying financial price movements. Markets are now pricing in moderate increases in policy rates and risk-on appetite has returned. In India, supply responses in the economy are gaining strength. With headline inflation beginning to show signs of easing, the domestic macroeconomic outlook can best be characterised as resilient but sensitive to formidable global headwinds. Urban demand appears robust, rural demand is muted but more recently picking up traction.

II. When a News Story is More Than Just Text: Evidence from Indian Economy

Exploring news as a potentially rich source of information and leveraging upon Big Data techniques, this article constructs sentiment indices on a range of macroeconomic variables and examines their utility for economic analysis in the Indian context.

Highlights:

- i) The news-based sentiment indices capture the changing patterns in various sectors of economy. The predictive ability of sentiment in a forecasting framework, examined using statistical and machine learning methods, can enhance the value sentiment derived from news.
- ii) The COVID-19 pandemic depressed sentiment. With gradual resumption of economic activities and return towards normalcy, sentiments recovered.
- iii) A high-frequency sentiment index can be a useful complementary indicator to provide early signals on economic conditions.

III. Green Data Centres: Pathway to Sustainable Digitalisation

This article discusses the importance of data centres for banks and financial institutions, their impact on the environment and the benefits of green data centres.

Highlights:

- i) With growing emphasis on digitalisation, the need for data centres in the country has increased manifold. Data centres, as part of their operations, consume a lot of power thereby contributing to greenhouse gas emissions.
- ii) As a result of a favourable geographical location and conducive government policies, India's data centre industry is in a high growth phase and better placed to adopt green technologies for both the existing and upcoming data centres.
- iii) The article offers suggestions which can help banks and financial institutions in greening their data centres such as acquiring industry recognised accreditation like Indian Green Building Council (IGBC) and Leadership in Energy and Environmental Design (LEED) certification; replacing outdated or inefficient information technology equipment; integrating green measures in data centre operations, including in their design, materials, construction, energy consumption and waste management.

IV. Payment Flows as Economic Indicators: Nowcasting Using a Hybrid Machine Learning Framework

The payments process is a vital aspect of financial intermediation. An efficient payments and settlement system can act as a propellant for economic momentum. In this context, the study examines the use of payments data to nowcast growth in gross value added (GVA).

Highlights:

- i) A hybrid machine learning framework for nowcasting based on mixed frequency data has been applied. The study focuses on using a combination of Mixed Data Sampling (MIDAS) and Support Vector Machine (SVM) models.
- ii) A disaggregated approach is employed to exploit the information available from individual payment indicators. Further, both volume and value channels are explored.
- iii) Predictive accuracy improves substantially for the nowcasts generated using the hybrid approach.

V. Transmission of Financial Conditions to Fixed Investment in India: An Empirical Investigation

In this article, dynamic factor model (DFM) and vector auto regression (VAR) approaches are used to construct financial condition indices. Further, the impact of financial conditions on investment growth in India, and asymmetry in the relationship is empirically examined to gauge the risks to investment.

Highlights:

- i) Financial conditions impact investment with a lag and expectations about future demand play a significant role in driving investment growth.
- ii) The impact is found to be asymmetric with tighter financial conditions having a significant impact on investment growth when the investment cycle is depressed.

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