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*Future-Proofing the Indian Financial System**

Shaktikanta Das

I am very happy to be here among researchers and practitioners to participate in the Global Conference on Financial Resilience organised by the College of Supervisors of the Reserve Bank of India. I would like to convey my appreciations to the College of Supervisors (CoS) for organising this conference. I also congratulate the CoS for its accomplishments over the last two years.

In the context of the overall impact of the COVID-19 pandemic, the war in Ukraine and the recent banking sector events in the US and Europe on the financial sector, there is now renewed focus on issues of financial resilience and stability. Regulators and Governments across the world are now looking at these aspects with greater intensity. Adequacy of the existing regulations and supervisory systems are under fresh assessment. In this background, a global conference on financial resilience is very appropriate and timely.

The financial sector in a country and the individual entities therein like banks, non-banking financial companies (NBFCs) and other entities have to be resilient at all times. They should have the inner strength to withstand even the most stressful times. So far as India is concerned, the Reserve Bank of India has significantly strengthened its regulations and supervision of banks and other regulated entities in recent years. Our approach has been to enhance the resilience as well as the robustness of the financial sector so that individual entities effectively withstand stressful situations and continue to contribute to the process of economic development of the country. In my address today, I propose to highlight the expectations of the Reserve Bank of India from the stakeholders in the Indian financial system.

In most economies, central banks act as custodians of financial stability. Central banks are also empowered to act as a lender of last resort during financial crises. This historical function of providing emergency liquidity assistance to banks and other financial market institutions necessitates that central banks keep a close watch on banks and financial markets for signs of instability, if any. Moreover, monetary policy is implemented largely through banks and financial markets. The transmission of monetary policy to the real economy depends crucially on the smooth functioning of the financial markets as well as financial intermediaries like banks and NBFCs. It is in this context that the key and complementary functions of central banks such as setting of interest rates, liquidity management, regulation and supervision over the banking and other segments of the financial sector become more pronounced. These functions work together to support economic growth by maintaining financial stability and promoting responsible behaviour among financial institutions.

Let me now specifically turn to the concept of 'resilience' which is the theme of today's conference. Systemic resilience depends both on the resilience of individual financial institutions as well as on the interdependencies among them.

A resilient future ready bank needs to be financially, operationally and organisationally resilient. To be financially resilient, a bank should have adequate capital buffers and be able to generate earnings even in times of severe macroeconomic shocks. It should also have adequate liquidity to meet its obligations in various situations. Therefore, financial resilience is closely linked to a bank's business model and

* Inaugural Address by Shri Shaktikanta Das, Governor Reserve Bank of India - April 27, 2023 - Delivered at the Global Conference on Financial Resilience organised by the College of Supervisors in Mumbai.

strategy. The Reserve Bank has, therefore, started looking at the business models of banks more closely. Aspects or deficiencies in the business model itself can spark a crisis in due course. We have not only prescribed regulatory norms for capital adequacy and liquidity ratios, but even gone beyond to nudge banks to build up capital buffers in good times and times of plenty. We did this during the COVID-19 pandemic when there was plenty of liquidity, the interest rates were low and the full impact of the pandemic on the financial sector was still highly uncertain.

The Reserve Bank has also put in place various prudential regulatory frameworks. These include capital adequacy requirements, asset classification and provisioning requirements, dividend distribution framework and liquidity management framework. In addition, the Reserve Bank also periodically deploys macroprudential measures to address system level build-up of risks. As a consequence of the measures taken by both the Reserve Bank and the banks themselves, the Indian banking system has remained resilient and has not been affected adversely by the recent sparks of financial instability seen in some advanced economies. This also comes out clearly in our recent stress test results.

The Gross NPA ratio for the Scheduled Commercial Banks (SCBs) was 4.41 per cent at end December 2022, down from 5.8 per cent as on March 31, 2022 and 7.3 per cent as on March 31, 2021. The CRAR at 16.1 per cent at end December 2022 is also much above the minimum regulatory requirement. Macro stress tests for credit risk indicate that SCBs would be able to comply with the minimum capital requirements even under severe stress scenarios.

Nevertheless, the recent events in the banking landscape of the US and Europe suggest that risks for an individual bank could crop up from segments of its balance sheet which might have been considered relatively safer. Hence, we expect the management and Board of Directors of each bank to continually assess the financial risks and focus on building up adequate capital and liquidity buffers even beyond the regulatory minimum for continued resilience and sustainable growth.

Let me now focus on operational resilience. This would mean that a bank should be able to deliver critical services even in the face of disruptions. Cyber risks and possible cyber-attacks are on top of the list so far as such disruptions are concerned.

Cyber risk has been identified as the foremost in top ten operational risks for 2023 based on a global survey[1] of financial institutions. The Bank for International Settlements (BIS), while revising the Principles for Sound Management of Operational Risk in 2021, introduced a specific principle on 'Information and Communications Technology (ICT) risk management' reflecting the importance of this risk. Robust IT and information security governance would help in increased predictability and reduction of uncertainty in operations, minimise losses from information security related incidents and enhance operational resilience. Given the extensive level of outsourcing being done by the banks and also by other regulated entities, there is even greater need for ensuring that effective policies and practices are in place in this regard. Even the G20 finance ministers and central bank governors are focusing on risks arising from third party dependencies. The RBI has taken a slew of measures in the recent years with usage of advanced analytical and surveillance tools along with techniques like phishing simulation and cyber reconnaissance exercises to push for enhanced IT and cyber security governance processes in banks and other supervised entities. In the context of the growing exposure of Regulated Entities (REs) to various risks from dependency on third-parties which provide technology and IT-enabled services, the Reserve Bank has recently on April 10, 2023 issued comprehensive

[1] Source: Risk.Net

guidelines on Information Technology outsourcing[2] by banks, NBFCs, and other REs.

The third component of resilience for banks and other financial institutions is to be organisationally resilient so that they anticipate risks early and absorb them efficiently. Organisations must have the capacity and resilience to protect themselves from adverse incidents and shield their balance sheets. To achieve organisational resilience, REs need to continuously evolve by standardising policies, processes, organisational culture and governance. They must also be flexible enough to encourage diverse ideas and innovations within the organisation.

Pillars of Reserve Bank's Regulatory and Supervisory Strategy

An important element in our strategy of making the Indian financial system, including the banking system, future ready is the robust and enhanced regulatory and supervisory framework we have put in place in the last few years. Our present approach to regulation and supervision has been built essentially on three pillars.

First, one of our focus areas in recent years has been to strengthen governance and assurance functions within the Regulated Entities. The safety and soundness of the banking system relies critically on effective governance, so that the interest of all stakeholders, especially the depositors, are safeguarded. The essence of good governance is to build an environment of trust, transparency and accountability. Depositors, whose money represents an overwhelming part of banks' resources, keep their life savings and hard-earned money with the banks. Protection of depositors' money is, therefore, a sacred duty which has to be fulfilled through good governance. There cannot be any compromise on this. The Reserve Bank is very particular that the Regulated Entities have systems and processes that promote sound corporate governance. The assurance functions i.e. risk management, compliance and internal audits in banks are critical links between governance and business. Assurance functions assist the Board as well as the senior management in gauging whether the business operations of the bank or NBFC are being run in conformity with the policies and strategies laid down by the Board. The Reserve Bank has issued detailed guidelines for ensuring quality and independence of the governance and assurance functions. These areas are also subjected to intensive supervisory assessment.

Second, we have devoted our efforts to identifying and addressing the root causes of the vulnerabilities. Many a times, vulnerabilities arise from inappropriate business models adopted by banks and other financial entities. Over-aggressive growth strategies or mindless pursuit of bottomlines, for instance, are often a precursor to future problems. While we do not interfere with business decision making, Regulated Entities must demonstrate adequacy of internal controls and loss absorption capacity to match the risks that their business models may generate. Our approach is to flag deficiencies in this area to the senior management or to the Board of Directors of individual institutions for remedial action. We also remain engaged with external auditors and flag issues that are relevant for their role as the third line of defence. In recent times, our focus on 'root cause' has led us to mandate certain housekeeping hygiene such as automated identification of non-performing loans and provisioning, proper checks and balances in the use of Internal and Office accounts, implementation of Early Warning Systems (EWS) for preventing frauds and a host of IT and cybersecurity related controls, among others.

Third, within the Reserve Bank, we have considerably strengthened our supervisory analytics. We are increasingly employing data analytics – both

[2] Master Direction on Outsourcing of Information Technology Services

macro and micro – to capture potential and emerging risks, identify outlier entities and the vulnerable large exposures of banks. Our onsite supervisors deep dive into areas red-flagged by offsite supervision teams. We are now focusing on the adoption of advanced analytical based technological solutions, including Artificial Intelligence/Machine Learning (AI and ML), for strengthening the internal supervisory processes.

We have a system of early warning signals that provide lead indications of risk build-up. Stress tests are also carried out on a continuous basis. These stress tests not only cover individual entities but also capture the system level stress.

While asset quality and capital position indicate resilience and robustness of financial institutions in the medium term, liquidity is often seen as the immediate cause of crisis. We monitor liquidity position of our entities very closely and aberrations, if any, are immediately taken up with the supervised entities for remedial measures. Thus, our whole approach to Supervision has been pro-active for minimising surprises, spotting concerns and addressing vulnerabilities early.

In essence, the unification of supervisory architecture within the Reserve Bank (i.e, combining the supervisory processes of commercial banks, NBFCs and urban cooperative banks (UCBs) into an integrated Department of Supervision); ownership-agnostic and risk-focused supervision; a shift from episodic to continuous supervision; enhanced off-site surveillance leveraging on data analytics and SupTech solutions; strengthened on-site supervision; root cause analysis of problems and identification of outlier entities; and deep-dive into vulnerable areas have been the major planks of our supervisory strategy.

The Reserve Bank has also taken several regulatory initiatives in recent years to strengthen governance, risk management, audit and compliance functions in NBFCs and UCBs. These include the new scale based regulatory framework for NBFCs issued in October 2021 and the revised regulatory framework for UCBs issued in July 2022. Even before these new regulatory frameworks were brought in, we had taken measures such as issuance of guidelines on appointment of Chief Risk Officers (CROs) and Chief Compliance Officers(CCOs) in large NBFCs; Liquidity coverage ratios for NBFCs with asset size of ₹5000 crore and above; risk-based internal audit (RBIA) norms for large NBFCs (with asset size of ₹5000 crore and above) and UCBs with asset size of ₹500 crore and above; and harmonising the guidelines on appointment of statutory auditors for NBFCs and UCBs with that of commercial banks.

Importance of Effective Internal and External Audits

I would now like to touch upon the criticality of effective internal and external audits for financial institutions. It is no secret that stability and growth of an economy and financial markets are dependent upon trust among stakeholders. To be future ready, banks and financial institutions need to earn the trust of their current as well as prospective customers. One cannot take the 'trust' for granted. With greater openness of the economy and faster transmission of information and capital flows on account of advent of technology, it has become even more necessary to ensure credibility and confidence in the system. Towards this cause, a robust assurance mechanism by way of internal audit is essential to provide independent evaluation and assurance to the stakeholders that the operations of a Regulated Entity are being performed in accordance with the prescribed policies and procedures. Statutory auditors also play a vital role in maintaining market confidence on audited financial statements. In banking industry, this public role is particularly relevant for financial stability, given that banks hold public deposits. Audit quality is key to the effectiveness of such public role. For these reasons, the Reserve Bank as the supervisor has a

keen interest in the functioning of statutory auditors of the Regulated Entities. Wherever necessary, we engage with the external statutory auditors on issues of critical nature in individual banks and financial entities.

We have recently revised the guidelines for statutory branch audits of Public Sector Banks (PSBs) according to which a minimum of 70% of credit exposure of a bank is required to be covered. From FY 2023-24 onwards, the Board of Directors of PSBs will decide on the coverage of branch audit and selection of branches. While doing so, the Boards are required to keep in mind the specific characteristics of individual banks like the bank's business and risk profile, geographical spread, degree of centralisation of processes, etc. We expect the Boards of banks to exercise the highest level of diligence while deciding on these issues. As regards statutory branch audit of Private Sector Banks (PVBs), we are doing a fresh assessment of the quality and coverage of such audits.

Skill and capacity building in the Reserve Bank

In the Reserve Bank we attach a lot of importance to skill building and capacity development of our employees. We have been strengthening the Department of Supervision both in number and quality. This is important as effective supervision requires specialised skills and mature judgement. In this context, we expect the College of Supervisors to keep on improving its training methodologies, adopt more case study-based teaching, have more practical sessions in its training programmes, and develop objective assessment of the impact of its training interventions. The feedback received from trainees may be used to improve programme content and fill the gaps identified. The training programmes may also strike a balance between teaching hard technical skills and promoting soft skills such as leadership, decision making, time management and conflict resolution.

The rapid developments and innovations in the financial system, especially in the areas of fintech and digital products pose new opportunities as well as risks. These may affect financial intermediation, payment systems, cyber security and consumer protection. We have to continue monitoring and assessing the implications of these emerging trends, while also developing our own capabilities and frameworks to effectively respond to these challenges.

In recent times, we have seen a proliferation of digital lending by NBFCs, FinTechs and loan apps. Such lending also brought with it certain challenges, especially with regard to fair practices and consumer protection. To address these challenges, the Reserve Bank has laid down comprehensive guidelines for digital lending in September 2022. These guidelines aim to ensure that lending activities are conducted by the REs and their partners such as Loan Service Providers (LSPs) in a prudent, fair, transparent and responsible manner.

Conclusion

To sum up, the Reserve Bank remains committed to future-proofing the Indian financial system and provide the required support for sustainable growth. I am confident that this Global Conference on Financial Resilience organised by the College of Supervisors with participation of experts from India and abroad will add considerable value to the body of knowledge in the area of resilient financial systems. I have been informed that many research papers on identified themes have been received and select papers have been made part of the maiden issue of the *Journal of Financial Resilience*, which was released today. I am sure the deliberations during the Conference would provide a lot of food for thought and bring new perspectives on the evolution of financial regulation and supervision.

I wish the conference all success !

Thank you.

*The Dawn of India's Age**

Michael Debabrata Patra

Dr. Basanta Kumar Pradhan, Director, Indira Gandhi Institute of Development Research (IGIDR), Prof Subrata Sarkar, Convenor of the Conference Committee, Faculty Members of IGIDR, Distinguished *Alumni* of the Institute, Ladies and Gentlemen, Namaskar and Good Afternoon!

I am deeply honoured to be invited to inaugurate the IGIDR *Alumni* Conference which, perhaps for the first time, brings together former students, current students and faculty under the mantle of the *alma mater.* Some of you are well on your way in charting life's journey in diverse fields; others prepare to commence their own tryst with the future. It is truly heartening to observe how loyally you have all responded to the IGIDR's maternal call – after all, as the Oxford Dictionary of Word Origins puts it, an alumnus is one who is nourished.

The cornerstone of building a great nation is the nurturing of its human capital. The IGIDR has groomed some of the brightest and most driven scholars in the country. Their professional successes intrinsically define the institution. *Alumni* are receivers and also givers. In the words of Albert Einstein, "It is every man's obligation to put back into the world at least the equivalent of what he takes out of it." While you reflect on your journey through these arches, do ponder on how you could enrich the journey of others that follow in your footsteps. I see you as rays of light illuminating the terrain you traverse while also reflecting the incandescence of the sun – your *alma mater.* The rich diversity of your accomplishments is our asset, worthy of emulation, with externalities to reap by those who join you today.

Taking a cue from an inspiring description of the key to success in life[1], there is a tide in the affairs of nations which, taken at the flood, leads on to fortune. India is poised on the crest of a tide in its history that will take it to its full potential in securing its aspirational goals for the future of its citizens and in its role in global affairs, *albeit* amidst several challenges. It is in that context and spirit that I thought I will spend some time envisioning the dawn of India's age.

Demographics

According to the United Nations[2], India has become the most populous country in the world this year, attesting to the flowering of the demographic dividend that set in from 2018. There is a paradigm shift in our thinking on the subject. Once considered a drag on development in the tradition of Thomas Malthus[3], our large population is now regarded as an asset and an opportunity in a world in which many countries are confronting aging and even population decline. By contrast, our population is young – the median age is 28 years. Every sixth working age (15-64 years) person in the world is an Indian. The potential for boosting saving and investment that this entails considerably enhances India's emergence as the world's economic powerhouse of the future. In fact, this momentous development has been termed as 'shifting the world's centre of gravity'[4] because it

* Inaugural address delivered by Michael Debabrata Patra, Deputy Governor, Reserve Bank of India (RBI) at the Indira Gandhi Institute of Development Research (IGIDR) *Alumni* Conference on May 10, 2023 at Mumbai. Valuable comments received from Sitikantha Pattanaik, Mohua Roy, Rajani Prasad, Pallavi Chavan, Atri Mukherjee, Dhirendra Gajbhiye, Dhanya V., Purna Banerjee, Sakshi Awasthy, Naveen Singh and editorial help from Vineet Kumar Srivastava and Samir Ranjan Behera are gratefully acknowledged.

1 William Shakespeare, *Julius Caesar.*

2 https://www.un.org/development/desa/dpad/publication/un-desa-policy-brief-no-153-india-overtakes-china-as-the-worlds-most-populous-country/#:~:text=In%20April%202023%2C%20India's%20population,to%20grow%20for%20several%20decades

3 "The power of population is so superior to the power of the earth to produce subsistence for man, that premature death must in some shape or other visit the human race. — Thomas Malthus, 1798. An Essay on the Principle of Population. Chapter VII, p. 61.

4 *The Wall Street Journal*, April 14, 2023.

could be heralding a tectonic change in India's role in the global order. Moreover, India's population is expected to keep growing for the next four decades, peaking at under 1.7 billion in 2063. More than a sixth of the increase of the world's working age population between now and 2050 will be provided by India.

Already, India is the fifth largest economy of the world in terms of market exchange rates and the third largest in terms of purchasing power parity (PPP). The Organisation for Economic Cooperation and Development (OECD) has calculated that in PPP terms, India will be the second largest economy of the world by 2048.

We must prepare for donning this responsibility. In some ways we have begun. India is upgrading physical infrastructure - roads and airports being the most visible dimensions – to world class levels. We are on the cusp of a digital payments revolution. Yet, our most formidable challenges remain: only half of the existing working age population is part of the labour force. Furthermore, India's female labour force participation is among the lowest in the world, even lower than that of low income countries. Also, India's labour productivity (GDP per hours worked) is lower than even peers in the lower middle income group of countries into which we are classified. Consequently, 16 per cent of the population lives in poverty, according to the UN. We have to change all that by creating jobs commensurate with expansion of the working age population, by skilling up the work force and providing it an institutional environment that enables work flexibility in tune with changing technologies and demand patterns. Importantly, we must enable greater female participation in the workforce by assuring the dignity of work and the sanctity of the workplace. Our population presents an exciting opportunity which can be realised only if we are successful in providing it with economic opportunity.

Diaspora

An outward reflection of India's demographic bonus is the vibrant expansion of Indian communities across the world. India has always been an open economy and international migration has been a major force defining India's economic, social and political relations with the rest of the world right from the Bronze Age in 3000 BC.

In its 2022 publication of its migrant database, the UN estimates that at 18 million[5], the Indian diaspora is the largest in the world, accounting for 6.4 per cent of the total stock of international migrants (281 million) in 2020. This migration has been distributed across the world, with major destinations currently being the UAE, followed by the US. It is interesting to note too that the demographic dividend is also being seized by internal migration.

Over the years, our perceptions about the diaspora have also transformed from 'brain drain' to 'brain gain', spurred by the contributions that Indians have made in various fields in the global arena, including information technology, entrepreneurship, international politics, medicine, arts and culture, with some of them becoming Nobel laureates. It is estimated that over 90 out of 1078 founders of about 500 unicorns in the US are persons of Indian origin[6]. According to a recent study[7], professionals in the areas of science, technology, engineering, and mathematics (STEM) play an important role in the U.S. economy by providing cutting-edge ideas and technologies that create jobs and raise living standards. Immigrants from India are the largest country of birth group, accounting for 28.9 per cent of all foreign-born STEM workers.

5 UN Migrant Stock Database.

6 https://pib.gov.in/PressReleasePage.aspx?PRID=1889765

7 https://www.americanimmigrationcouncil.org/research/foreign-born-stem-workers-united-states

The Indian economy has been a beneficiary of this dynamic and industrious diaspora. India currently receives the highest flow of remittances in the world at US $ 108 billion in 2022, up by 24.6 per cent from a year ago, and accounting for 3 per cent of India's GDP. Additionally, Indians residing abroad hold deposits in Indian banks cumulating to US $ 136 billion at the end of February 2023.

Going forward, labour market transformation driven by technological breakthroughs, energy transition and geoeconomics will blur the distinctions between working abroad and working in India. The demographic advantage may well equip India to reap the maximum benefits of this shift. The World Economic Forum's Future of Jobs Report, 2023 points to a global churn in labour markets – creation of 69 million jobs and a decline of 83 million jobs – led by supply chains and transportation, media, entertainment and sports industries. The churn in India's labour markets will be driven by technology-led sectors like artificial intelligence and machine learning (AI and ML), followed by data analysts and scientists. Employers in India remain among the most upbeat in terms of future talent availability, with respondents believing that the existing workforce can be upskilled to pack the pipeline and talent can be retained. A larger proportion of respondents in the Indian set are inclined to consider improving talent progression and promotion process as well as providing effective reskilling and upskilling as business practices that could improve access to talent than in the global set. As a priority, therefore, India needs to get its skilling strategy right.

Diversification

The Indian economy is undergoing a quiet but fundamental transformation encompassing all its sectors. Perhaps the most striking transformation is occurring in India's exports of services which have demonstrated pandemic-proofing, rising by above 25 per cent per annum since 2020, and providing valuable support to the viability of the external sector. While software and business services are the main drivers of this robust performance, advances in IT have not only made services more tradable but also increasingly unbundled: a single service activity in the global supply chain can now be fragmented and undertaken separately at different geographical locations. Jurisdictions have accordingly been decentralising and diversifying their supply chains to ensure business continuity. These factors have led to a new channel of IT-enabled services - large multinational corporations (MNCs) are setting up Global Capability Centres (GCCs), which are offshore offices, delivering a wide array of services across IT sector verticals.

India is home to about 40 per cent of global GCCs, and they are estimated to comprise 25 per cent of overall IT services exports. GCCs are also driving diversification, with firms in diverse sectors such as electronics, retail, automotive, banking and financial services, and hospitality, to name a few, setting up GCCs in India. GCC services include accounting, legal services, business consultancy, operations, capacity development and research. GCCs cater to high-value and knowledge-intensive projects such as data analytics, artificial intelligence/machine learning, chip design, system design, robotics and other new-age technology solutions that are high in demand in the global tech market. India is also becoming a hub for engineering R&D (ER&D) centers as leading multinationals develop their centers of excellence (CoEs) across different business domains. The National Association of Software and Service Companies (NASSCOM) estimates that India will add 500 GCCs by 2026. They are going to be hiring. India's citizens of the future should prepare for this revolution. The world is coming to our doorstep to fill world-class jobs.

Digital Revolution

India is playing a pivotal role in the ongoing fifth technological wave – the information and communication revolution[8]. We have emerged as the largest player in real-time payment transactions globally, with a share close to 50 per cent. The Unified Payment Interface (UPI) is the mainstay of the retail payment ecosystem, with around 9 billion transactions in April 2023 alone and this is attracting global attention. The India Stack creates a unified software platform to bring our population into the digital age. India Stack is the largest open application programming interface (API) in the world. It is being implemented in stages, starting with the introduction of the Aadhaar Universal ID numbers; the introduction of electronic Know Your Customer (eKYC) which enables paperless and rapid verification of identity details; e-Sign whereby users attach a legally valid electronic signature to a document; UPI enabling cashless payments; and most recently, DigiLocker, a platform for issuance and verification of documents and certificates. The benefits of India Stack are being widely exploited by rising mobile penetration. It is argued that India Stack could fast-track the move to digital payment systems worldwide and mark the end of cash[9].

Digitalisation is also powering a revolution in the cross-border payments space. India is linking UPI with other national fast payment systems (FPS). The UPI has been linked with Singapore's PayNow in a move that is expected to make cost-effective cross-border peer-to-peer (P2P) transfers using mobile apps, and deepen trade, travel, and remittance flows between the two nations. Other link-ups are on the anvil. Within India, too, increasing interoperability across domestic payment modes is being prioritised. India is also gearing up for the launch of the digital rupee. Internationalisation of home-grown payment modes is being enabled through tie-ups with payment service providers that allow QR code-based merchant payments in Bhutan and Singapore. Leveraging the growing popularity of the UPI, this payment facility has been extended to inbound travellers from the G20 nations for effecting local merchant transactions.

Looking ahead, the future of digitalisation is bright, with total digital payments poised to jump three-fold to US$ 10 trillion by 2026, wherein 2 out of 3 transactions will be through non-cash modes. The future of cross-border payments will be characterised by the setting up of dedicated payment rails for instantaneous transfers, while also ensuring digital and financial inclusion and greater harmonisation of payment regulations across borders.

Diplomacy

India's G20 Presidency is a watershed moment in our history as we seek a central role in finding pragmatic global solutions for collective well-being and promoting a sustainable and inclusive future for all. G20 brings together the world's largest economies on one platform for collective action, coordination and consensus building in our vision of Vasudhaiva Kutumbakam – One Earth • One Family • One Future.

India is prioritising a reformed multilateralism that creates a more accountable, inclusive, just, equitable and representative multipolar international system for the 21st century. Our priorities include addressing the macroeconomic implications of food and energy insecurity; climate change; strengthening Multilateral Development Banks (MBDs); debt sustainability; strengthening financial resilience through sustainable capital flows; financing inclusive, equitable and sustainable growth; leveraging digital public infrastructure; climate financing; and opportunities and risks from technological change.

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[8] Five bursts of technological innovation have occurred in human history: the industrial revolution; the age of steam and railways; the age of steel, electricity and heavy engineering; the age of oil, automobiles and mass production; and the age of information and telecommunication – Carlota Perez, *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages*. Cheltenham: Edward Elgar, 2002.

[9] "The India Stack: Opening the digital marketplace to the masses". *Financial Times*, April 20, 2023.

On the finance track, we aim to expand the narrative beyond financial stability and financial integrity concerns to capture the cross-sectoral and macro-financial implications and risks. We are working towards strengthening financial institutions' ability to manage third-party risks and outsourcing, *inter alia*, arising from BigTech and FinTech, and also enhancing global cooperation to strengthen the financial sector's cyber resilience.

Going forward, the world's hopes are on building consensus to deliver a G20 Delhi Declaration that will leave an Indian footprint on the sands of time as we strive for 'human-centric globalisation' that is sensitive to the voices of the Global South.

Dynamic Federalism

Increasingly, the quality of life and the business environment in India is going to be defined by shifts in the focus of public policy that foster competitive federalism among India's states in achieving the aspirational goals of sustainable economic development. The freedom to compete allows each state to design, experiment, innovate and reform, given its unique features and challenges, while emulating best practices achieved by peers. An example of the power of competitive federalism is the drive among states to attract private investment, both domestic as well as foreign, by showcasing investment opportunities in each state. The spirit of competitiveness is being promoted at the highest policy levels. Well-performing states in the area of business reforms are recognised as Top Achievers. Similarly, Niti Aayog has developed the Export Preparedness Index to evaluate sub-national export performance[10].

Moving on, the states' start-up ranking scheme has encouraged each of them to have dedicated start-up policies. Many States have also undertaken substantive legislative and administrative reforms in their labour and industrial relations to boost domestic manufacturing capacity. Today, many states have instituted processes such as single-window clearance, self-certification of compliance by enterprises, online filing for registration and returns and transparent inspection systems. The Smart Cities Mission promotes sustainable and inclusive cities[11]. The Ministry of Housing and Urban Affairs has launched the 'City Finance Rankings 2022' portal in March 2023 whereby urban local bodies in the country will be evaluated on the basis of 15 indicators,[12] based on current financial health and improvement in financial performance over time. The sustainable development goals (SDG) India Index[13] developed by the NITI Aayog, in collaboration with United Nations, is also fostering competition among states and UTs by ranking them on global developmental goals.

As our states compete for a place in the sun, they will nurture business growth, put in place the best physical and social infrastructure and provide us with improved basic amenities, clean energy, and better health and societal outcomes. Along with

[10] The framework consists of four main dimensions: Policy, Business Ecosystem, Export Ecosystem and Export Performance. All the vital parameters, namely Export Promotion Policy, Institutional Framework, Business Environment, Infrastructure, Transport Connectivity, Access to finance, Export Infrastructure, Trade Support, Research and Development Infrastructure, Growth Orientation and Export Diversification have been covered as sub pillars under the four main dimensions of the index. Gujarat, Maharashtra and Karnataka have highest overall export preparedness score.

[11] A competition-based method is used as a means for selecting cities for funding which is based on area-based development. Cities obtaining the highest marks in a round were then chosen to be part of the mission. 20 smart cities were selected in Round one, 27 Smart Cities were selected in Round two, 30 Smart Cities have been selected in Round three and 9 Smart Cities have been selected in Round four from a period of 2016 to 2018.

[12] The three parameters are Resource Mobilisation, Expenditure Performance and Fiscal Governance. The rankings will be based on the four population categories- above 4 million, between 1-4 million, 100K to 1 million and less than 100,000. The final rankings are expected to be announced in July 2023.

[13] The SDG India Index is the world's first government-led sub-national measure of SDG progress. The SDG India Index computes goal-wise scores on the 16 SDGs for each State and UTs. Overall State and UT scores are generated from goal-wise scores to measure aggregate performance of the sub-national unit based on its performance across the 16 SDGs. This Index was launched in December 2018. For the year 2020-21, Kerala came first on the index whereas Tamil Nadu and Himachal Pradesh shared the second place.

foreign investment bringing in new technologies and ideas, we are moving into a national ethos of wider consumer choices and a better standard of living.

Decarbonisation

Climate change is manifesting itself at an alarming scale and pace globally. Extreme weather events are becoming more frequent and intense, inflicting increasing damage on human lives and the environment, globally and in India. The intensifying concern now is that climate change is heavily influenced by human activity. In fact, the period from the mid-20th century has been defined as the "Anthropocene" epoch, marking a significant impact on earth's climate due to the increased use of fossil fuels.

India and other developing economies are highly vulnerable to climate change due to their limited capabilities in climate science and technology and insufficient funding for adaptation and mitigation. The relative costs of transitioning to a greener path are higher for them than for the advanced economies; undertaking the transition can even push them several places down the development ladder. From the developing world, India has emerged as a leading voice on global climate action that is mindful of climate equity and justice considerations.

India has taken numerous policy initiatives in this direction. In 2015, India submitted its Nationally Determined Commitments (NDCs) to the United Nations Framework Convention on Climate Change (UNFCCC) with targets up to 2030. At COP26 in 2021[14], India updated its NDCs, which now represent the framework for its transition to cleaner energy for the period from 2021 to 2030. It has committed to the five-fold strategy of *panchamrit*, which include raising its non-fossil-fuels-based energy capacity to 500 GW by 2030; raising 50 per cent of its energy requirements from renewable sources; and reducing the carbon intensity of its GDP by 45 per cent by 2030. India aims to achieve the net zero target by 2070. For achieving this target, it has released long-term low emission development strategies (LT-LEDS) at the COP27 summit.

India has co-founded the International Solar Alliance (ISA) with France in 2016 and announced a National Hydrogen Mission to increase the dependency on green energy. The Mission LiFE, *i.e.*, Lifestyle for the Environment, launched in 2022, is now a global movement to connect the powers of the people for the protection of the earth.

The RBI too is engaged in managing climate risks. In April 2021, it joined the Network for Greening the Financial System (NGFS) to benefit from and contribute to the best practices in climate risk management and green finance. Apart from including renewables as part of the priority sector credit for banks, the RBI has recently issued sovereign green bonds, and released the framework for mobilisation of green deposits. At the frontline of research on the subject, the RBI has on May 3, 2023 released the Report on Currency and Finance, 2022-23 with the theme "Towards a Cleaner Greener India". The Report has examined the macro-financial implications of climate change and the possible fiscal, monetary, regulatory and other policy options for India.

In the words of Victor Hugo who is considered to be one of the greatest French writers of all time, "Nothing else in the world…not all the armies… is so powerful as an idea whose time has come." India's time has come and we must seize it. There are formidable trials and challenges ahead, but they can

[14] The Conference of the Parties (COP) is the supreme decision-making body of the United Nations Framework Convention on Climate Change. All States that are Parties to the Convention are represented at the COP, at which they review the implementation of the Convention and any other legal instruments that the COP adopts and take decisions necessary to promote the effective implementation of the Convention, including institutional and administrative arrangements. A key task for the COP is to review the national communications and emission inventories submitted by Parties. The COP meets every year unless the Parties decide otherwise. The first COP meeting was held in Berlin, Germany in March 1995.

be overcome if we exploit the comparative advantages. I have spoken of some of the defining dimensions favouring India's leap into the future. We need to hone them into the cutting edge that will make this dream possible.

Concluding Remarks

As you prepare to step out into a fast-changing world, always cherish the unbreakable bond that you have with your *alma mater.* In this context, your homage should first go to your teachers, the faculty of the IGIDR, who nurtured you with commitment, dedication and sincerity. Our teachers do not just impart knowledge; they awaken in us the desire to be lifelong learners. To quote Swami Vivekananda, "the guru is the means of self-realisation". I commend the entire faculty, present and past, for shaping the lives of the future of India and for being the soul of the institution that has groomed them to be worthy citizens of our nation and of the world.

As you embark on your journey, always believe that you are capable of achieving greatness. Your successful completion of your educational programme at the IGIDR is the first testimony of that power and passion in you. Do not be afraid to dream big. Go out into the world with the knowledge that anything is possible if you are willing to put your shoulder to the wheel and push. In your journey, you will encounter failure, but failure is not the opposite of success; it is an opportunity to learn and grow, and not give up on your dreams. Success is not something that happens overnight. It is the result of consistent effort, hard work, and dedication. So, make it a habit to seek excellence in everything you do. In the words of the famous philosopher and historian Will Durant, "Excellence is not an act but a habit. The things you do the most are the things you will do best." The future is in your hands. You have the power to shape your own destiny and create a life that is meaningful and fulfilling, while making a positive impact on the world. So, go out there with your head held high, tirelessly striving towards perfection.

Wherever you are and in whatever you do, I wish you every success.

Thank you.

ARTICLES

*State of the Economy**

The global economy is transfixed in the cross-currents of slowing growth and high inflation, and an uneasy calm prevails in the global financial markets as they await clearer signals from policy authorities on banking regulation and supervision, and contours of deposit insurance. In April and the first half of May 2023, domestic economic conditions have sustained the quickening of momentum seen in the last quarter of 2022-23. Headline inflation eased below 5 per cent in April 2023, for the first time since November 2021. Corporate earnings are beating consensus expectations, with banking and financial sectors posting strong revenue performance, aided by robust credit growth. In the first quarter of 2023-24, growth is expected to be driven by private consumption, supported by reviving rural demand, and renewed buoyancy in manufacturing on easing of input cost pressures.

Introduction

With inflation dipping and stalling globally after its prolonged upward surge, central banks have either moderated or paused their rate actions. Along with forceful resolution of financially distressed banks, this has brought an uneasy calm to global financial markets as they await clearer signals from policy authorities regarding the future course of bank regulation and supervision, and the contours of deposit insurance. The window of relief has, however, allowed markets to regain verve. Equities and bonds have clawed back lost ground although bank shares underperformed the broader equity indices. Once risk-on sentiment returned, corporate bond spreads narrowed. Currencies have traded in a narrow range with the US dollar having retreated from its monotonic rise through most of the year gone by. Portfolio flows are returning to emerging markets, and this has supported their currencies.

The global economy is transfixed in the cross hairs of these complex pulls. At the start of the second quarter of 2023, *i.e.*, in April, global growth was resilient going by high frequency indicators, sustaining the momentum it had gained in the first quarter of the year. On a month-on-month (m-o-m) basis, retail sales growth has picked up in March. Purchasing managers' indices (PMIs) pointed to strong output growth in April – at its highest since mid-2022. This resilience has been driven mainly by services, including tourism and financial services, while manufacturing continued to struggle, and new export orders remained muted. Goods producing firms are mainly filling order backlogs while unwinding safety stocks of inputs. Stocks of finished goods have begun to rise, and capacity continues to be strained. Services will, hence, be the immediate growth driver and this presages the sustained strength of employment.

The constellation of risks raises policy challenges amidst a renewed disconnect between markets and central bank communication. Broader issues have opened up around the scope for fiscal consolidation in 2023 if growth slows, and the risk this may pose to the disinflationary stance of monetary policy. High debt levels sit on the cross-currents of these tensions as borrowing costs become sensitive to the tightening of financial conditions.

Another challenge is the interaction between financial stability and macroeconomic stability: should monetary policy makers consider financial stability risks in their decision making? Or is monetary policy too blunt an instrument and, therefore, should be resolutely committed to macroeconomic

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stabilisation, while central banks employ other tools such as liquidity management and prudential policies to fulfil their responsibility for financial stability? For now, central banks have chosen the second path, but if financial stress intensifies again and broadens this time – analysts believe that commercial real estate is the 'next shoe to drop'[1] – it could impose a binding constraint on the conduct of monetary policy. Normalising central banks' pandemic-bloated balance sheets is intertwined into this dilemma.

The World Economic Forum's fourth edition of the Future of Jobs Survey released on April 30, 2023 brings together perspectives across the 2023-27 timeframe of 803 companies collectively employing more than 11.3 million workers across 27 industry clusters and 45 economies from all world regions. Over 85 per cent of these organisations identify adoption of new and frontier technologies, broadening digital access and environmental, social and governance (ESG) standards as most likely to drive transformation. More than 75 per cent of companies are looking to adopt big data, cloud computing and artificial intelligence (AI), while 86 per cent expect to incorporate digital platforms and apps into their operations in the next five years. E-commerce and digital trade are expected to be adopted by 75 per cent of businesses. The second-ranked technology encompasses education and workforce technologies, with 81 per cent of companies looking to adopt these technologies by 2027.

Big data analytics, climate change and environmental management technologies, and encryption and cybersecurity are expected to be the biggest drivers of job growth. Agriculture technologies, digital platforms and apps, e-commerce and digital trade, and AI are all expected to result in significant labour-market disruption. Employers anticipate a structural labour market churn of 23 per cent of jobs in the next five years - emerging jobs added and declining jobs eliminated. A higher-than-average churn is expected in supply chains, transportation, media, entertainment and sports industries, and lower-than-average churn in manufacturing, retail and wholesale trade. Respondents expect structural job growth of 69 million jobs and a decline of 83 million jobs. This corresponds to a net decrease of 14 million jobs, or 2 per cent of current employment. Organisations estimate that 34 per cent of all business-related tasks are currently performed by machines, representing a negligible 1 per cent increase in the level of automation since 2020. Respondents predict that 42 per cent of business tasks will be automated by 2027. Six in 10 workers will require training before 2027, but only half of workers are seen to have access to adequate training opportunities today.

Overall, new insights emerge on how labour markets are expected to evolve over the next five years as they get continually shaped by powerful forces. Workplaces are changing rapidly and so are skill requirements. Significant disruption is expected to be experienced from macroeconomic trends and technological progress in the next five years. It is said that technology will limit the jobs of the future to jobs related to technology. Job creation will likely be driven by green transition and localisation of supply chains. Healthcare may turn out to be resilient to the imminent churn as populations age. Clerical and secretarial skills are expected to decline the fastest. Learning and training on the job, and accelerating automation of work processes are likely to be the main drivers of workforce strategies. Employers are looking for people who possess behavioural skills suitable for 2023-27. People with these skills will be better prepared to meet the challenges and opportunities of the next five years.

These fundamental shifts have major implications for India as it progressively positions

[1] 'Is commercial property the 'next shoe to drop'? *Financial Times*, May 9, 2023.

itself on the tableau of global developments to exploit its demographic dividend and macroeconomic advantage to which we now turn. The United Nations estimates that India has become the most populous country in the world in April this year in what has been termed as 'heralding a major shift in the global order'[2], and as '1.4 billion opportunities'.[3] With more than 40 per cent of the population below the age of 25 - one in 5 in the world[4] - 200 million young people will enter the labour force over the next two decades[5] on a base when the labour force is already growing more rapidly than the population.

How can this be converted into a comparative advantage in securing our developmental aspirations? It has been pointed out that our population presents an exciting opportunity which can be realised only if we are successful in providing it with economic opportunity.[6] This can be achieved by skilling up the work force in an institutional environment that enables work flexibility in tune with changing technologies and demand patterns. Raising labour productivity and increasing female participation in the workforce can equip India to harness the fruits of demographic dividend.

The World Economic Forum's report alluded to earlier envisions a labour market churn in India akin to global trends over the next five years – new jobs created over jobs eliminated will constitute 22 per cent of the current labour force. India's job growth will be driven by 61 per cent of broader applications of ESG standards followed by increased adoption of new technologies (59 per cent), and broadening digital access (55 per cent). India is poised on the crest of a tide in its history.[7] It has the opportunity to leverage its human resources to become an economic powerhouse.

The most heartening development is the easing of headline inflation below 5 per cent in April 2023, occurring as it has for the first time since November 2021, vindicating the monetary policy decision of April 8, 2023 and the stance. This has come as a welcome relief. Surveys of fast moving consumer goods (FMCG) are finally reporting some improvement in spending, and this is gradually spreading out to rural areas. Private consumption, the mainstay of aggregate demand in India, has been impacted by price pressures since the second half of the year gone by, especially discretionary spending. In turn, this has impacted corporate India's revenue performance and profitability. In the national accounts that will be released at the end of this month, this will likely have pulled down value added in industry and even some services.

In April and the first few days of May 2023 domestic economic conditions have sustained the quickening of momentum seen in the last quarter of 2022-23. Going by lead indicators such as *mandi* arrivals and cumulative procurement of wheat so far, the *rabi* harvest may set a new record, which should provide a boost to the rural economy. Moreover, mandi arrivals of paddy in the *kharif* marketing season (October 2022 to date) have been the highest in eight years. Although *mandi* prices of paddy are slightly lower than the minimum support price, retail prices are firming up at a time when both global rice prices and India's exports of rice are looking up.

[2] India's Population Surpasses China's, Shifting the World's 'Center of Gravity, *The Wall Street Journal*, April 14, 2023.

[3] World Population Report 2023, United Nations Population Fund (UNFPA).

[4] Key facts as India surpasses China as the world's most populous country, Pew Research Centre, February 9, 2023.

[5] India's Population Surpasses China's, Shifting the World's 'Center of Gravity, *The Wall Street Journal*, April 14, 2023.

[6] 'The Dawn of India's Age', Inaugural address delivered by M.D. Patra at IGIDR Alumni Conference, Mumbai, May 10, 2023.

[7] 'The Dawn of India's Age', Inaugural address delivered by M.D. Patra at IGIDR Alumni Conference, Mumbai, May 10, 2023.

The services sector is on a roll, with big jumps in international and domestic air passenger traffic. India has moved up six places on the World Bank's Logistics Performance Index (April 2023 release) on account of better infrastructure, international shipments and reduced dwell time in ports. The services PMI scaled a 13-year high in April 2023 on new business growth, and optimism is sustained into the future.

With the reading of March 2023 almost flatlining, industrial production slowed considerably in 2022-23, especially manufacturing. Consumer durables remained weak all through the year except the first quarter. Capital goods and infrastructure goods, on the other hand, showed strong growth reflecting the uptick in construction activity. Industrial production had started to pick up from November 2022 and a rising trend was forming; but the March 2023 reading has disappointed, especially with electronic exports having risen by 50 per cent in 2022-23. India is also riding the wave of an electric two- and three-wheeler revolution and the Indian Premier League is taking over world cricket and becoming the world's second most lucrative sports league.[8]

Corporate earnings results surprised consensus expectations on the upside in the January-March 2023 quarter. Revenue growth of non-financial companies moderated in a combination of volume and price dynamics, but their profitability improved due to easing cost pressures. In a situation of slowing global demand, information technology (IT) sector companies experienced moderation in earnings growth. Managements of leading IT companies provided cautionary outlooks of a recessionary environment. Companies operating in the metals space also experienced slowing down of their profitability (y-o-y) in consonance with falling prices and hence, slowing realisations. For all other companies, easing input cost pressures translated into higher profitability; however, the effects of falling costs may flow with a lag into income statements, especially of corporates carrying high-cost inventory on their balance sheets.

In the FMCG sector, which is a bellwether indicator of consumption demand, several companies have outperformed expectations — profitability growth has swung to the upside, aided by easing of input cost pressures. In the face of price pressures and consequent ebbing of consumer demand, several companies are focusing on moving up the value chain and on higher margin products – commonly referred as 'premiumisation'. The auto sector continued to register resilient demand, although it reported constraints on exports.

The banking and financial sector remained resilient, with another quarter of strong revenue growth aided by strong credit growth. Matched with the RBI's sectoral deployment of credit data, this indicates that this was mainly contributed by agriculture and allied activities, trade and personal loans segments. Furthermore, the treasury portfolio of the Indian banking sector appears to have been insulated from the monetary policy tightening cycle. In addition, provisioning costs have remained low as asset quality has steadily improved.

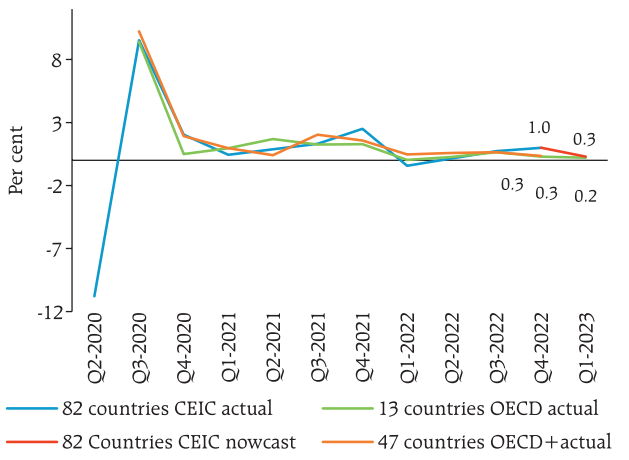
Set against this backdrop, the remainder of the article is structured into four sections. Section II covers the global economic developments. Section III provides an assessment of domestic macroeconomic conditions. Section IV outlines the financial conditions in India, while Section V concludes.

II. Global Setting

The global economy continued to demonstrate resilience in April and May 2023 with surveys

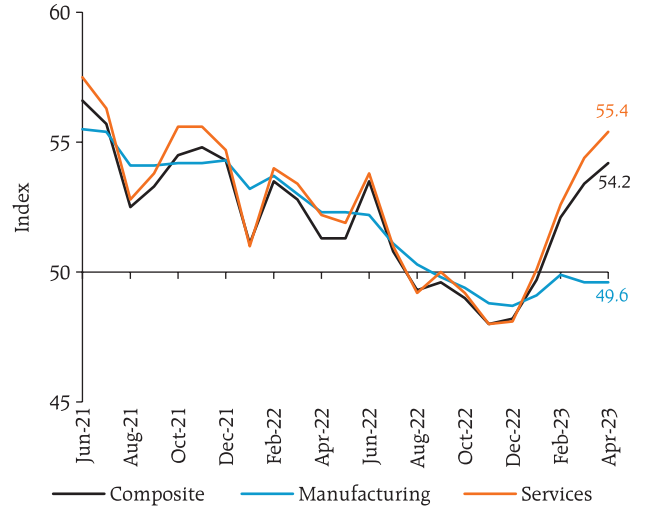
[8] After the US National Football League (NFL) on a per match basis.

Chart 1: Global GDP Growth Nowcast [adjusted series, (q-o-q)]



Note: Model incorporates high frequency indicators and revised national accounts data.
Sources: CEIC; OECD; and RBI staff estimates.

Chart 2: Global PMI



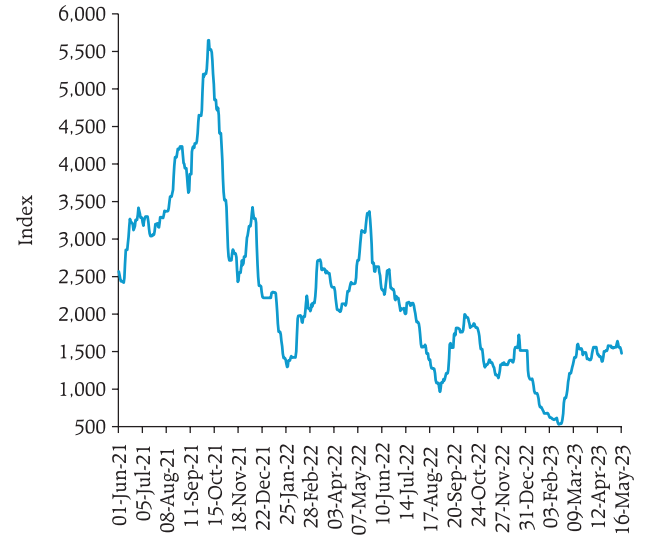
Note: Level of 50 corresponds to no change in activity and a reading above 50 denotes expansion and *vice versa*.
Source: IHS Markit.

of sentiments on underlying activity beating expectations in most jurisdictions. Emerging market economies (EMEs) appear to be positioned ahead of their advanced peers in charting a path of the multiple shocks that characterised the years gone by. Risks to global growth in 2023 stem from elevated inflation, tighter financial conditions, and the lingering effects of the conflict in Ukraine. Factoring in these headwinds, our model-based nowcast points to a deceleration in global growth in Q1: 2023 (Chart 1).

Among high frequency indicators, the global composite PMI increased to a 16-month high of 54.2 in April 2023 from 53.4 in the previous month with output, new orders and employment registering a broad-based pick-up. While the global manufacturing PMI remained unchanged at 49.6 in April 2023, the global services PMI at 55.4 in April expanded at the quickest pace since November 2021 on the back of new business scaling a 13-month high (Chart 2). The Baltic Dry Index[9], a high frequency indicator of world trade volume, remained mostly range-bound in April after a threefold increase during February-March (Chart 3).

Global commodity prices firmed up in April, led by increase in energy prices, particularly of crude oil and coal, but more recently, they are weighed down by fears of recession in the advanced economies (AEs)

Chart 3: Baltic Dry Index



Sources: CPB Netherlands; and Bloomberg.

[9] The Baltic Dry Index is a measure of shipping charges for dry bulk commodities.

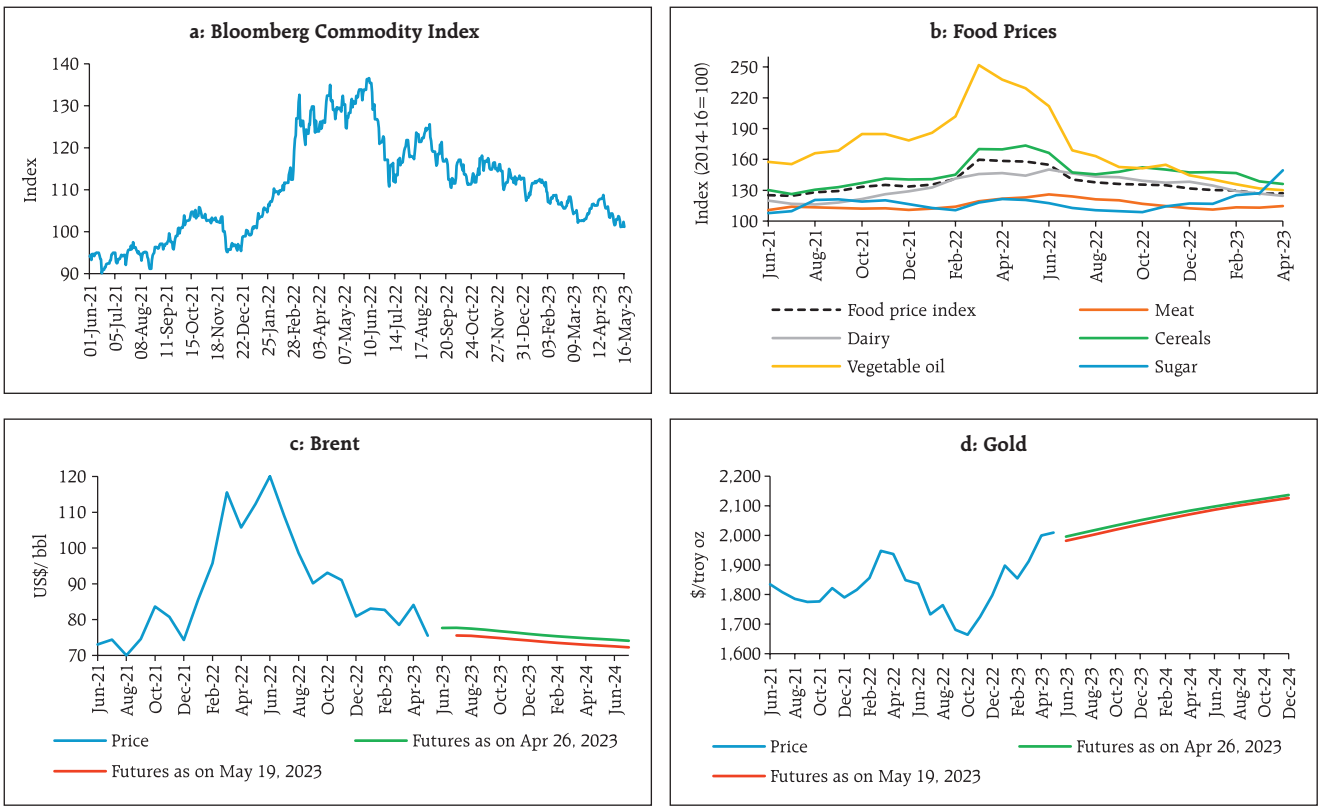
[Chart 4a]. Food prices recorded a marginal pick-up in April, led by steep increases in sugar and meat prices, while cereals, dairy and vegetable oil prices continued to drop. Despite a month-on-month (m-o-m) increase of 0.6 per cent, the Food and Agriculture Organization (FAO) Food Price Index remained in a deep deflation [(-) 19.7 per cent, y-o-y] in April 2023 (Chart 4b).

In April, crude oil prices rose to average US$ 84.1 per barrel, driven by the production cut announced by the Organization of the Petroleum Exporting Countries (OPEC)+. These prices, however, retreated subsequently amidst concerns of global recession, with Brent prices falling close to US$ 75 per barrel by early May (Chart 4c). Gold prices rebounded sharply as renewed fears about the stability of banks stoked safe-haven demand (Chart 4d).

Inflation continued to edge down grudgingly across most economies. In April, the headline CPI inflation (y-o-y) in the US eased marginally to 4.9 per cent (the lowest since April 2021) from 5.0 per cent in March. Inflation based on the US personal consumption expenditure (PCE) index also eased to 4.2 per cent in March from 5.1 per cent in February (Chart 5a). In the UK, CPI inflation moderated to 10.1 per cent in March from 10.4 per cent in February while Japan's CPI (all items less fresh food) inflation remained steady at 3.1 per cent in March. In the Euro area, inflation edged up marginally to 7.0 per cent in April 2023 from a 13-month low of 6.9 per cent in March.

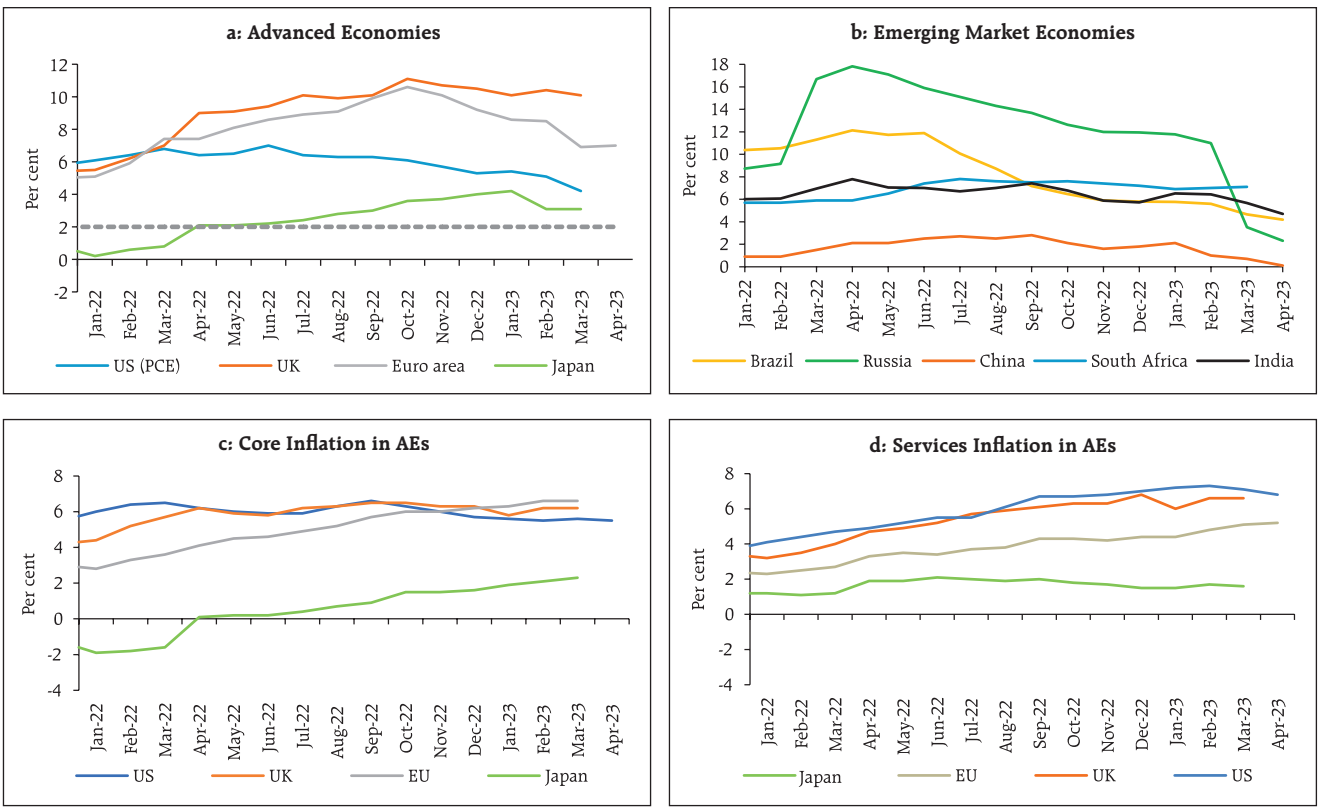
Among the EMEs, Russia's inflation eased further to 2.3 per cent in April from 3.5 per cent in March,

Chart 4: Commodity and Food Prices



Sources: Bloomberg; World Bank Pink Sheet; and FAO.

Chart 5: Inflation (Y-o-y)



Sources: Bloomberg; and OECD.

driven down by a favourable base effect. Inflation eased further in Brazil (4.2 per cent), and China (0.1 per cent) in April while it edged up marginally in South Africa to 7.1 per cent in March (Chart 5b). Despite the sequential moderation in headline inflation, core inflation persists at high levels, lifted by strong service price increases and wage pressures, especially in the AEs (chart 5c and 5d).

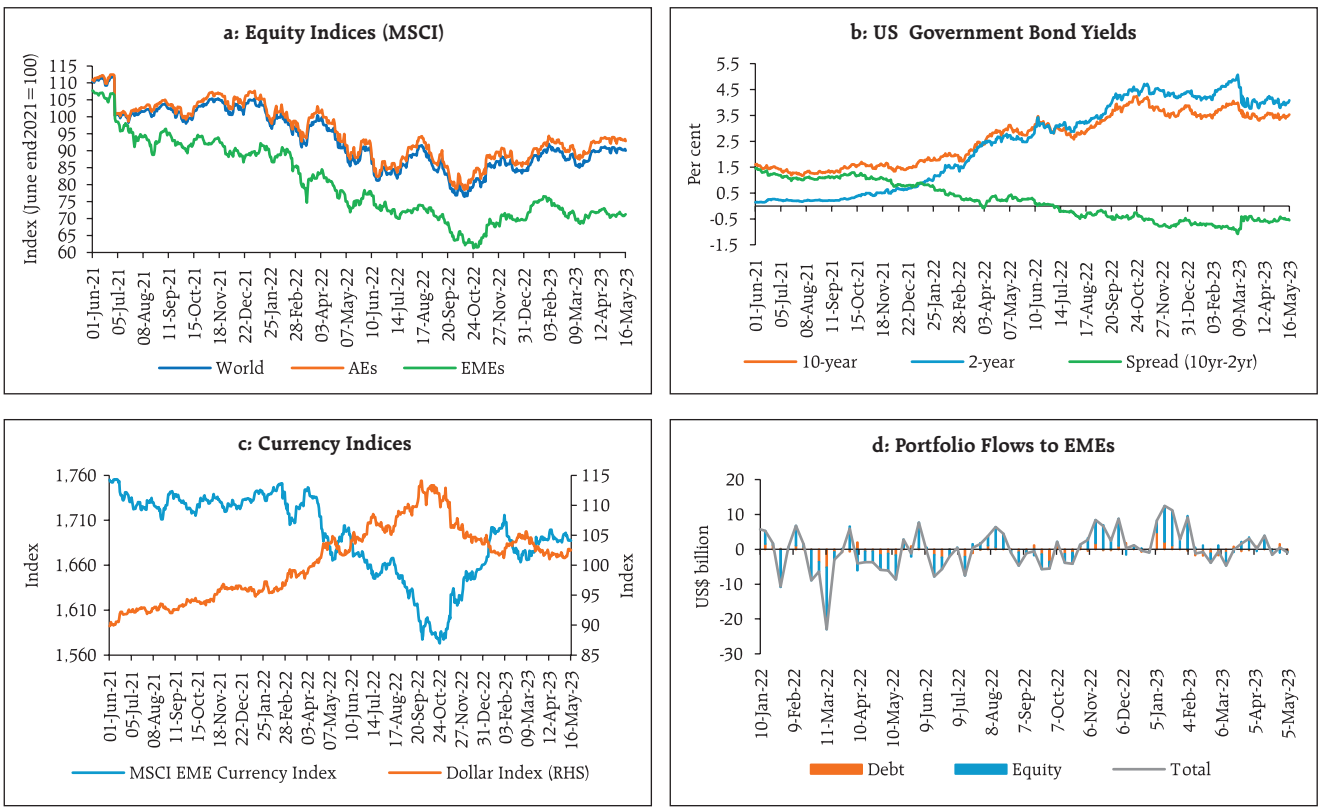
Global financial markets staged a recovery from late March as fears of contagion from the recent banking turmoil in the US and Europe receded (Chart 6a). Markets, however, remained rangebound in April - early May as the focus turned to the pace and magnitude of future rate hikes. The ensuing low volatility can also be attributed to the dominance of option sellers causing intraday reversions that keeps market prices unchanged for several days.

After touching the five per cent mark on March 07, 2023 the US two-year treasury yield declined in April, tracking indications of slowdown in the labour market. The two-year treasury yield softened further on cues from the May 3, 2023 Federal Open Market Committee (FOMC) meeting about a potential pause in rate action. However, it later edged up due to debt ceiling concerns (Chart 6b).

The US dollar shed 0.8 per cent in April as weaker-than-anticipated jobs data, concerns over the debt ceiling and banking sector risks piled on fears of a likely recession in the US, however, the losses were recouped in the first half of May. The Morgan Stanley Capital International (MSCI) currency index for the EMEs also moderated by 0.3 per cent as capital flows remained volatile (Chart 6c and 6d).

Central banks in the AEs and EMEs have either reduced the magnitude of hikes or paused in their

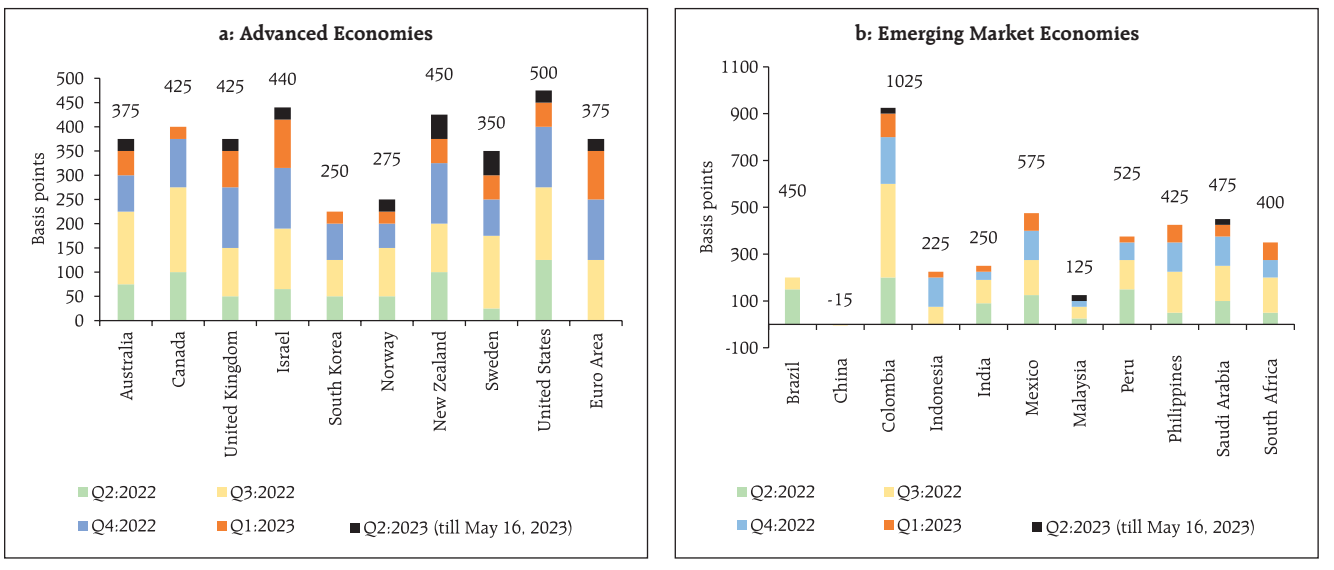
Chart 6: Global Financial Markets



Sources: Bloomberg; and IIF.

rate hike cycles (Chart 7a and 7b). The US FOMC increased its policy rate by 25 basis points on May 3, 2023 and indicated that further actions"-- will take into account the cumulative tightening of monetary

Chart 7: Monetary Policy Actions



Source: Bloomberg.

policy, the lags with which monetary policy affects economic activity and inflation, and economic and financial developments". The Bank of England and the Reserve Bank of Australia also raised their policy rates by 25 bps each in May. In its April meeting, the Sveriges Riksbank increased its key rates by 50 basis points while the ECB raised the three key rates by 25 bps in May.

Most EME central banks have also pivoted to relatively less aggressive monetary policy actions (Chart 7b). In April and May 2023, the Central Bank of Argentina raised its policy rates by 1900 bps in three steps of 300 bps, 1000 bps and 600 bps, while the Central Bank of Colombia implemented a 25 bps increase. In May 2023, the Bank Negara Malaysia also raised its policy rate by 25 basis points for the first time in 2023.

III. Domestic Developments

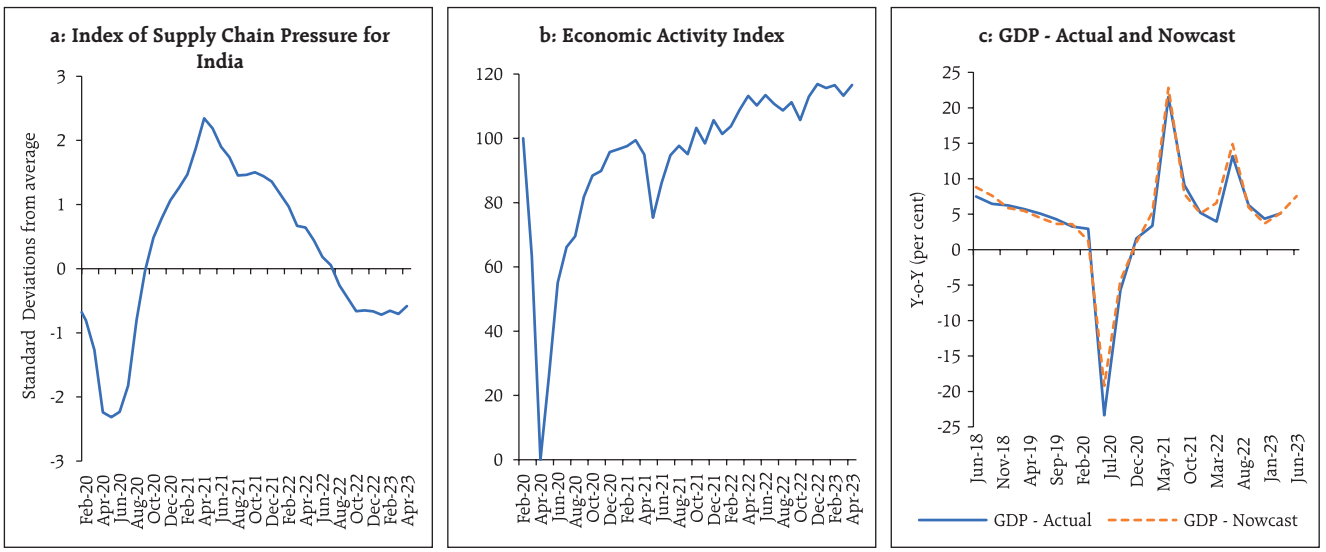
The Indian economy has sustained the momentum in 2023-24 so far. The index of supply chain pressure for India (ISPI) continued to remain at levels below historical average since July 2022 (Chart 8a). Overall economic activity, as captured by our economic activity index (EAI), remains resilient (Chart 8b). Based on partial data available for April 2023 and assuming an implied GDP growth of 5.1 per cent for Q4:2022-23, the economic activity index nowcasts GDP growth for Q1:2023-24 at 7.6 per cent (Chart 8c).

Aggregate Demand

Among lead indicators of demand conditions, E-way bill volumes at 84.4 million in April 2023 clocked their second highest level after the March 2023 peak (Chart 9a). Toll collections reached a record of ₹52 billion in April 2023, aided by an expansion of toll plazas under the FASTag programme (Chart 9b). Electricity generation also accelerated in April due to rising temperature (Chart 9c).

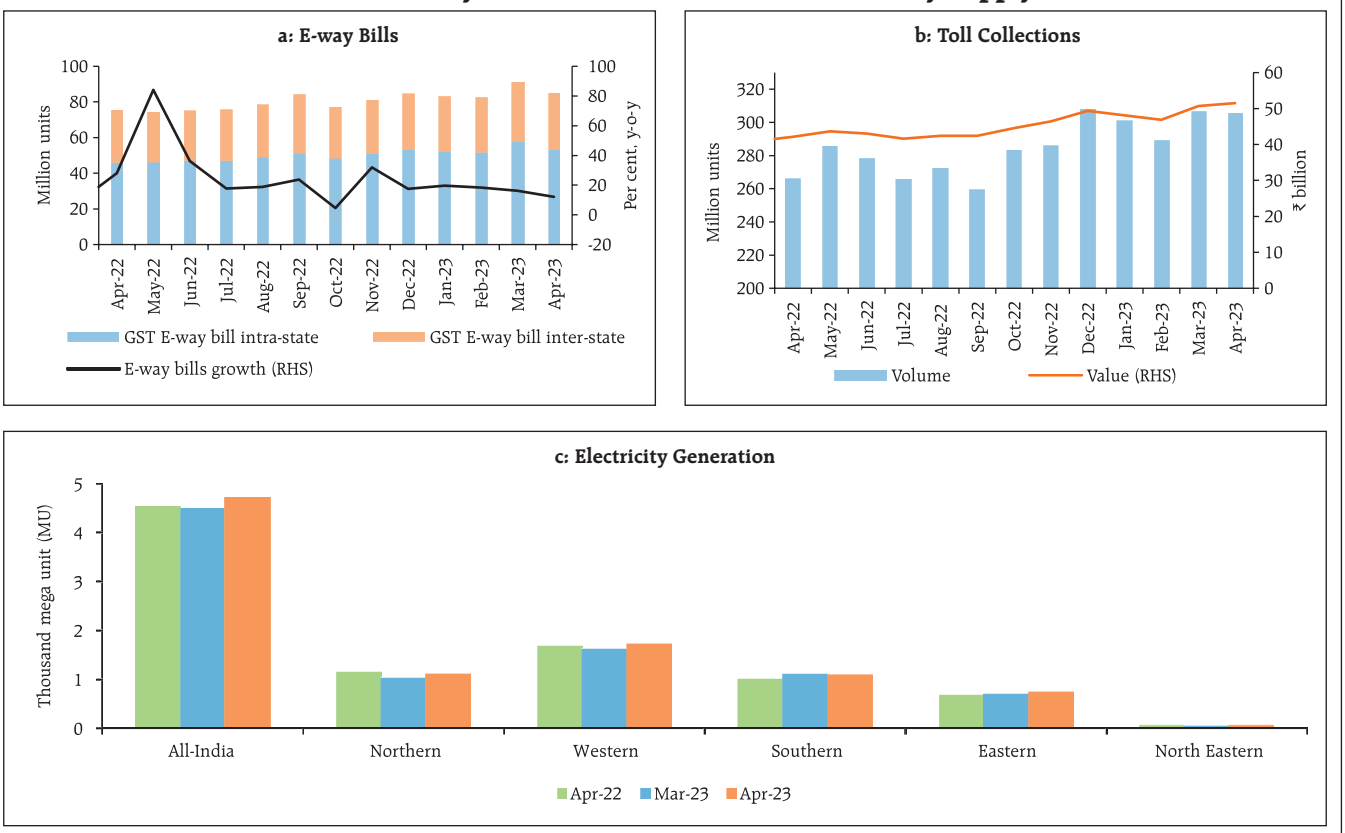
Automobile sales recorded a robust expansion of 16.1 per cent y-o-y in April 2023 indicating a smooth shift to BS VI Phase 2 emission norms (Chart 10a). Electric vehicles sales crossed the 1 lakh mark for the

Chart 8: Domestic Economic Activity Indicators



Note: The economic activity index (EAI) is constructed by extracting the common trend underlying twenty-seven high frequency indicators of economic activity using a Dynamic Factor Model. EAI is scaled to 100 in February 2020 and 0 in April 2020, the worst affected month due to mobility restrictions.
Sources: NSO; and RBI staff estimates.

Chart 9: E-way Bills, Toll Collections and Electricity Supply



Sources: GSTN; RBI; Power System Operation Corporation; CEIC; and RBI staff estimates.

seventh consecutive month in April 2023. Annual growth in the sales of two-wheeler and three-wheeler accelerated in April 2023, with three-wheelers sales more than doubling over last year and reaching closer to the pre-pandemic levels (April 2019). Tractor sales, on the other hand, declined in April 2023 as high demand generating festivals of Navaratri and Gudi Padwa got preponed to March (Chart 10b).

Vehicle registrations moderated in April 2023 as the implementation of the second phase of BS VI norms led to higher prices for the retail consumers (Chart 10c). The daily average consumption of petroleum products fell 7.2 per cent m-o-m in April 2023, from a record-high registered in the previous month due to adverse weather conditions that affected the consumption of gasoline, asphalt and minor petroleum products (Chart 10d).

In the tourism sector, the hotel occupancy rate was at 63 per cent in March 2023 compared to the post-pandemic record high of 71 per cent in February (Chart 11a). Despite a sequential fall, the average room rate (ARR) grew 40 per cent (y-o-y) in March, leading to a growth in revenue per available room (RevPAR) by 44 per cent y-o-y (Chart 11b).

As per the data available from the Centre for Monitoring Indian Economy (CMIE), the all-India unemployment rate was at 8.1 per cent in April 2023, with a higher rate of unemployment being observed in urban areas (Chart 12a). There was also a 2.2 percentage point sequential rise in the labour force participation rate (LFPR) to 42.0 per cent (highest since February 2020) [Chart 12b]. The significant addition of workers to the labour force reflects increasing confidence in employment

Chart 10: Automobile Sector Indicators

Source: SIAM.

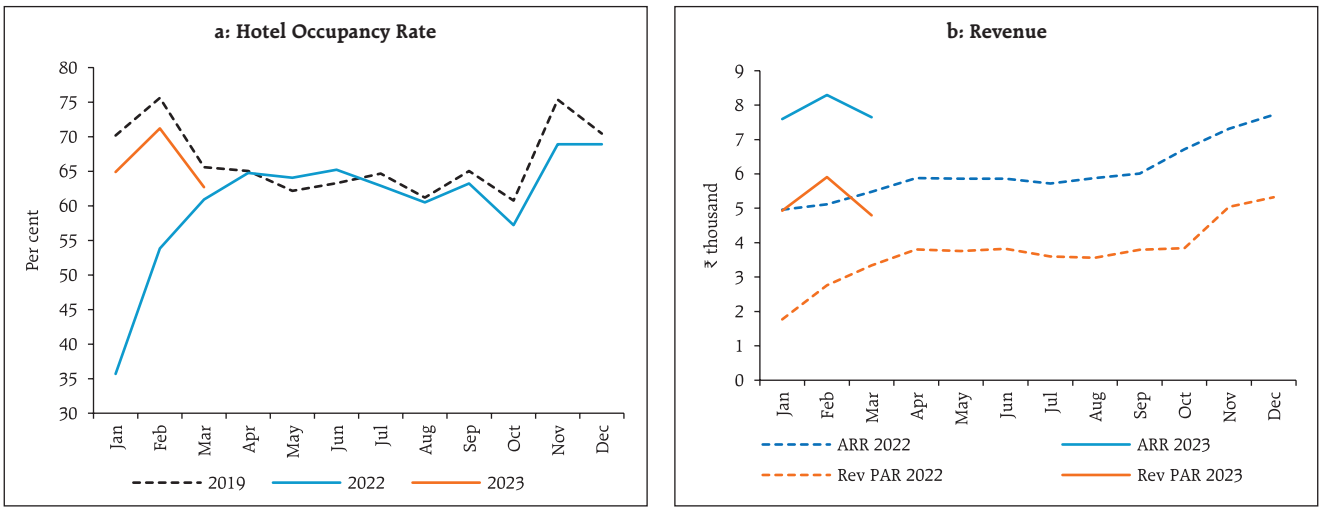
Sources: SIAM; and TMA.

Source: Ministry of Road Transport and Highways.

Source: Petroleum Planning and Analysis Cell.

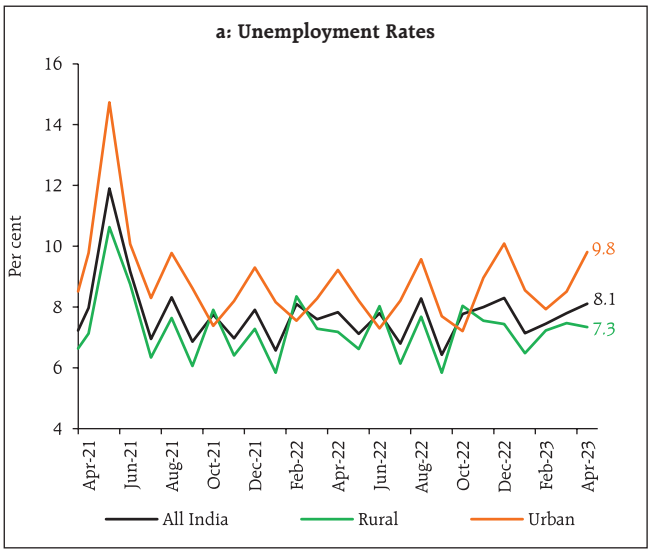
opportunities. The employment outlook in the organised sector, as polled by the purchasing managers in manufacturing and services, also looked up in April (Chart 13).

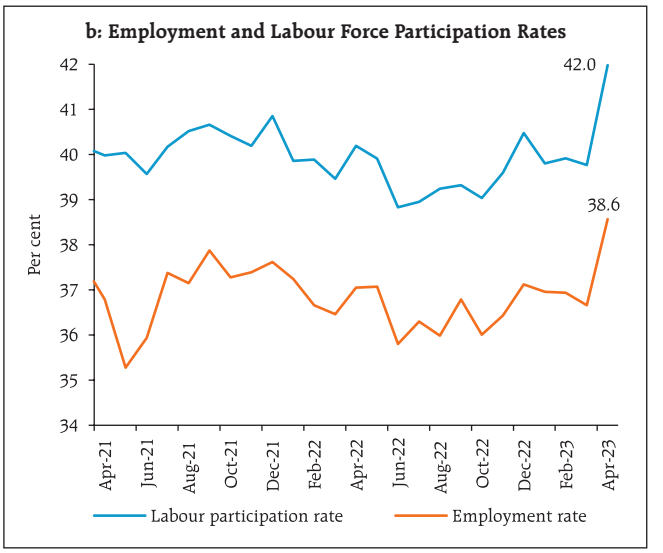
Chart 11: Hotel Sector Indicators



Note: Average room rate (ARR) is the ratio of room revenue to the number of rooms sold/occupied); and Revenue per Available Room (RevPAR) is the ratio of room revenue to the number of rooms available in a given period.
Source: HVS Anarock.

Chart 12: Labour Market Conditions



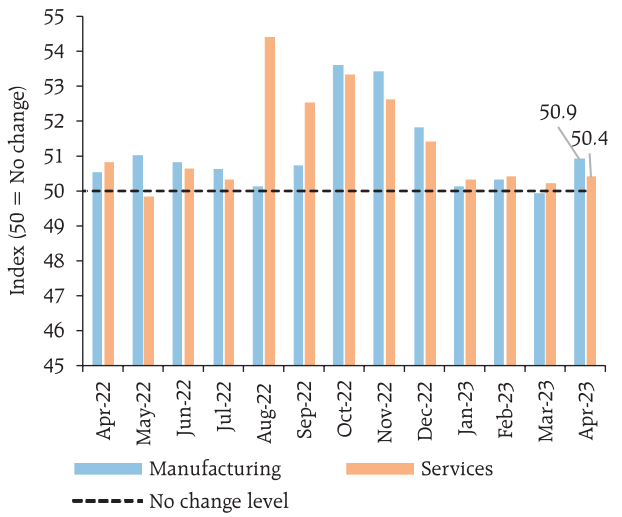


Source: CMIE.

The demand for work under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) increased both sequentially and on a y-o-y basis (Chart 14). This pick-up could be attributed to factors such as the lower demand for labour for farm sowing in the summer and the recent wage revision by the Government under MGNREGS.[10]

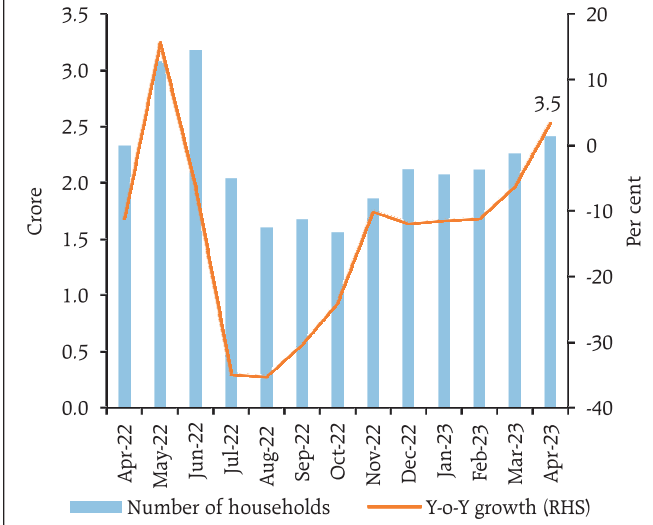
India's merchandise exports declined by 12.7 per cent y-o-y in April 2023 to a six-month low of US$

Chart 13: PMI Employment Indices



Note: Purchasing managers' index (PMI) value of above 50 indicates expansion.
Source: S&P Global.

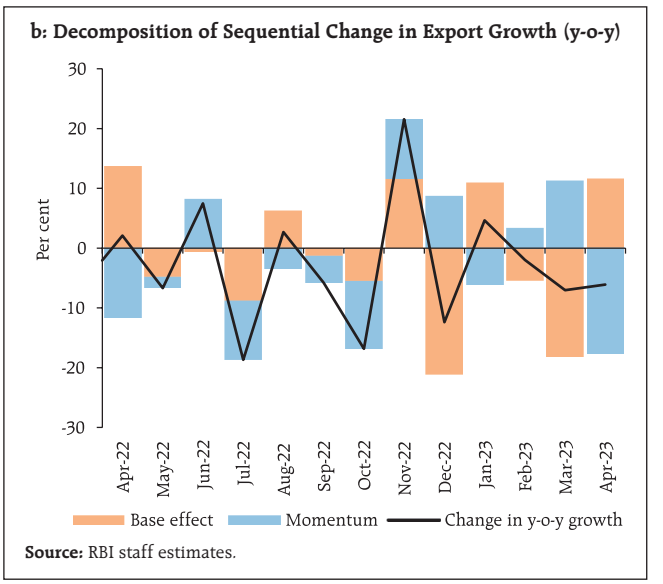
Chart 14: Demand for Work under MGNREGS



Source: Ministry of Rural Development.

Chart 15: Merchandise Exports

Sources: DGCI&S; and Press Information Bureau (PIB).



Source: RBI staff estimates.

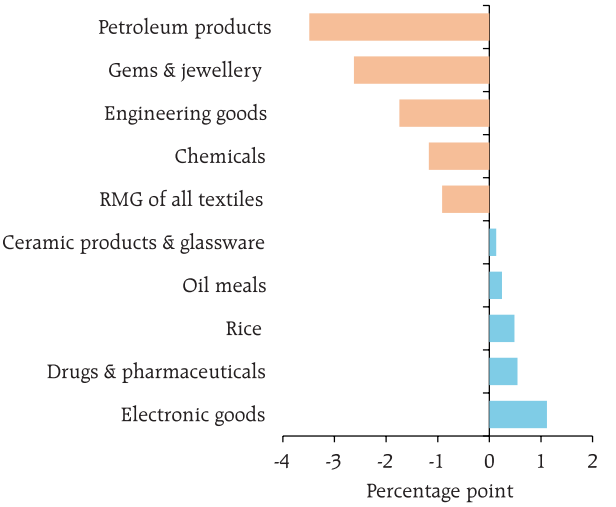
34.7 billion, marking the third consecutive monthly contraction. On a sequential basis, exports fell by 16.2 per cent over March (Chart 15).

Among the 30 major commodities, 19 commodities accounting for 73.7 per cent in the export basket recorded a y-o-y contraction in April. The drag on exports from petroleum products, gems and jewellery, engineering goods, organic and inorganic chemicals, and readymade garment (RMG) of all textiles, was partly offset by growth in electronic goods, drugs and pharmaceuticals, rice, and oil meals (Chart 16). Non-oil exports contracted for the fifth consecutive month.

During 2022-23, the year gone by for which a clearer picture now emerges, merchandise exports grew by 6.7 per cent, driven by petroleum products, while non-oil exports declined (Chart 17a). Exports of petroleum products were buoyed by the price effect, resulting in a growth of 44.4 per cent in value terms despite a 0.4 per cent fall in volume terms (Chart 17b).

Merchandise imports fell to a twenty-month low of US$ 49.9 billion in April 2023, recording a sequential contraction of 16.9 per cent and a y-o-y decline of 14.1 per cent on account of easing commodity prices and a fall in demand for discretionary items such as gems and jewellery (Chart 18).

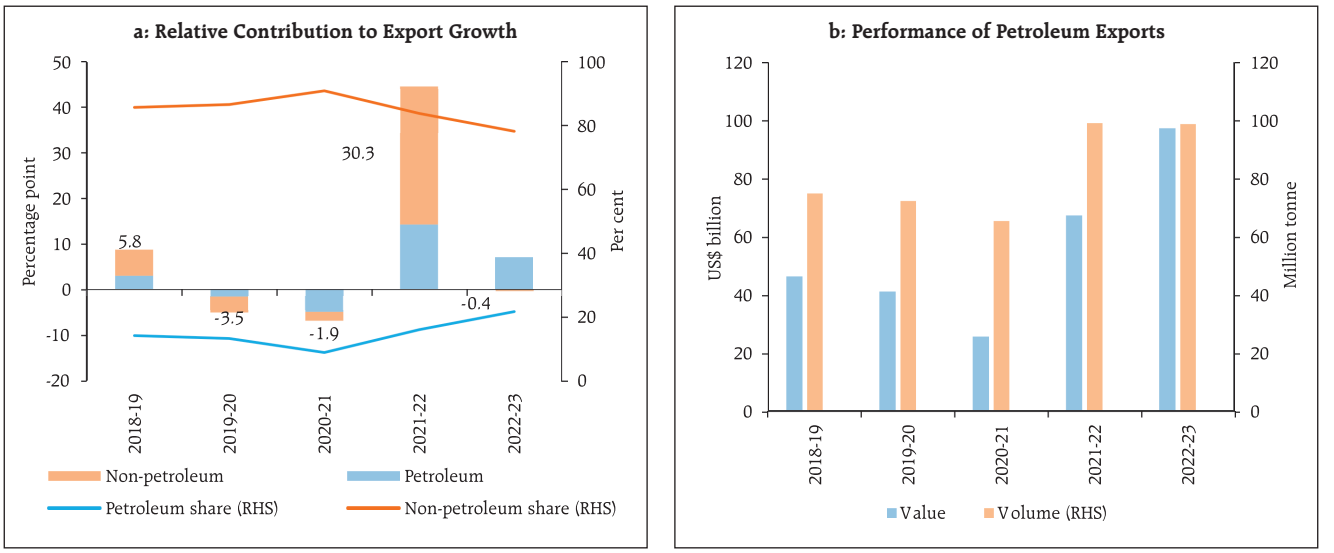
Chart 16: Relative Contribution to Export Growth



Source: PIB; and RBI staff estimates.

[10] https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1906801

Chart 17: Decomposition of Export Growth in 2022-23

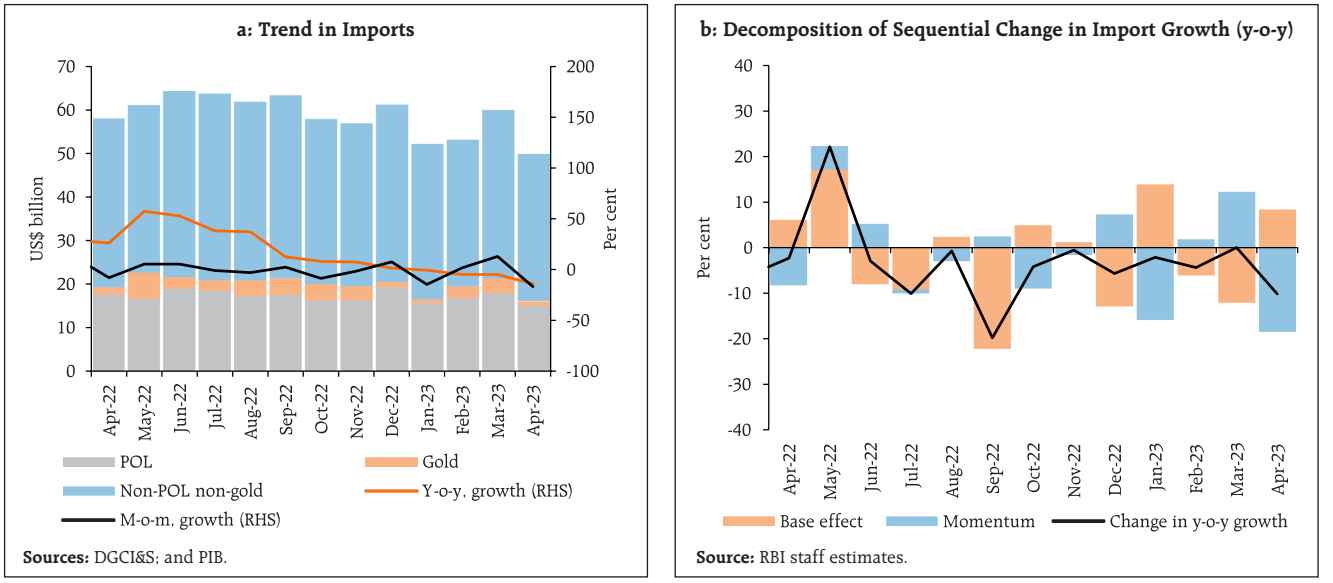


Source: DGCI&S; and RBI staff estimates.

At a disaggregated level, 23 major items accounting for 82.1 per cent of the import basket in April 2023, registered contraction. Petroleum, oil and lubricants (POL), coal and chemicals dragged down overall imports whereas machinery, iron and steel and pulses contributed positively (Chart 19a). Merchandise imports also reached an all-time high of US$ 714.2 billion in 2022-23, increasing by 16.5 per cent y-o-y. 24 items out of the 30 major imported commodities, accounting for 84.9 per cent of import basket registered an expansion in 2022-23.

India's merchandise trade deficit touched a twenty-month low of US$ 15.2 billion in April 2023. During 2022-23, the merchandise trade deficit had

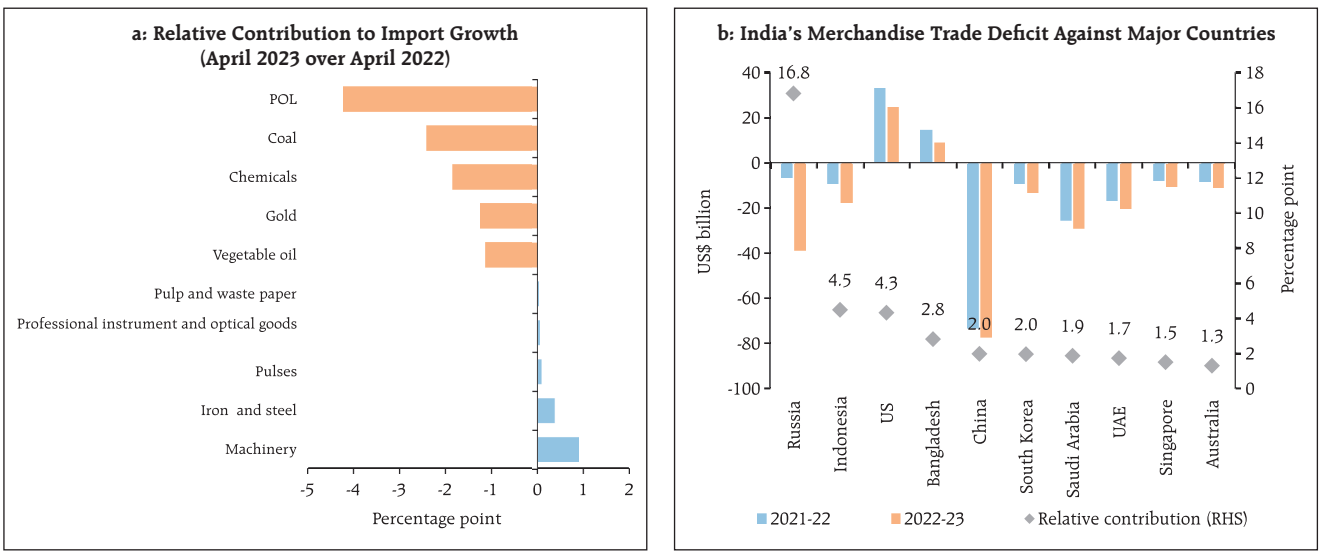
Chart 18: Merchandise Imports



Sources: DGCI&S; and PIB.

Source: RBI staff estimates.

Chart 19: Relative Contribution to Import Growth and Sources of Merchandise Trade Deficit



Source: PIB; and RBI staff estimates.

widened by US$ 72.6 billion as compared to the level in 2021-22, with Russia and Indonesia jointly accounting for over a fifth of the build-up in the trade deficit (Chart 19b).

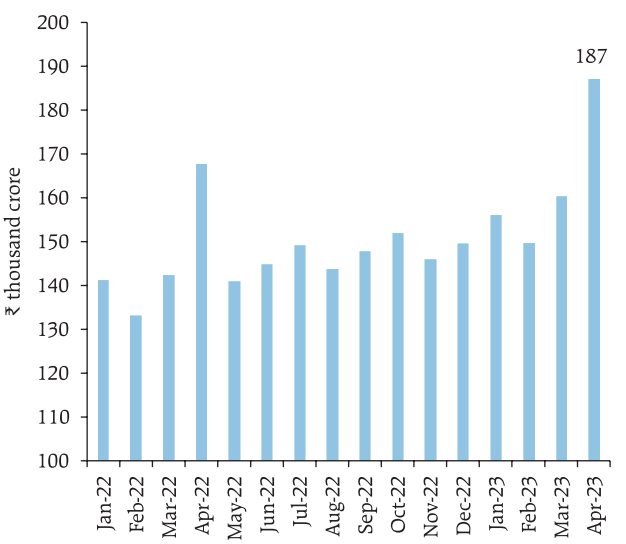
The goods and services tax (GST) collections (Centre *plus* States) in April 2023 stood at ₹1.87 lakh crore (highest monthly collection since the launch of GST in July 2017) and recorded a growth rate of 11.6 per cent y-o-y. This could be attributed to the higher year-end economic activity as the April data cover transactions that took place in March (Chart 20).

As per the accounts data for April-February of 2022-23, States' gross fiscal deficit (GFD), as a proportion to the full year budget estimates (BE), was lower than a year ago (Chart 21a and 21b). The increase in revenue collection by 14.1 per cent was broad-based. On the expenditure front, growth in revenue and capital expenditure (capex) moderated (Chart 22).

During April-February 2023, States incurred 61 per cent of their budgeted capex, with a tendency to back-load this component of expenditure to end of the financial year in March 2023.

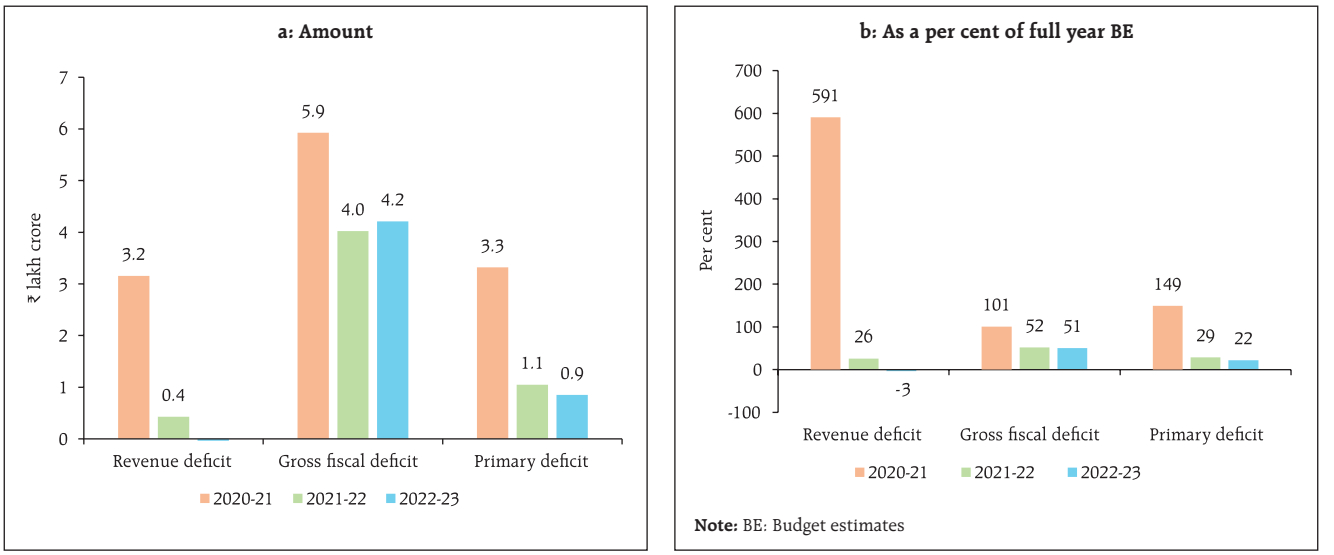
The consolidated states' GFD to gross state domestic product (GSDP) ratio budgeted at 3.2 per

Chart 20: Monthly GST Revenue



Source: PIB.

Chart 21: States' Key Deficit Indicators (April-February)

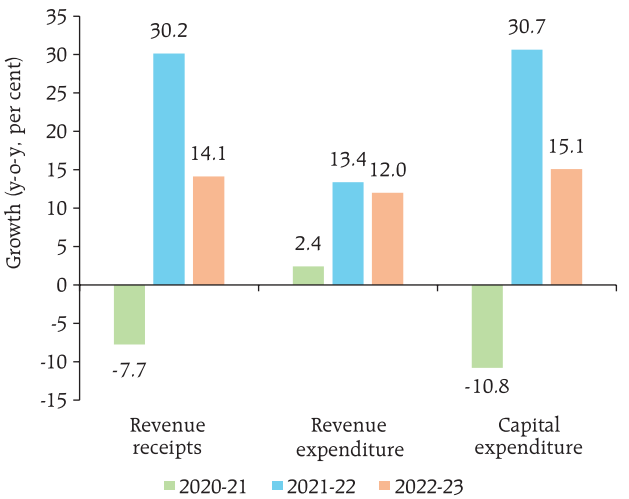


Note: BE: Budget estimates

Source: Comptroller and Auditor General of India (CAG).

cent for 2023-24 (as per data for 26 States) is within the target of 3.5 per cent set by the Centre.[11] The lower GFD-GSDP ratio is due to moderation in revenue expenditure, even as capex is expected to increase.

Chart 22: States' Revenues and Expenditure (April-February)



Note: The data pertains to 23 States.
Source: CAG.

Aggregate Supply

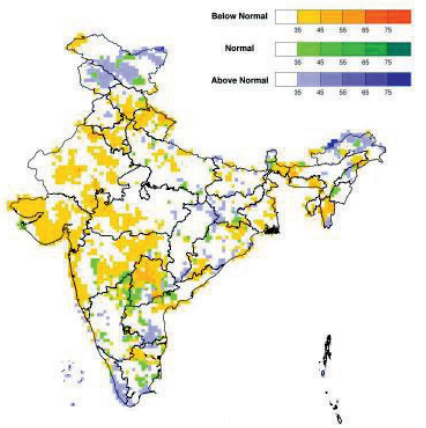
As per the long-range forecast by India Meteorological Department (IMD) released on April 11, 2023, the Southwest Monsoon (SWM) rainfall during June-September 2023 is likely to be normal at 96 per cent of the long period average (LPA) with a model error of ±5 per cent.[12] However, the forecast indicates wide geographical variation with some of the major agriculture producing regions likely to fall in below normal monsoon category (Chart 23a). The Southern Oscillation neutral condition in the equatorial pacific region is expected to turn into an *El Niño* condition during the monsoon season, which generally affects the rainfall adversely. However, the visible impact of *El Niño* is expected to be seen only post-June 2023 and hence, the initial phase of the monsoon is expected to be normal. As per IMD's

[11] The data for Budget Estimates (BE) are based on budget documents of the respective States.

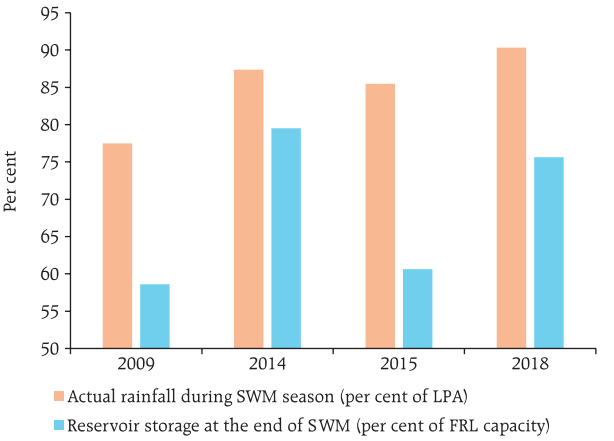
[12] Normal rainfall at all-India level ranges from 96-104 per cent of LPA. The LPA of the seasonal rainfall over the country as a whole, based on data of 1971-2020 is 87 cm.

Chart 23: South-West Monsoon Season Rainfall (IMD Long Range Forecast 2023)

a: Tercile Probability Rainfall Forecast for SWM season 2023



b: Rainfall and Reservoir Level during *El Niño* years



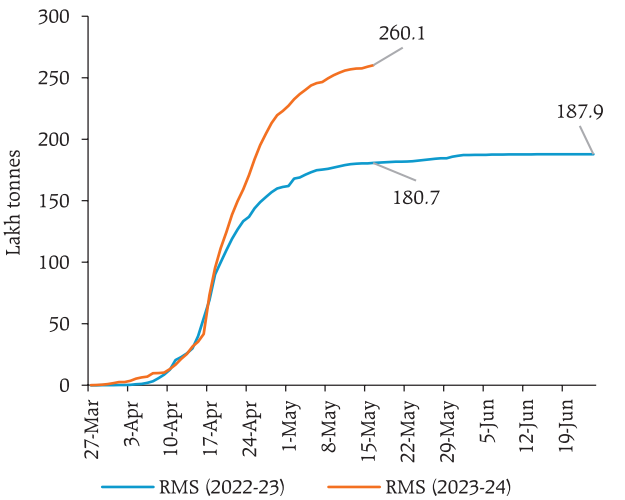
Note: Map is for illustrative purposes only; and Map illustrates the most likely categories as well as their probabilities for SWM rainfall. The white shaded areas represent climatological probabilities for all the tercile categories. Tercile categories have equal climatological probabilities, of 33.33 per cent each.
Sources: Indian Meteorological Department; and Central Water Commission.

forecast released on May 16 2023, the onset of SWM over Kerala is likely to be slightly delayed and is now expected on June 4, 2023.[13]

Historically, rainfall at the end of the SWM season has been below normal in the last four *El Niño* years. This might also impact the reservoir levels across the country, which is critical for irrigation of *rabi* crops during winter (Chart 23b). Nevertheless, the positive Indian Ocean Dipole (IOD) conditions are expected to counter the impact of *El Niño* in the later phase of the monsoon in 2023.

As on May 16, 2023 the public procurement of rice during the *kharif* marketing season (*KMS*) 2022-23 (Oct-Sep) was lower by 1.8 per cent y-o-y. As on May 16, 2023, the procurement of wheat during the *rabi* marketing season (*RMS*) 2023-24 (Apr-Mar) so far, at 260.1 lakh tonnes, has surpassed the total procurement of last year by 38.4 per cent (Chart 24). Public stocks of rice and wheat with the Food Corporation of India (FCI) and other government agencies as on May 1, 2023 were 3.1 and 3.9 times the buffer norms, respectively (Chart 25). The procurement target for rice during the *KMS* 2022-23 is set at 51.8 million tonnes and for wheat, it is at 34.15 million tonnes during *RMS* 2023-24.

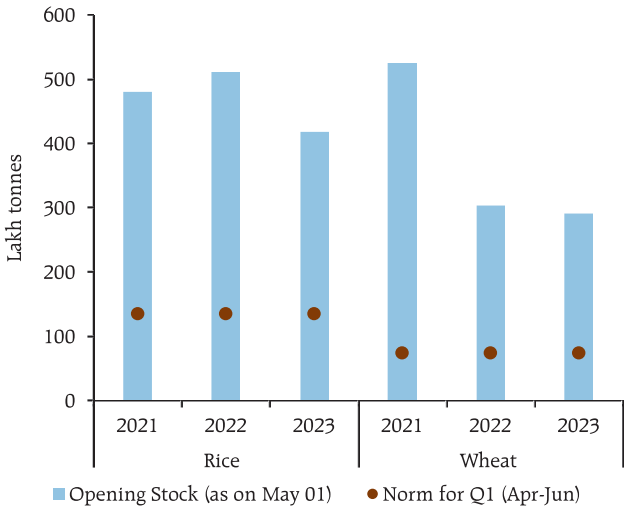
Chart 24: Cumulative Wheat Procurement during RMS (Apr-Mar)



Source: Ministry of Consumer Affairs, Food and Public Distribution.

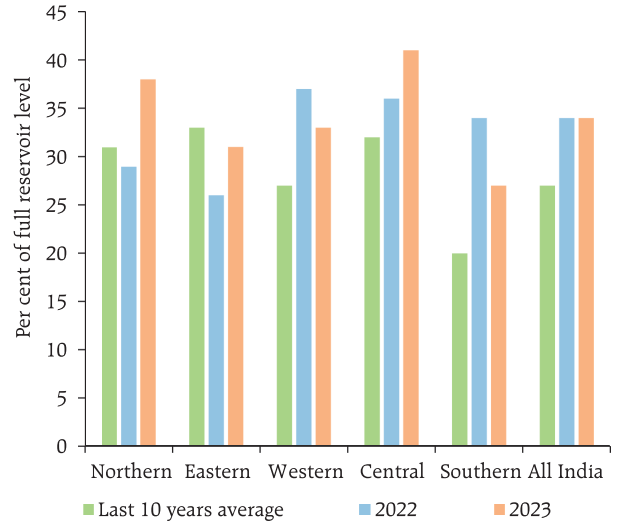
[13] https://internal.imd.gov.in/press_release/20230516_pr_2325.pdf

Chart 25: Public Stock of Rice and Wheat against the Buffer Norms



Source: Ministry of Consumer Affairs, Food and Public Distribution.

Chart 26: Reservoir status



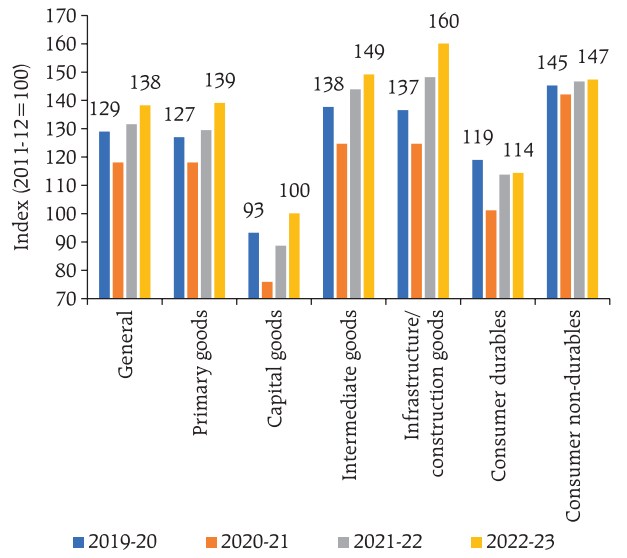
Note: Data as on May 11, 2023.
Source: CWC.

Market arrivals of wheat, which were affected in March by the delay in harvesting of *rabi* crops caused by unusually higher rains and hailstorms, picked up in April. As a result, wheat *mandi* prices continued to moderate (m-o-m) in April. Price pressures, however, persisted in respect of paddy, partly reflecting higher export demand.

Summer season rainfall (March – May) as on May 16, 2023 was higher than the normal rainfall, which augurs well for *zaid* (summer) crops and overall reservoir levels throughout the country. As on May 11, 2023, water storage in 146 reservoirs monitored by the Central Water Commission (CWC) stood at 34 per cent of the full reservoir capacity – marginally lower than last year's level, but 22.5 per cent higher than the 10-year average. Storage in 92 out of 146 major reservoirs was higher than the decadal average (Chart 26).

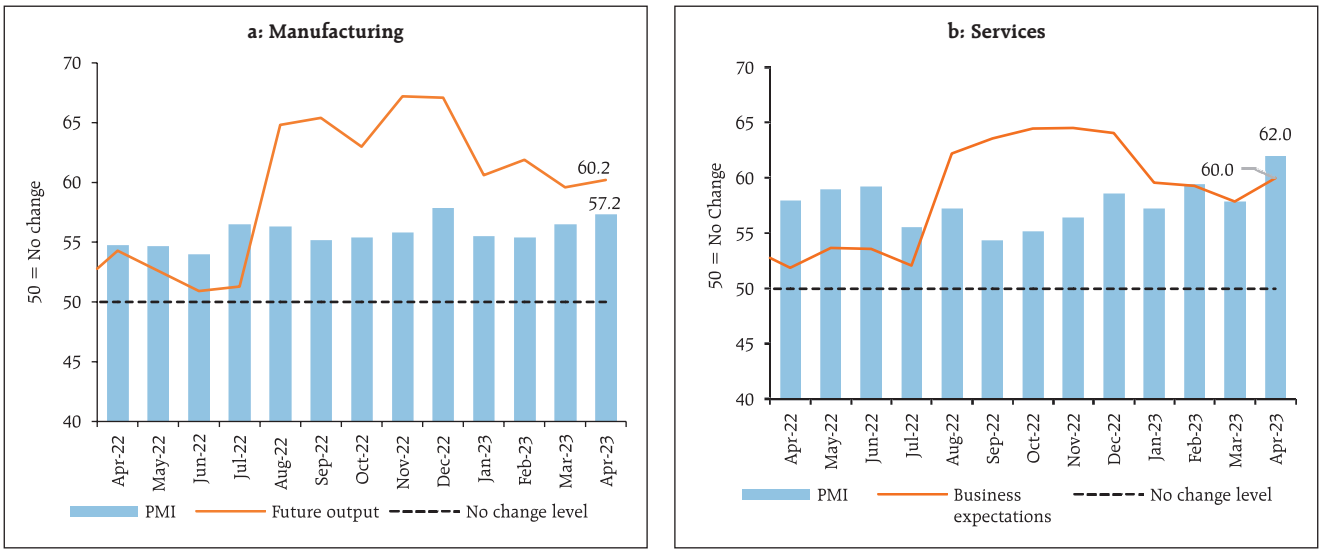
The index of industrial production (IIP) grew by 5.1 per cent in 2022-23, led by a robust expansion in the production of electricity followed by mining and manufacturing. As per the use-based classification, the expansion was led by capital goods, infrastructure goods and primary goods while the growth in consumer durables and non-durables remained subdued at 0.5 per cent each. The index value of all use-based categories except consumer durables surpassed pre-pandemic (2019-20) levels in 2022-23 (Chart 27).

Chart 27: Index of Industrial Production



Source: Ministry of Statistics and Programme Implementation.

Chart 28: Purchasing Managers' Index (PMI)

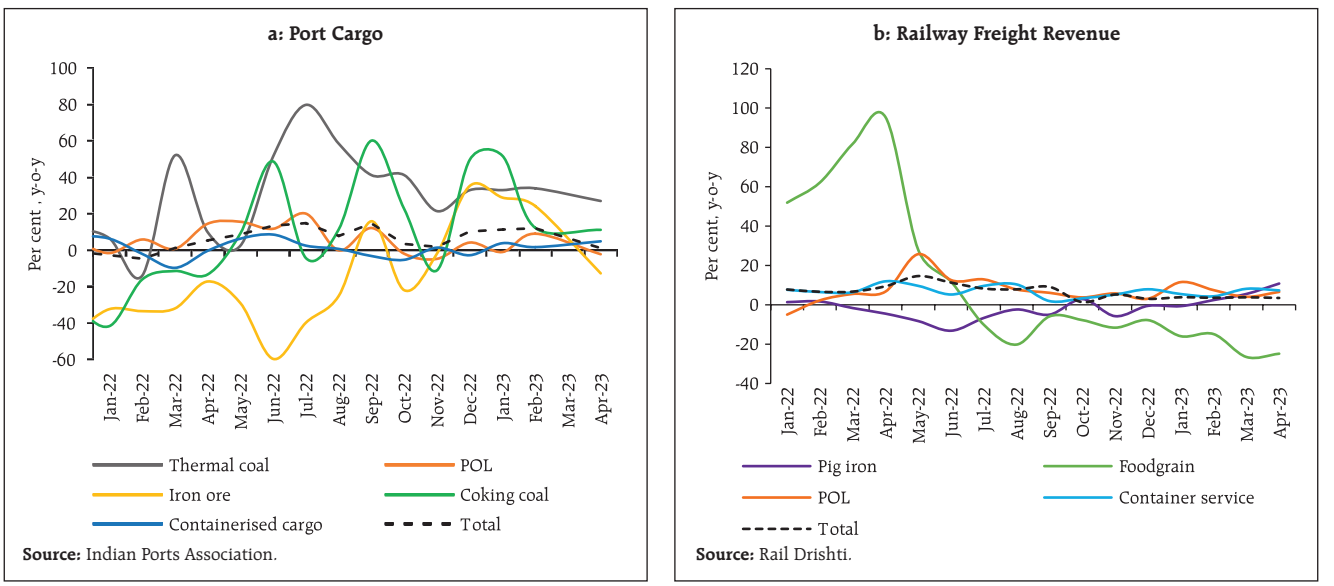


Source: S&P Global.

The headline PMI for manufacturing reached a four-month high of 57.2 in April 2023, with a broad-based expansion in all sub-indices (Chart 28a). Output in the service sector expanded at the fastest rate in nearly 13 years at 62.0 in April 2023 (highest since July 2010), led by a pick-up in new business growth and favourable market conditions (Chart 28b).

In the services sector, transport indicators moderated in April. Growth in cargo traffic at major ports decelerated to 1.3 per cent due to contraction in iron ore, raw fertilisers and POL cargos (Chart 29a). Annual growth in railway freight earnings decelerated driven by a decline in food grains carriage (Chart 29b).

Chart 29: Railway and Cargo Traffic



Source: Indian Ports Association.

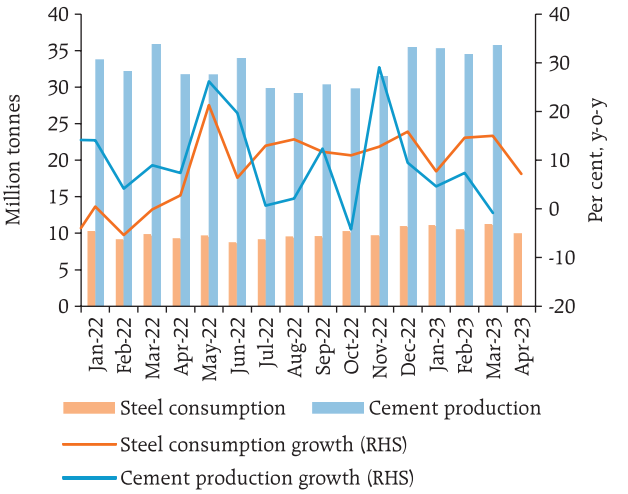
Source: Rail Drishti.

Among construction sector activity indicators, steel consumption growth decelerated to 7.2 per cent in April (y-o-y) while cement production witnessed a marginal contraction in March (Chart 30).

High-frequency indicators in the service sector for April 2023 point to economic activity keeping pace. Automobile sales also recorded robust growth with acceleration in both two and three wheelers' sales. Domestic and international air passenger traffic continued to post double digit growth (Table 1).

Nearly half of the measured economic activity in India takes place in the unorganised or informal sector appropriate measurement of which remains a major challenge.[14] A monthly composite index for the unorganised sector activity (UNCCI)[15], which tracks

Chart 30: Steel Consumption and Cement Production



Sources: Joint Plant Committee; and Office of the Economic Adviser, Ministry of Commerce and Industry.

Table 1: High Frequency Indicators – Services

Growth (y-o-y, per cent)

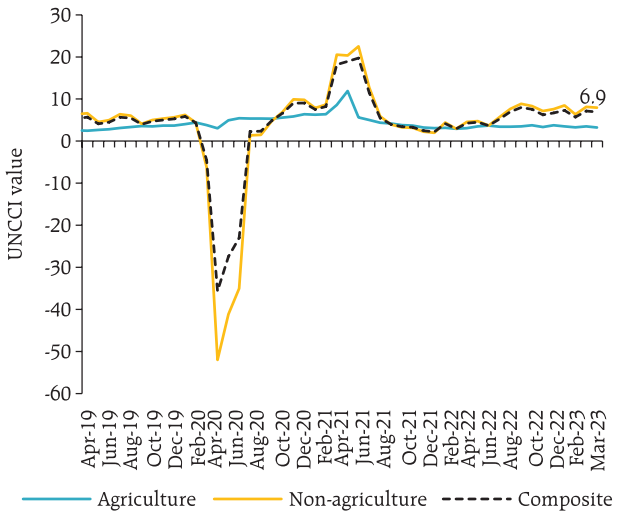
Sector	Indicator	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23
Urban Demand	Passenger Vehicles Sales	28.6	28.1	7.2	17.2	11.0	4.5	12.9
Rural Demand	Two Wheeler Sales	2.3	17.7	3.9	5.0	7.6	7.7	15.1
	Three Wheeler Sales	70.4	103.2	37.6	103.0	86.1	69.2	104.2
	Tractor Sales	6.8	6.5	25.6	24.4	20.0	13.7	-11.1
Trade, hotels, transport, communication	Commercial Vehicles Sales	11.5			7.1			
	Railway Freight Traffic	1.4	5.2	3.1	3.8	3.6	3.8	3.5
	Port Cargo Traffic	3.1	1.8	10.3	12.2	12.0		1.3
	Domestic Air Cargo Traffic	-22.8	0.1	0.5	-7.5	0.0	-4.4	-1.7
	International Air Cargo Traffic	-21.2	1.5	-10.7	-4.3	-8.1	0.8	-3.0
	Domestic Air Passenger Traffic	17.2	14.7	19.5	95.3	50.2	22.9	23.2
	International Air Passenger Traffic	89.8	101.7	91.6	115.1	98.0	62.4	43.9
	GST E-way Bills (Total)	4.6	32.0	17.5	19.7	18.4	16.3	12.2
	GST E-way Bills (Intra State)	12.0	37.7	23.2	24.1	22.2	20.7	16.2
	GST E-way Bills (Inter State)	-5.9	23.1	8.6	12.8	12.4	9.3	5.9
	Tourist Arrivals	243.2	191.3	204.2	330.8	259.4	132.5	
Construction	Steel Consumption	11.0	12.8	15.9	7.7	14.6	15.0	7.2
	Cement Production	-4.2	29.1	9.5	4.6	7.4	-0.8	
PMI#	Services	55.1	56.4	58.5	57.2	59.4	57.8	62

Note: #: Data in levels.
Sources: CMIE; CEIC data; IHS Markit; SIAM; Airports Authority of India; and Joint Plant Committee.

[14] The official estimate of unorganised sector gross value added (GVA) represented by the household sector GVA are released on an annual basis with a lag of almost 10 months. Besides, currently these data are available only up to 2021-22.

[15] The UNCCI adopts an indicator-based approach (Bhowmick *et al.*, 2022) using the dynamic factor model in the state-space framework.

Chart 31: Unorganised Composite Coincident Index (UNCCI)



Source: RBI staff estimates.

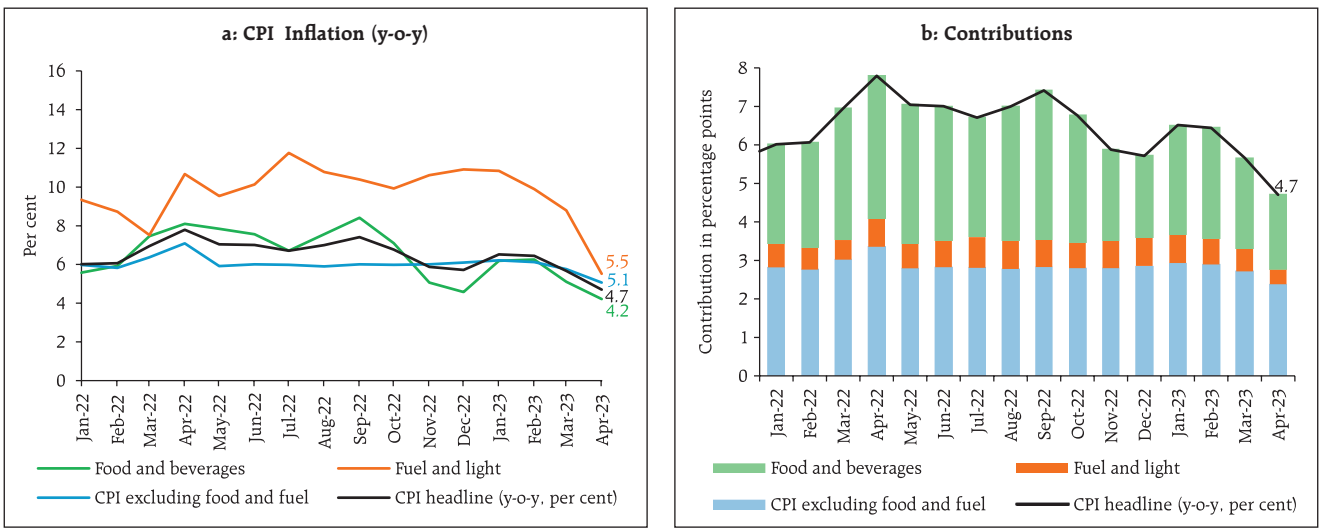
economic activity in this sector, points towards an improvement in unorganised non-agricultural activity during Q4:2022-23 (Chart 31).

In terms of regional policy initiatives, Haryana launched the 'Haryana Kaushal Rozgar Nigam Limited' (HKRNL) Enterprises Portal that will provide an online platform for the industries in the state for recruitment. Punjab took the initiative to earmark 10 per cent amount of compensation meant for crop loss due to any sort of natural calamity for the benefit of farm labourers. To ensure ease of doing business and remove compliance burden for manufacturing and trade establishments, Delhi approved 70 reforms aimed at digitisation and expediting approvals for various government related services. Tamil Nadu will start geo-tagging handlooms and power-looms to help devise policies and schemes that will aid genuine weavers, besides helping them avail of government schemes to upgrade looms to produce value-added fabric.

Inflation

Headline inflation, measured by y-o-y changes in the all-India consumer price index (CPI), moderated sharply to 4.7 per cent in April 2023 from 5.7 per cent in March.[16] The decline in inflation was broad-based across food, fuel and core (excluding food and fuel) groups, which was also reflected in their falling contribution to overall inflation (Chart 32a and

Chart 32: Trends and Drivers of CPI Inflation



Note: CPI inflation for April-May 2021 was computed based on imputed CPI indices for April-May 2020.
Sources: National Statistical Office (NSO); and RBI staff estimates.

[16] As per the provisional data released by the National Statistical Office (NSO) on May 12, 2023.

Chart 32b). The fall in headline inflation was on account of the combined impact of monetary policy tightening, supply augmenting measures and a favourable base effect.

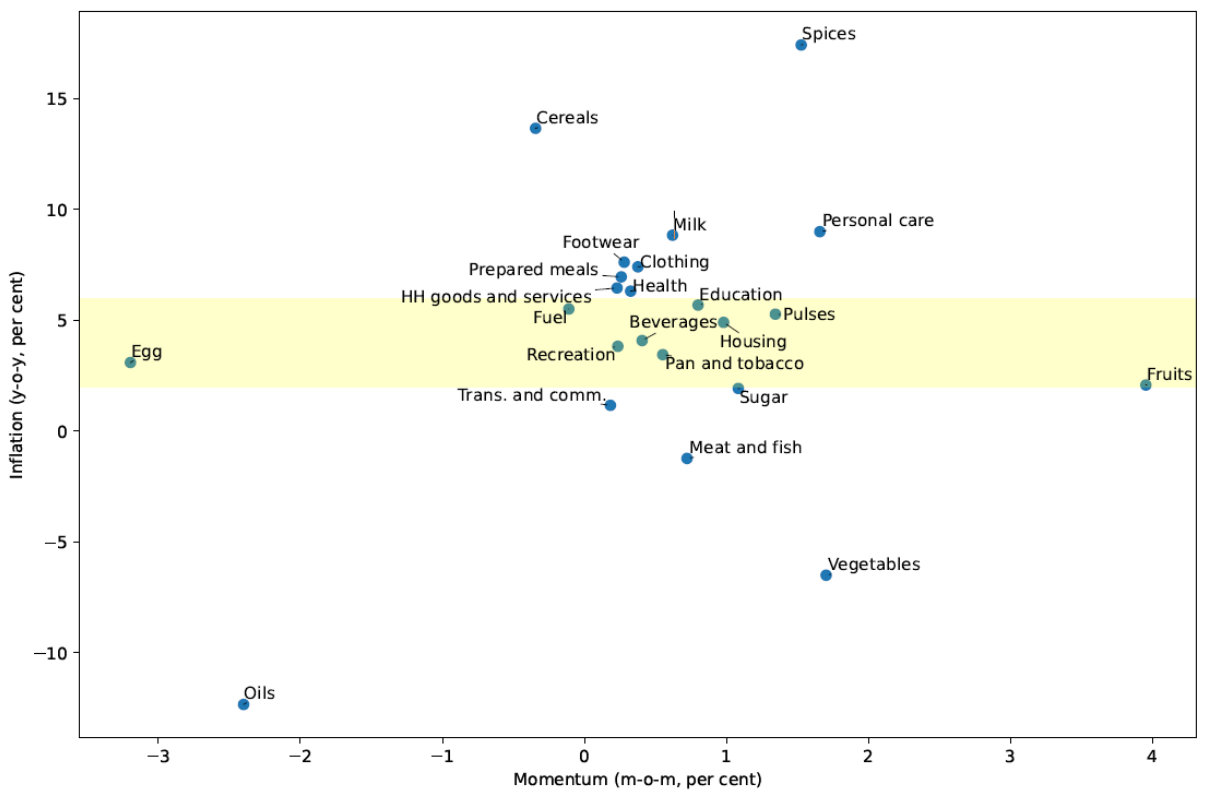
CPI food inflation (y-o-y) moderated sharply to 4.2 per cent in April 2023 from 5.1 per cent in March on account of a large favourable base effect of around 145 bps, which was more than offset by a positive price momentum of around 55 bps. Within this group, inflation moderated sharply in fruits, cereals, milk, eggs, spices, non-alcoholic beverages and prepared meals. While edible oils saw a sharper deflation than a month ago, prices of vegetables, meat and fish registered a lower rate of deflation in April *vis-à-vis* March. On the other hand, inflation in prices of pulses and sugar edged up (Chart 33).

Inflation in the fuel and light group declined to 5.5 per cent in April from 8.8 per cent in March, mainly on account of deflation in kerosene prices (PDS and other sources).

Core inflation softened to 5.1 per cent in April from 5.8 per cent in March with a large favourable base effect of around 120 bps more than offsetting a positive price momentum of around 55 bps. This is the sharpest monthly fall in core inflation since May 2022. The moderation was broad-based, with inflation in six out of nine sub-groups (recreation and amusement; clothing and footwear; housing; household goods and services; health; and transport and communication) decelerating. Inflation in pan, tobacco and intoxicants, education, and personal care and effects, on the other hand, registered an increase (Chart 34).

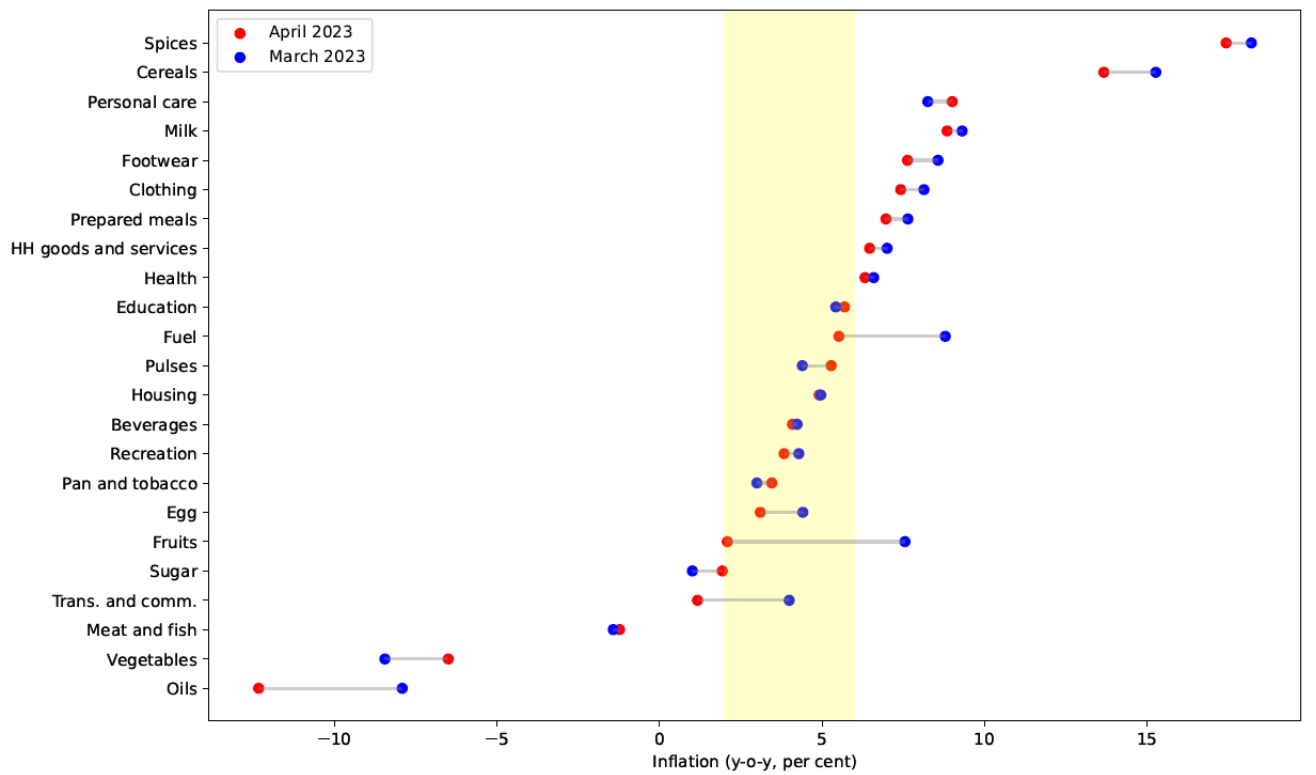
In terms of regional distribution, rural inflation at 4.68 per cent was marginally lower than urban inflation (4.85 per cent) in April 2023. Majority of the states registered inflation in the range of 4-6 per cent,

Chart 33: Annual Inflation (y-o-y) and Momentum (m-o-m) across Subgroups



Sources: NSO; and RBI staff estimates.

Chart 34: Annual Inflation across Subgroups (April 2023 *versus* March 2023)



Sources: NSO; and RBI staff estimates.

with only Tripura experiencing inflation in excess of 8 per cent (Chart 35).

Chart 35: Spatial Distribution of Inflation April 2023 (CPI – Combined, y-o-y)

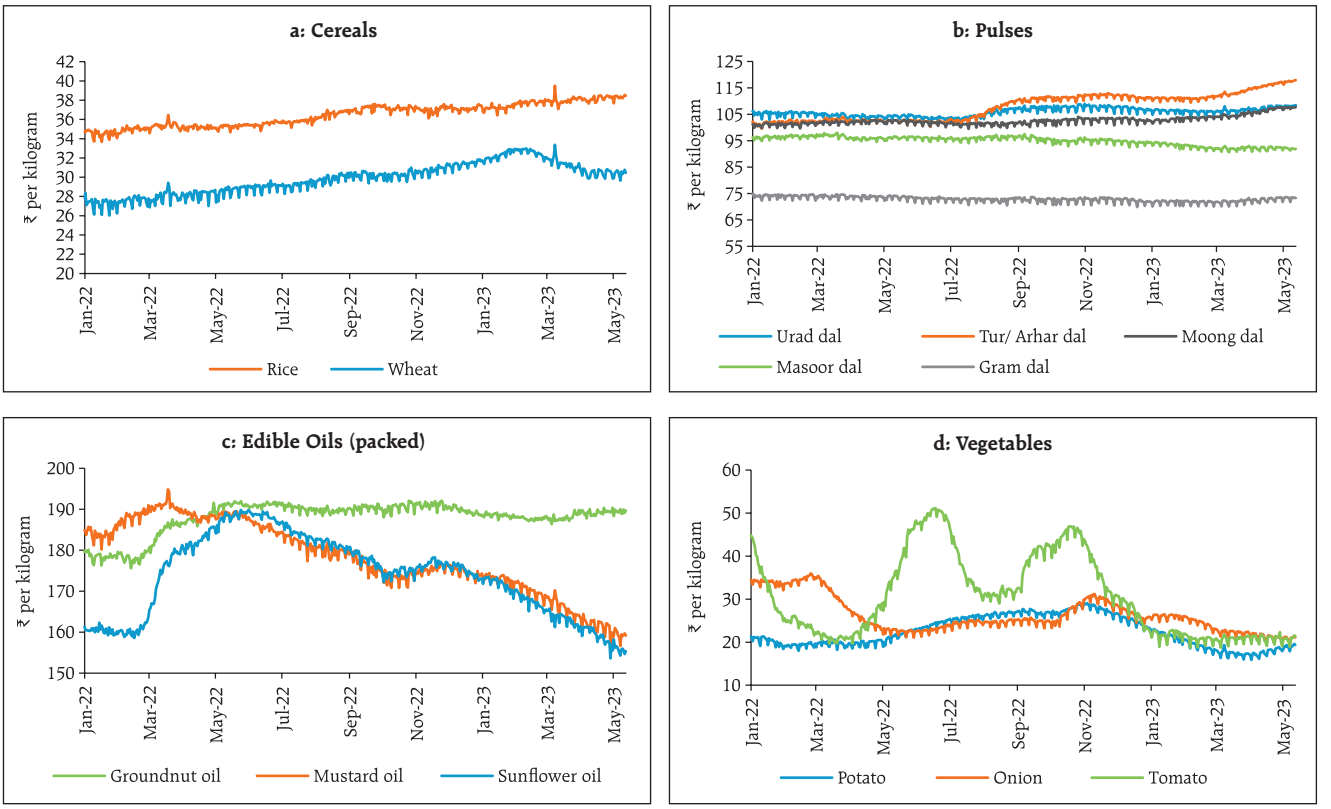
Note: Map is for illustrative purposes only.
Sources: NSO; and RBI staff estimates.

High frequency food price data for May (May 1-12) point to an increase in cereal prices, mainly due to rice (chart 36a). While pulses prices, especially *tur* dal, registered an uptick, edible oil prices declined (Chart 36b and 36c). Among key vegetables, prices of onions and tomatoes registered softening while potato prices increased (Chart 36d).

During May so far, while retail selling prices of petrol and diesel and LPG prices remained steady in the four major metros, kerosene prices continued to decline (Table 2).

Input costs inflation measured by wholesale price index (WPI) for industrial inputs and farm inputs moderated further in April 2023 (Chart 37). The decline in industrial inputs costs primarily reflected moderation in prices of non-food articles, high speed diesel (HSD) and electricity while farm inputs cost

Chart 36: DCA Essential Commodity Prices



Sources: Department of Consumer Affairs (DCA), GoI; and RBI staff estimates.

largely moderated on the back of fall in prices of fertilisers, HSD and electricity.

The PMI for April 2023 indicated a sequential pick-up in input costs across manufacturing and services sectors. Selling prices also edged up, especially, for services (Chart 38a and 38b). The wedge between

Table 2: Petroleum Products Prices

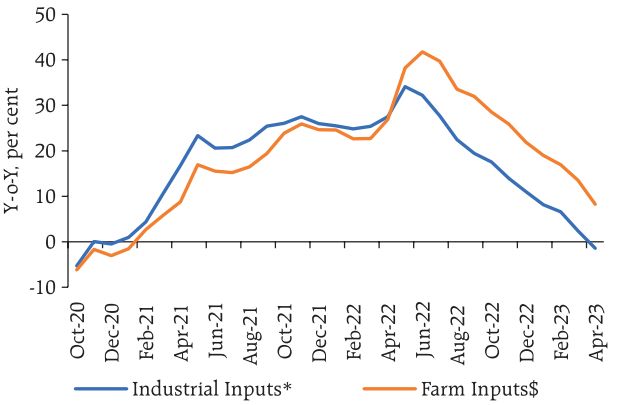
Item	Unit	Domestic Prices			Month-over-month (per cent)	
		May-22	Apr-23	May-23^	Apr-23	May-23^
Petrol	₹/litre	110.14	102.92	102.92	0.0	0.0
Diesel	₹/litre	98.27	92.72	92.72	0.0	0.0
Kerosene (subsidised)	₹/litre	58.81	49.20	47.55	-9.2	-3.3
LPG (non-subsidised)	₹/cylinder	1001.76	1113.25	1113.25	0.0	0.0

^: For the period May 1-12, 2023.

Note: Other than kerosene, prices represent the average Indian Oil Corporation Limited (IOCL) prices in four major metros (Delhi, Kolkata, Mumbai and Chennai). For kerosene, prices denote the average of the subsidised prices in Kolkata, Mumbai and Chennai.

Sources: IOCL; Petroleum Planning and Analysis Cell (PPAC); and RBI staff estimates.

Chart 37: Input Costs

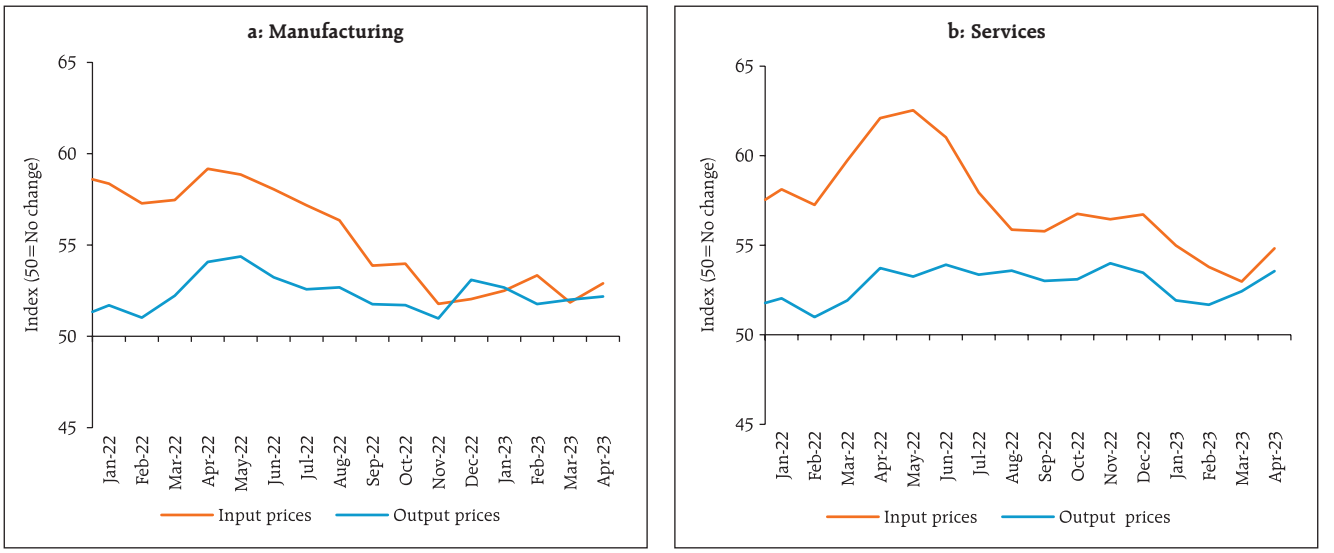


Notes: * Comprising primary non-food articles, minerals, coal, aviation turbine fuel, high speed diesel, naphtha, bitumen, furnace oil, lube oil,petroleum coke, electricity , cotton yarn and paper & pulp from WPI.

$ Comprising high speed diesel, fodder, electricity, fertilizers, pesticides and agricultural & forestry machinery from WPI.

Sources: Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade; and RBI staff estimates.

Chart 38: PMI: Input and Output Prices



Source: S&P Global.

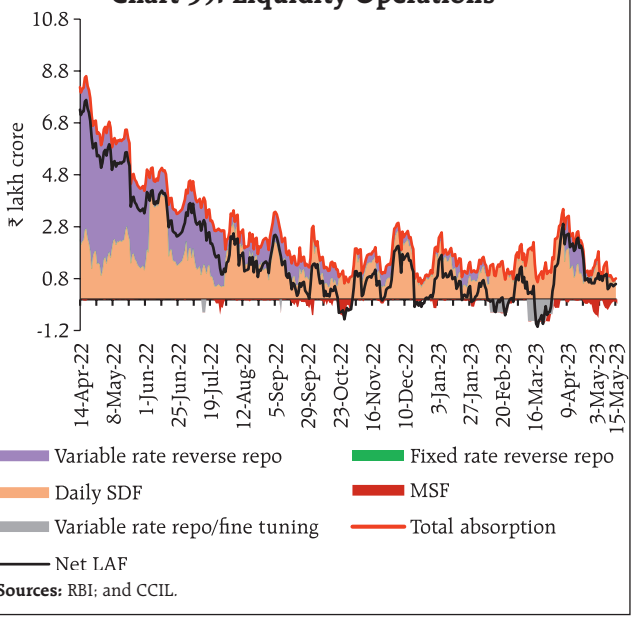
input and output prices rose by 0.7 and 1.3 percentage points, respectively, for manufacturing and services.

IV. Financial Conditions

After easing considerably in the first half of April 2023, liquidity conditions tightened during the second half due to a build-up of government cash balances. Subsequently, barring transient easing on month-end spending by the Government, liquidity conditions mostly remained tight during the first half of May 2023. Accordingly, the average total absorption under the liquidity adjustment facility (LAF) declined to ₹1.3 lakh crore during April 16 to May 15, 2023 from ₹2.0 lakh crore during March 16 to April 15, 2023. Placement of funds under the standing deposit facility (SDF) reduced to ₹0.95 lakh crore from ₹1.6 lakh crore during March 16 to April 15, 2023. Reflecting these developments, there was a muted response from banks to the fortnightly variable rate reverse repo (VRRR) auction conducted on April 21 and May 4 with offers of ₹20,480 crore and ₹8,447 crore, respectively, against the notified amount of ₹50,000 crore. Recourse to the marginal standing facility (MSF) was also higher in the second half of April through May 15 (average of ₹0.22 lakh crore) than during March 16 through April 15, 2023 (₹0.11 lakh crore). Overall, the net absorption under the LAF amounted to ₹0.92 lakh crore during this period, similar to ₹0.93 lakh crore during mid-March through April 15, 2023 (Chart 39).

The weighted average call rate (WACR) gradually firmed up towards the upper bound of the LAF corridor

Chart 39: Liquidity Operations



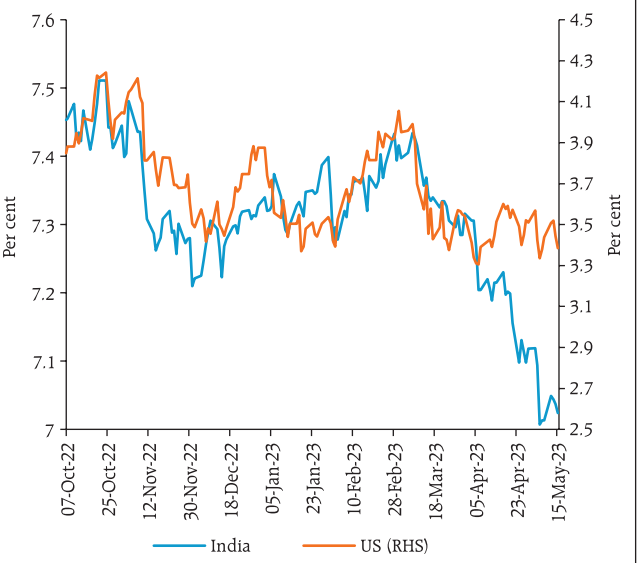
Sources: RBI; and CCIL.

in the second half of April. In sync, other overnight money market rates also hardened. On an average basis, the WACR, the triparty repo and market repo rates traded 17 bps, 19 bps and 18 bps, respectively, above the policy repo rate during April 16 to May 15, 2023 (Chart 40a).

Yields on 3-month treasury bills (T-bill), certificates of deposit (CDs) and commercial paper (CPs) for non-banking financial companies (NBFCs) largely traded above the MSF rate during April 16 to May 3, 2023 (Chart 40b). In the primary market, fund mobilisation through CDs issuances at ₹0.27 lakh crore during 2023-24 (up to May 05) was marginally lower than ₹0.33 lakh crore at this time in the previous year. On the other hand, CP issuances at ₹1.5 lakh crore during 2023-24 (up to May 15) was unchanged as compared with the corresponding period a year ago.

Bond markets extended gains, reflecting strong demand for government securities on expectation of a likely shift of stance after the Monetary Policy Committee's (MPC) largely unanticipated move to pause on the policy repo rate. The decline in the US treasury yields also supported market sentiments (Chart 41).

Chart 41: Movement in the 10-year G-sec Yield

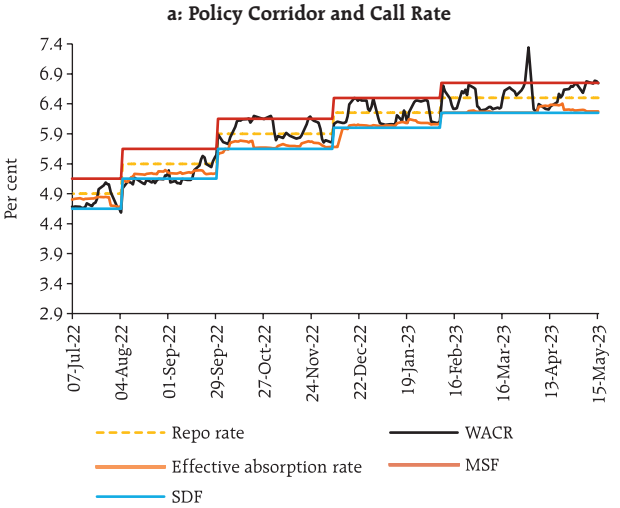


Sources: RBI; Bloomberg; and RBI staff estimates.

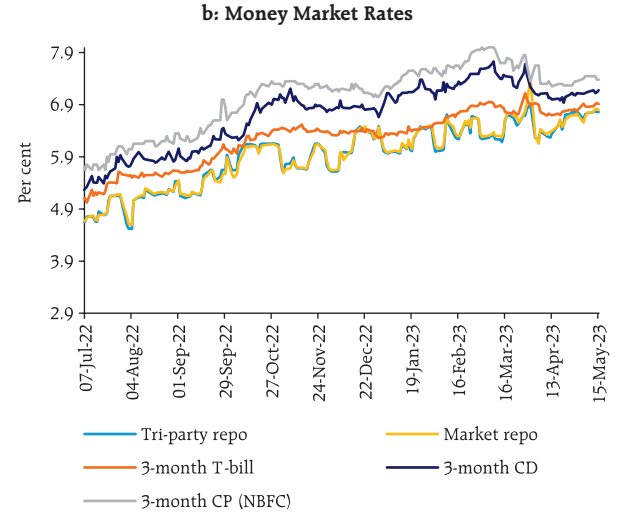
The yield on the 10-year benchmark G-sec (7.26% GS 2033) softened sharply from 7.22 per cent on April 14 to 7.00 per cent on May 3, 2023, its lowest level since September 2022. Subsequently, yields traded in

Chart 40: Policy Corridor and Money Market Rates

a: Policy Corridor and Call Rate



b: Money Market Rates



Sources: RBI; Bloomberg; and RBI staff estimates.

a narrow range with the 10-year G-sec closing at 6.99 per cent on May 15, 2023. The yield differential across various maturities narrowed towards early May 2023 (Box 1).

Box 1: Yield Convergence in the Government Securities Market: Signal or Noise?

On May 12, 2023 yields on government securities (g-secs) ranging from 91-day treasury bills (t-bills) to the benchmark 10-year maturity security converged to a narrow range of 5 basis points[17] (bps) (Chart 1).

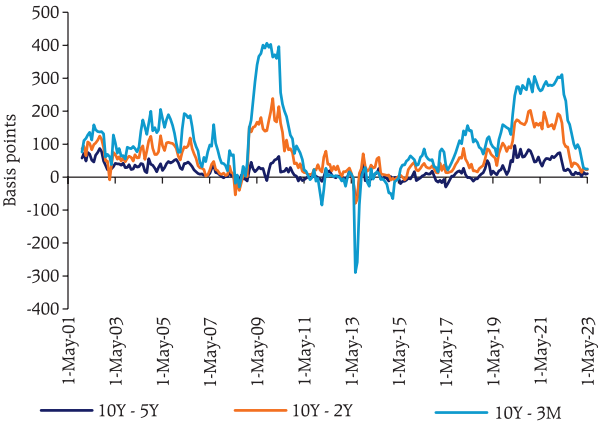
As a result, term spreads in the g-secs market, which had been widening since the second half of 2019 and sharply so during the initial stages of the pandemic before they started to ease from the beginning of 2022, have compressed to multi-year lows. Illustratively, the yield spread between the 91-day t-bill and the 10-year security has shrunk from around 300 bps at end-2021 to around 5 bps; between 2-year and 10-year g-secs from around 200 bps to around 12 bps; and between 5-year and 10-year g-secs from around 65 bps to under 6 bps [Chart 2].

This phenomenon occurs at a multi-year frequency as, for instance, during the euro debt crisis; the taper tantrum; and in the latter half of 2008 amidst the global financial crisis.

Referred to as a 'bear flattening'[18] of the yield curve, this is associated with the transitioning between yield curve regimes that typically occurs in consonance with policy rate cycles (Chart 3).

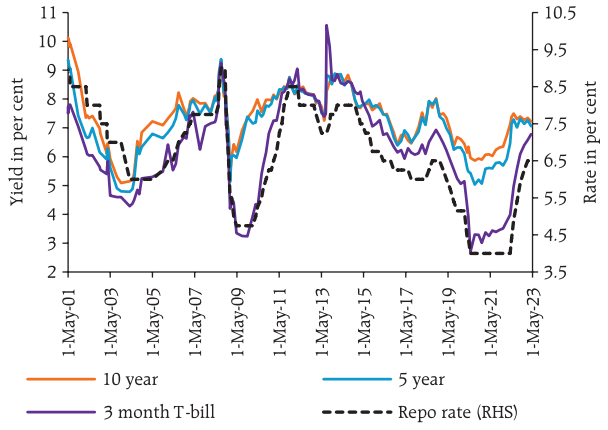
The recent convergence reflects the confluence of policy actions by the Reserve Bank of India (RBI), spillovers from global monetary policy developments, elevated

Chart 2: Spread across Select Maturities



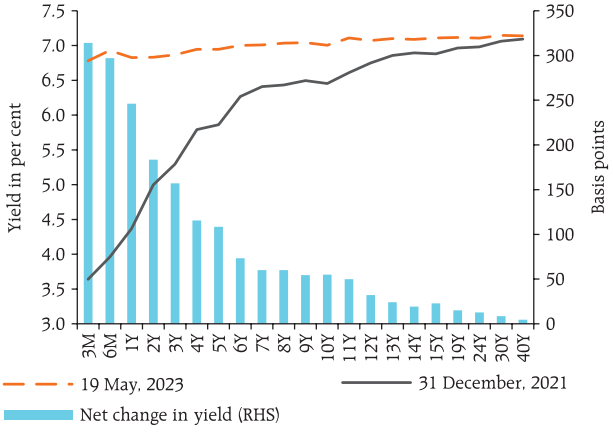
Source: Refinitiv.

Chart 1: G-Sec Yields and Policy Rate



Sources: RBI; and Refinitiv.

Chart 3: Yield Curve Movement



Source: Refinitiv.

(Contd.)

[17] This spread is calculated using the latest available auction cut-off yield as on May 12, 2023 for 91-day t-bill, which was 6.9482 per cent as on May 10, 2023 (https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=55655).

[18] Bear flattening is a phenomenon where short and long term interest rates converge with the short-term rates rising faster than the long term rates leading to a flattening of the yield curve.

crude oil prices and safe haven flights. Domestic drivers include strong demand from long-term investors, mainly insurance companies, pension funds and provident funds. From March 2023, additional drivers of yield convergence are the forceful resolution of banking distress in some jurisdictions, the moderation or pause in monetary policy actions and the return of risk off sentiments. Short-term yields have been pushed up by sporadic tightening of domestic liquidity conditions due to skewed distribution of liquidity among market participants on account of asymmetric deposit mobilisation and differential liquidity and risk management practices followed by banks, increase in currency demand related to *rabi* harvest operations, moderation in government spending and tax outflows.

From a policy perspective, the key issue is: is this an idiosyncratic development, or is it signalling market expectations regarding the macroeconomic and financial outlook? At this stage, only conjectural prognosis can be attempted, given the paucity of data points defining actual outcomes. First, the flattening of the yield curve read in conjunction with survey-based evidence[19] suggests that inflation expectations are getting re-anchored after suffering multiple and overlapping shocks during 2022. Second, it reflects consensus expectations of slower growth in 2023-24 relative to a year ago – the RBI expects real GDP growth to moderate from 7.0 per cent in 2022-23 to 6.5 per cent in 2023-24, with risks evenly balanced around this baseline projection. Third, it may be indicating that financial conditions in debt markets – for which the g-secs yield curve is a benchmark – are neutral and, therefore, not a constraint for businesses looking to raise long-term resources. This sounds like a positive for the prospects of private capex decisions, which can catalyse a 'bull steepening'[20] of the yield curve signalling that inflation is vanquished and India is positioned on a growth trajectory that is consistent with its aspirations.

Taking cues from G-sec yields, corporate bond yields softened during the second half of April 2023 while the average risk premia in the bond market (5-year AAA *minus* 5 year G-sec) was largely unchanged during the same period (Table 3).

Reserve money (RM) excluding the first-round impact of change in the cash reserve ratio (CRR) grew by 7.7 per cent on a y-o-y basis as on May 12, 2023 (9.1 per cent a year ago) [Chart 42]. Currency in circulation (CiC), the largest component of RM, grew by 7.6 per cent (y-o-y), down from 9.6 per cent a year ago, partly reflecting the faster adoption of digital modes of payment.

During 2023-24 so far (up to May 12, 2023), the expansion in RM was driven mainly by net foreign assets (NFA), contributing to around 100.7 per cent

Table 3: Financial Markets - Rates and Spread

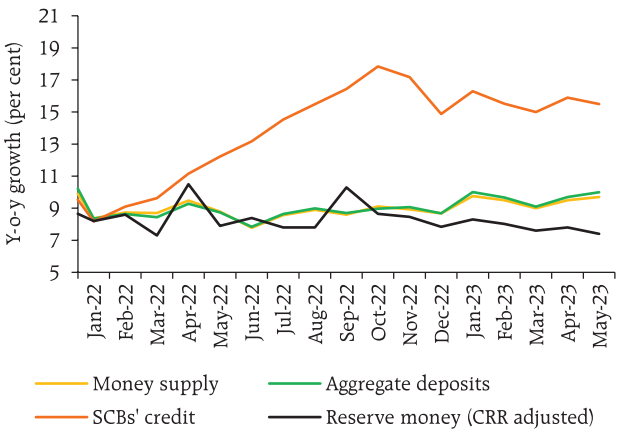
Instrument	Interest Rates (per cent)			Spread (basis points) (Over Corresponding Risk-free Rate)		
	Mar 16, 2023 – Apr 13, 2023	Apr 17, 2023 – May 15, 2023	Variation (in bps)	Mar 16, 2023 – Apr 13, 2023	Apr 17, 2023 – May 15, 2023	Variation (in bps)
1	2	3	(4 = 3-2)	5	6	(7 = 6-5)
Corporate Bonds						
(i) AAA (1-year)	7.97	7.71	-26	68	60	-8
(ii) AAA (3-year)	7.98	7.81	-16	74	73	0
(iii) AAA (5-year)	7.97	7.73	-22	68	61	-7
(iv) AA (3-year)	8.67	8.51	-15	143	143	1
(v) BBB-(3-year)	12.32	12.16	-15	508	508	1

Note: Yields and spreads are computed as monthly averages.

[19] Inflation expectations survey of households (IESH) (https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=21755; and Business Inflation Expectations Survey (BIES) (https://www.iima.ac.in/faculty-research/centers/Misra-Centre-for-Financial-Markets-and-Economy/BIES).

[20] A bull steepening is phenomenon wherein short-term interest rates fall faster than long-term rates, resulting in a higher spread between the two rates and leading to a steepening of the yield curve.

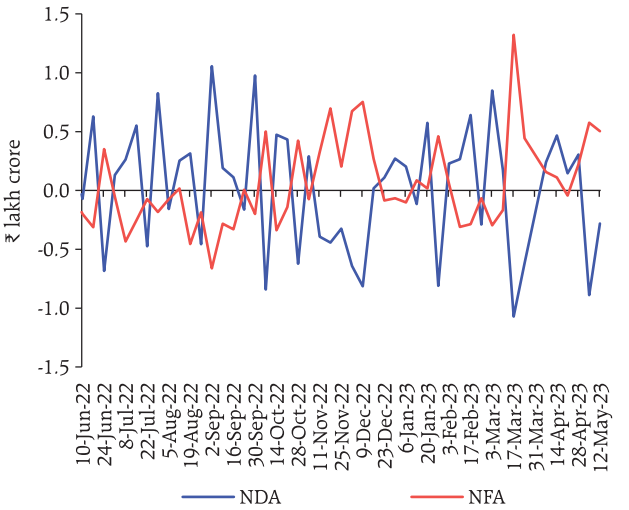
Chart 42: Monetary and Credit Aggregates



Note: 1. Data pertain to last reporting Friday of every month for money supply, aggregate deposits and bank credit; and last Friday of every month for reserve money.
2. Latest data for reserve money pertain to May 12, 2023 and money supply pertain to May 5, 2023.

Source: RBI.

Chart 43: NDA and NFA of the Reserve Bank (Weekly Variation)



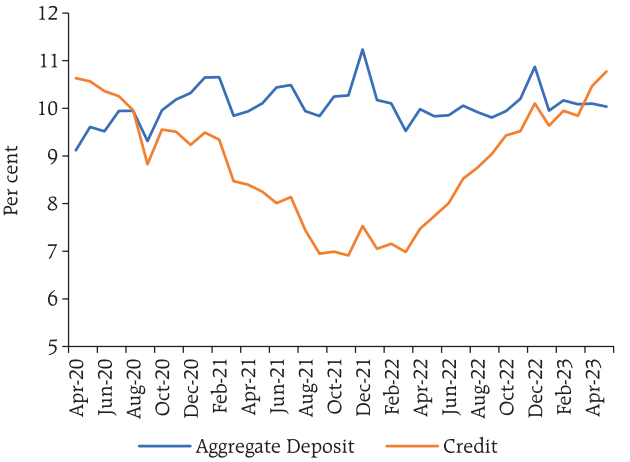
Source: RBI.

which, in turn, tracked variations in the Reserve Bank's operations in foreign exchange markets (Chart 43).

Money supply (M_3) grew at 9.7 per cent as on May 5, 2023 the same as a year ago, primarily driven by its largest component – aggregate deposits with banks. Scheduled commercial banks' (SCBs) credit growth remained strong at 15.5 per cent as on May 5, 2023, *albeit* down from the peak of 17.8 per cent recorded in October 2022 due to an unfavourable base effect and moderation in credit growth to the industrial sector. Furthermore, the 3-year seasonally adjusted annualised growth[21] for SCBs' deposits and credit, which showed diverging trends during the pandemic, moved in sync with each other since October 2022 reflecting growing traction in credit demand conditions in the post-pandemic period (Chart 44). The incremental credit-deposit (C-D) ratio, which had surged to 142.2 per cent in November 2022, moderated to 112.6 as on April 21, 2023.

In response to the repo rate hike of 250 bps since May 2022, banks have revised their repo-linked benchmark rates upwards by the same magnitude. Also, the weighted average domestic term deposit rate (WADTDR) on fresh deposits and outstanding deposits rose by 245 bps and 113 bps, respectively,

Chart 44: SCBs' Aggregate Deposits and Bank Credit - 3-Year Annualised Growth Rate (Seasonally Adjusted)



Note: Data pertain to last fortnight of every month.

Source: RBI.

[21] Based on annualised average over 3 years after removing seasonality.

Table 4: Transmission to Banks' Deposit and Lending Rates

(Variation in basis points)

Period	Repo Rate (bps)	Term Deposit Rates		Lending Rates			
		WADTDR		EBLR	1-Yr. MCLR (Median)	Fresh Rupee Loans	Outstanding Rupee Loans
		Retail Deposits	Retail and Bulk Deposits				
-1	-2	-4	-5	-6	-7	-8	-9
Easing Phase Feb 2019 to Mar 2022	-250	-259	-188	-	-155	-232	-150
Tightening Period May 2022 to Mar 2023	250	245	113	250	140	181	100
May 2022 to Apr 2023	250	-	-	250	145	-	-

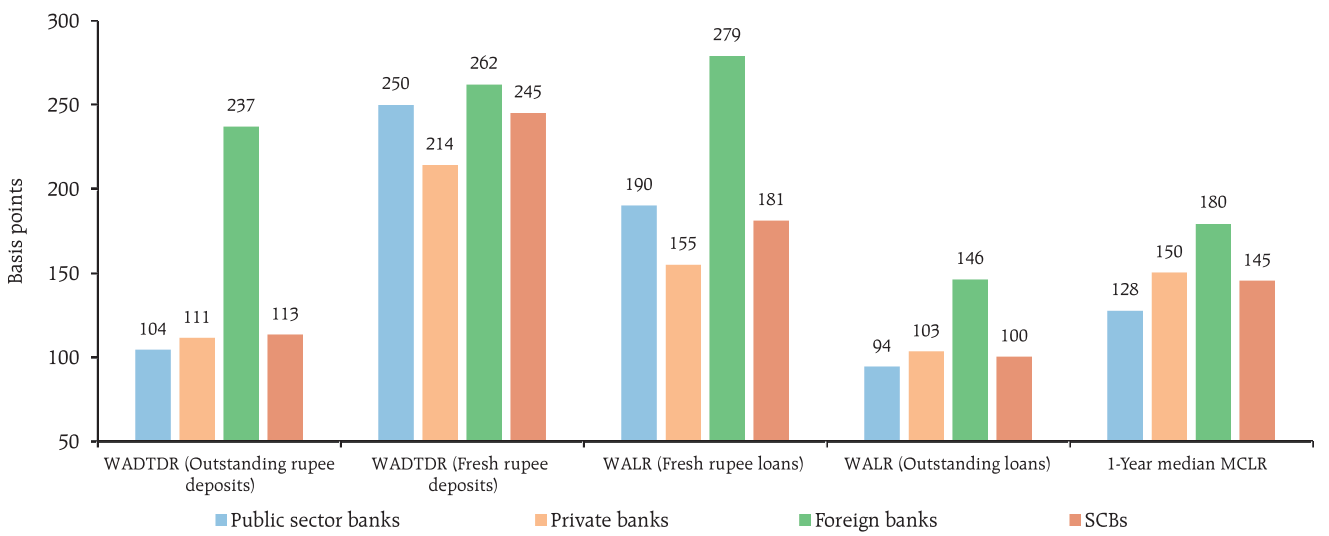
Note: 31 domestic banks have increased their EBLRs by 250 bps as at end-April 2023.
WALR: Weighted Average Lending Rate. WADTDR: Weighted Average Domestic Term Deposit Rate; MCLR: Marginal Cost of Funds-based Lending Rate; EBLR: External Benchmark based Lending Rate.
Source: RBI.

during May 2022 to March 2023 (Table 4). During May 2022 to April 2023, SCBs increased their median 1-year marginal cost of funds-based lending rate (MCLRs) by 145 bps. Consequently, the weighted average lending rate (WALR) on fresh rupee loans and outstanding loans rose by 181 bps and 100 bps, respectively, during May 2022 to March 2023.

During May 2022 to March 2023, transmission across bank groups indicates that the increase in the WADTDR on fresh rupee deposits and WALR on fresh rupee loans were higher in the case of public sector banks, while the WADTDR on outstanding deposits and WALR on outstanding loans were higher for private banks (Chart 45).

Corporate performance during Q4:2022-23 based on the available results[22] indicate that even though aggregate sales growth exhibited moderation, companies have expanded their operating profits as

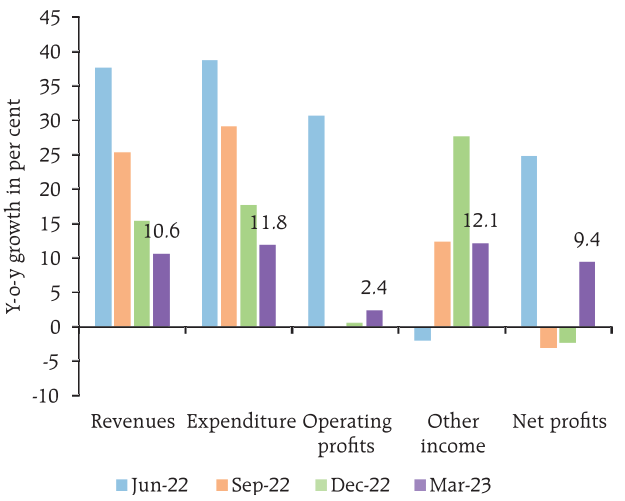
Chart 45: Transmission across Bank-groups (May 2022 to March 2023)



Note: Data on 1-year median MCLR pertain to May 2022 to April 2023 period.
Source: RBI.

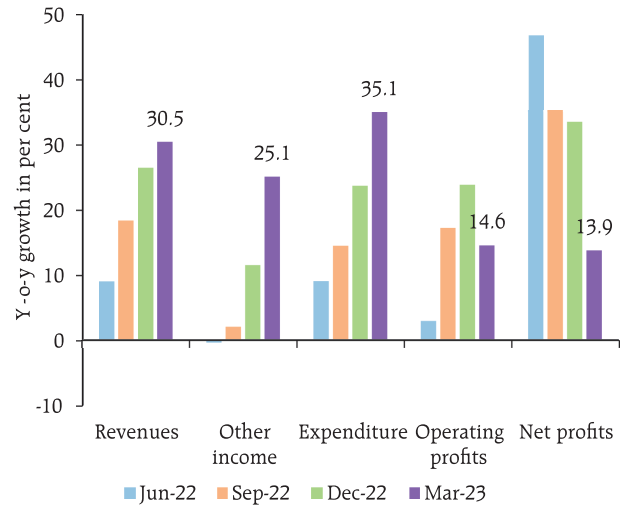
[22] Based on 549 companies, representing around 56 per cent of market capitalisation of all the listed non-financial sector companies.

Chart 46: Performance of Listed Non-Financial Companies



Sources: CMIE Prowess; and RBI staff estimates.

Chart 47: Performance of Listed Financial Companies



Sources: CMIE Prowess; and RBI staff estimates.

the expenditure growth also slowed down (Chart 46). Other income, which measures income from non-core business activities such as treasury management also grew during the quarter. Overall, net profit growth returned to the positive territory after two consecutive quarters of contraction.

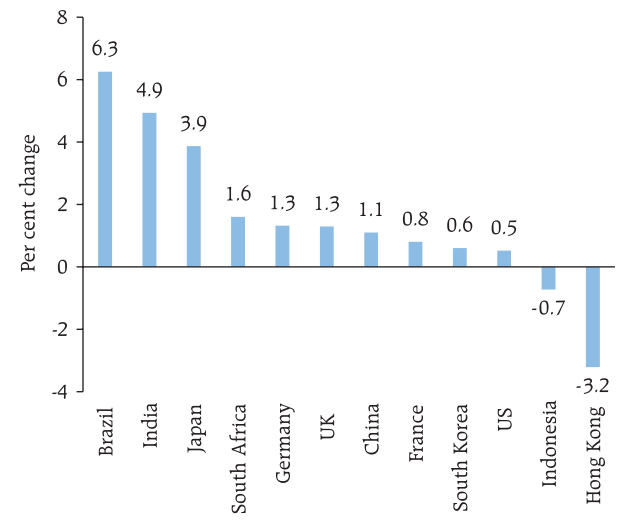
Banking and other financial sector companies registered an acceleration in their revenue growth in Q4:2022-23, but their profitability growth moderated owing to rise in expenditure[23] (Chart 47).[24] Other income which *inter alia* captures gain/loss arising on account of change in valuations of securities, fees and commissions, also registered healthy growth. In addition to rising cost of funds, employee costs also increased sharply, as several companies focussed on their expansion plans. Provisioning related expenditure grew marginally. Net profit growth remained in the positive zone, although it moderated from the preceding quarters.

[23] Including the one-time acquisition related costs incurred by a private sector bank.

[24] Based on 169 companies, representing around 62 per cent of market capitalisation of all the listed financial sector companies.

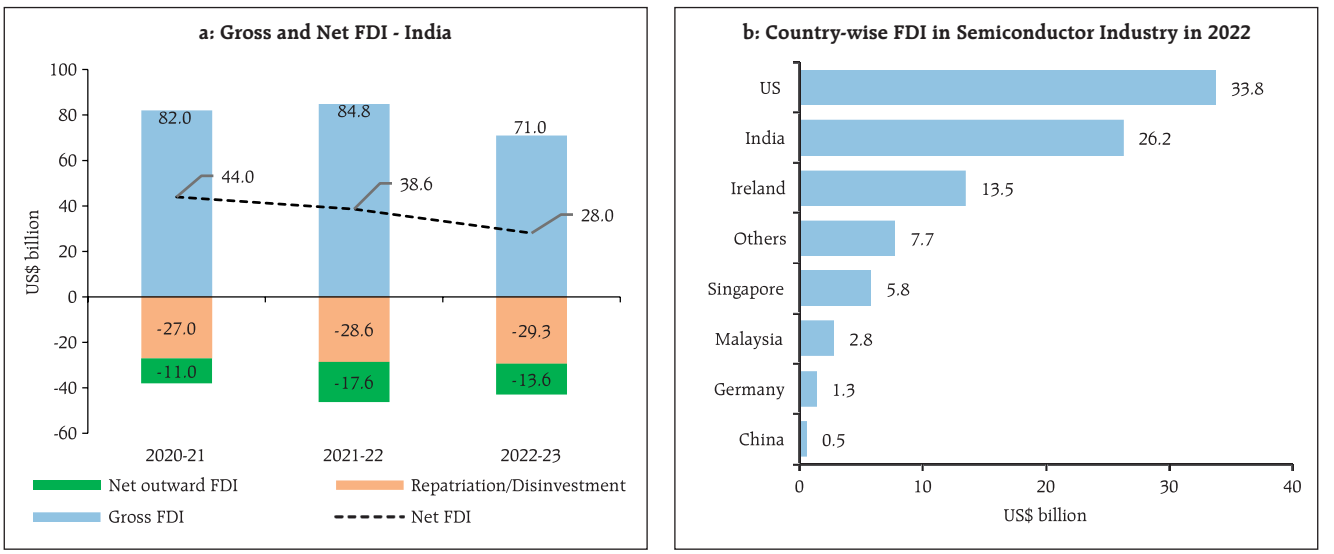
Domestic equity markets remained buoyant in April and early May following the release of better-than-expected corporate earnings results for Q4:2022-23 (Chart 48). Strong domestic manufacturing purchasing managers' indices (PMI) and goods and services tax (GST) collections data

Chart 48: Performance of Global Equity Markets during April-May 11, 2023



Source: Bloomberg.

Chart 49: Foreign Direct Investment Flows to India



Sources: RBI; and fDi intelligence.

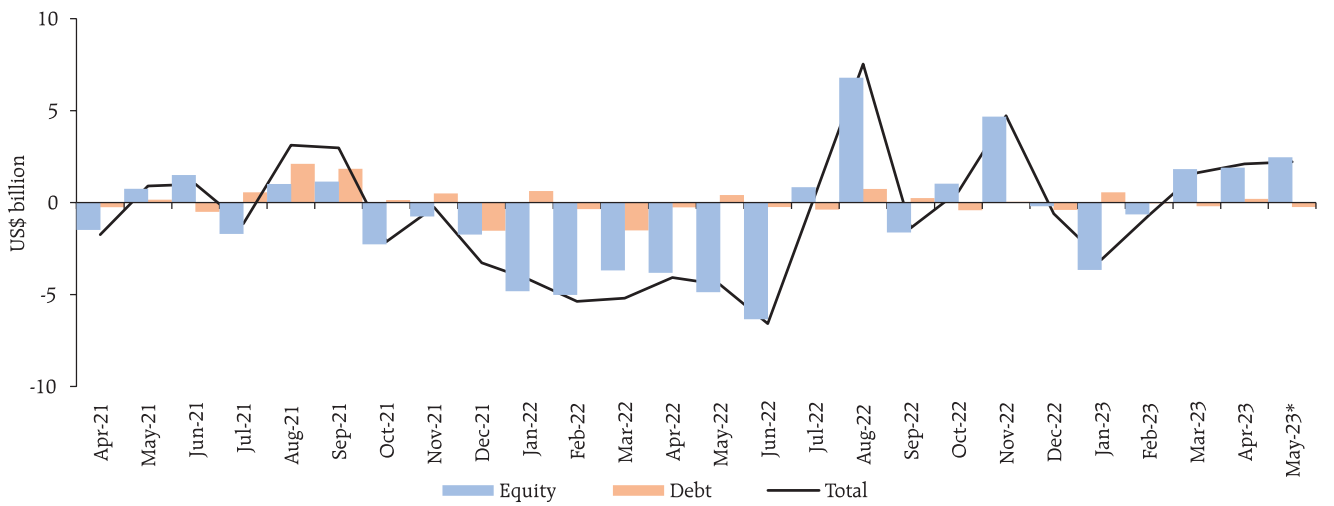
for the month of April 2023 reaffirmed positive sentiment. Furthermore, the US Fed's hint of a potential pause in the rate hike cycle and moderation in US CPI inflation resulted in increased risk appetite. Overall, the BSE Sensex increased by 4.6 per cent during 2023-24 so far to close at 61,730 on May 19, 2023, outperforming most of the global peers.

Gross inward foreign direct investment (FDI) flows stood at US$ 71.0 billion in 2022-23, registering a decline of 16.3 per cent on a y-o-y basis (Chart 49a). Net FDI declined to US$ 28.0 billion in 2022-23 as compared with US$ 38.6 billion a year ago, mainly due to moderation in gross FDI inflows and an increase in repatriation. Manufacturing, computer services and communication services recorded the highest decline in FDI inflows compared with the preceding year. The major contributors towards the fall in inflows during the same period were the US, Switzerland, and Mauritius. As reported by fDi Intelligence, India was the second largest recipient of FDI (US$ 26.2 billion) in the semiconductor industry for the year 2022, second only to the US (US$ 33.8 billion) [Chart 49b]. Massive investments in capital-intensive chip FDI projects are underway, in line with the Government of India's efforts to develop the industry.

Foreign portfolio investors (FPIs) turned net purchasers in domestic financial markets in April (Chart 50), primarily in the equity segment (US$ 1.9 billion), which was supplemented by an inflow in the debt segment (US$ 0.2 billion). Financial services, capital goods, and oil, gas and consumable fuels saw the highest net portfolio investment during April 16-30, 2023. In May (up to 15th), net purchases of FPIs were to the tune of US$ 2.2 billion.

External commercial borrowing (ECB) registrations that had picked up gradually during the first three quarters of 2022-23, moderated in Q4. Amidst rising global interest rates and greater uptick in domestic credit growth, ECB registrations fell by one-third to US$ 26.6 billion during 2022-23. ECB inflows at US$ 23.8 billion during 2022-23 were marginally higher than outflows, recording a modest net inflow (Chart 51).

Chart 50: Net Portfolio Investments

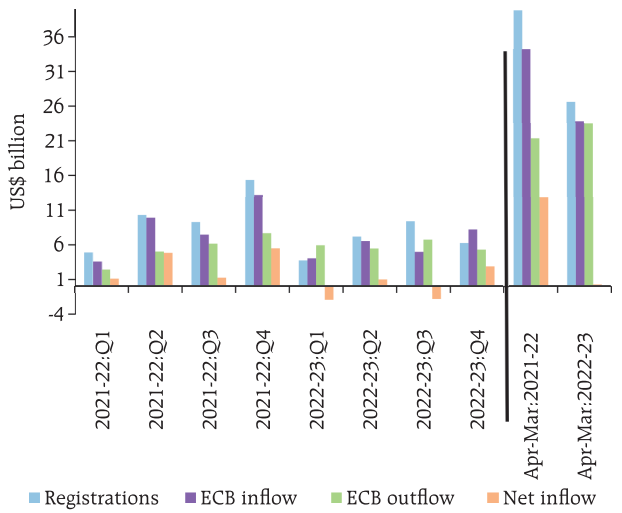


Note: 1. *: Data for May 2023 is up to May 15, 2023.
2. Debt includes investments under the voluntary retention route (VRR) and hybrid instruments.
Source: National Securities Depository Limited (NSDL).

Other than an increase in on-lending/sub-lending that displaced refinancing, ECBs raised during 2022-23 were clearly intended for financing modernisation, new and infra projects, import of capital goods and for local sourcing of capital goods (Chart 52).

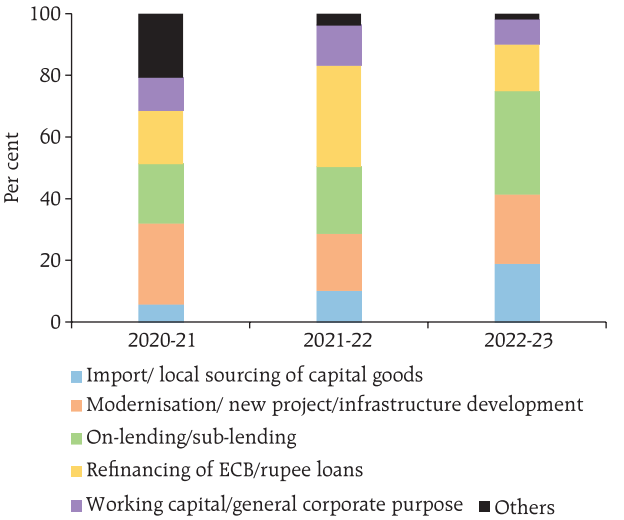
With tightening global financial conditions and concomitant rise in international reference benchmark rates, the overall cost of ECB loans went up steeply by 516 bps between March 2022 and March 2023. Notwithstanding the temporary policy increase in all-in-cost limits between July 6 and

Chart 51: ECB - Registrations, Inflow and Outflow



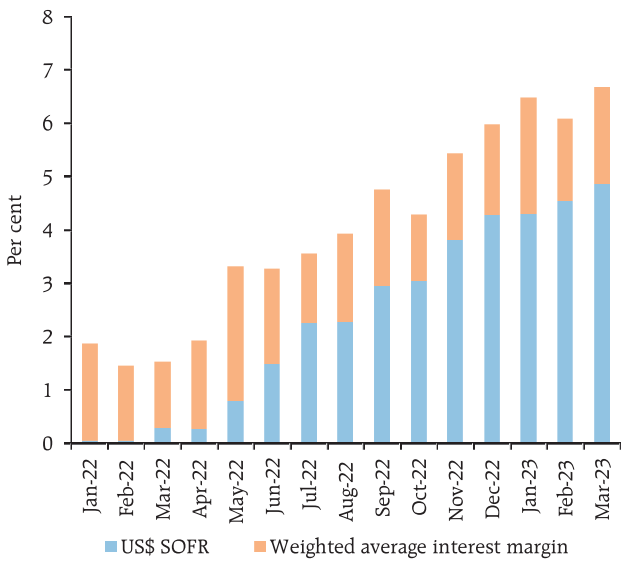
Source: RBI.

Chart 52: End-use of the Registered ECBs (April-March)



Source: RBI.

Chart 53: Overall Cost of ECBs



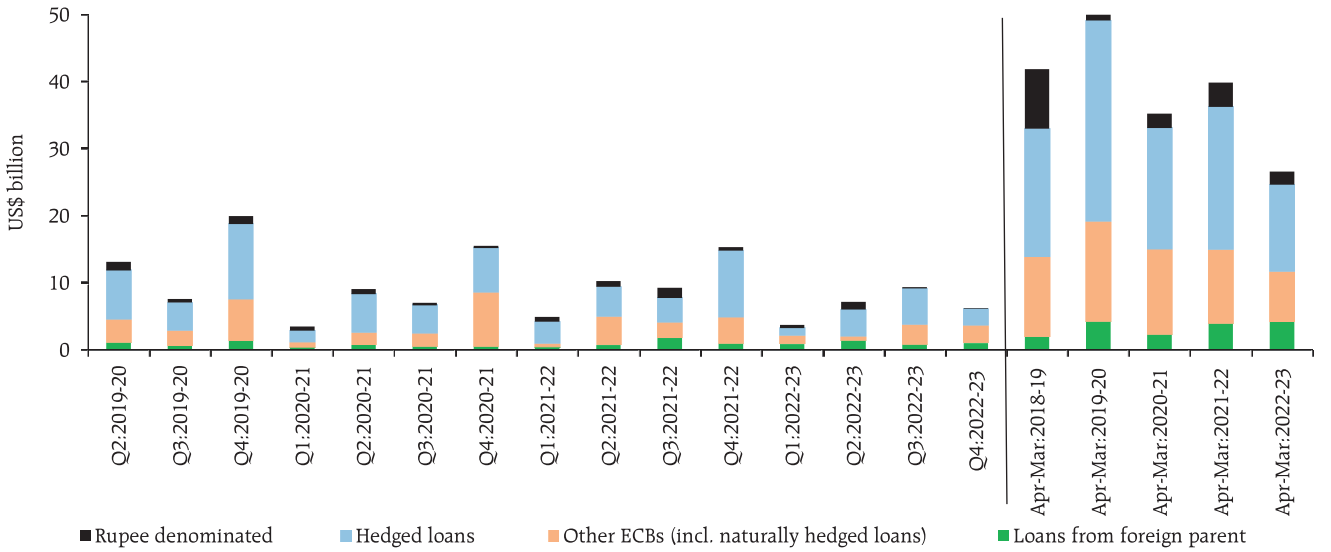
Source: RBI.

December 31, 2022, the weighted average interest margin (WAIM) remained range bound (Chart 53). Around 72 per cent of ECB agreement amounts were explicitly hedged or were rupee denominated loans and loans from foreign parents (Chart 54).

Net accretions to non-resident deposits increased to US$ 8.0 billion in 2022-23 from US$ 3.2 billion a year ago, led by net inflows to Non-Resident Ordinary (NRO), Foreign Currency Non-Resident [FCNR(B)] accounts and Non-Resident (External) Rupee Accounts [NR(E)A].

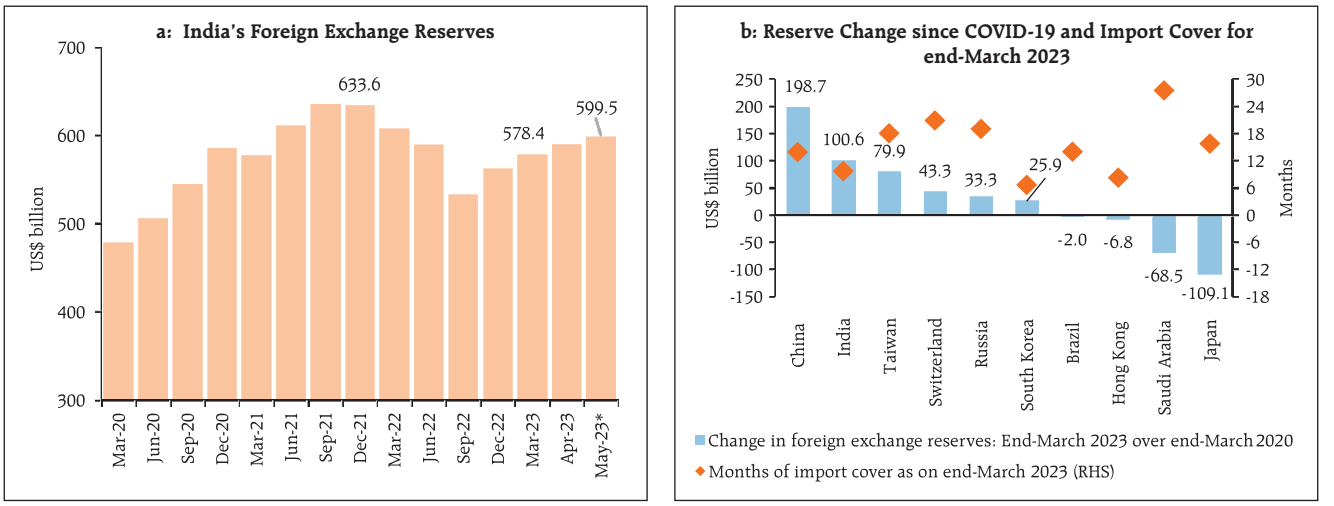
Foreign exchange reserves increased by US$ 75.0 billion since October 21, 2022 and stood at US$ 599.5 billion on May 12, 2023, sufficient to cover 10.0 months of projected imports for 2022-23 and 97.8 per cent of total external debt (chart 55a). Since the onset of COVID-19, India's foreign exchange reserves have increased by US$ 100.6 billion (end March 2023 over end-March 2020). This is the second highest increase among the top ten countries ranked by foreign exchange reserve holdings (Chart 55b).

Chart 54: ECB Agreements - Hedging Position



Source: RBI.

Chart 55: Foreign Exchange Reserves



Note: 1. Data for months of import cover for Russia is end-January 2023 and Saudi Arabia is for end-December 2022.
2. *: Data for May 2023 is as on May 12, 2023.
Sources: RBI; CEIC; and respective central bank websites.

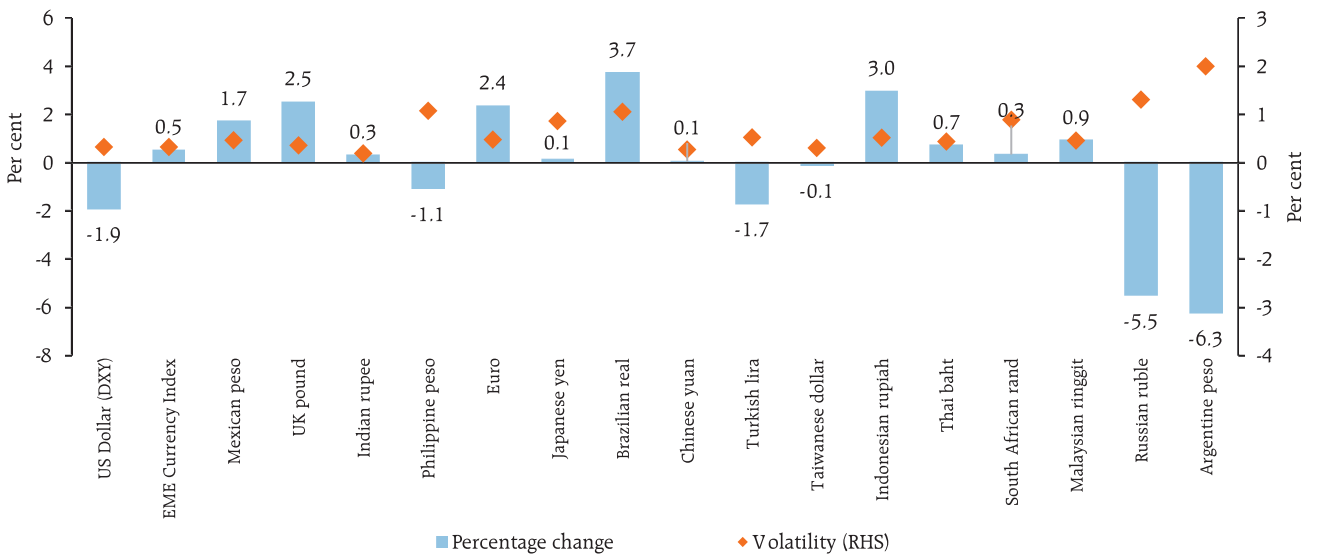
The Indian rupee (INR) appreciated by 0.3 per cent (m-o-m) *vis-à-vis* the US dollar in April 2023 and remained one of the least volatile among major currencies (Chart 56).

The INR depreciated by 1.8 per cent (m-o-m) in terms of the 40-currency real effective exchange rate (REER) in April 2023 (Chart 57).

Payment Systems

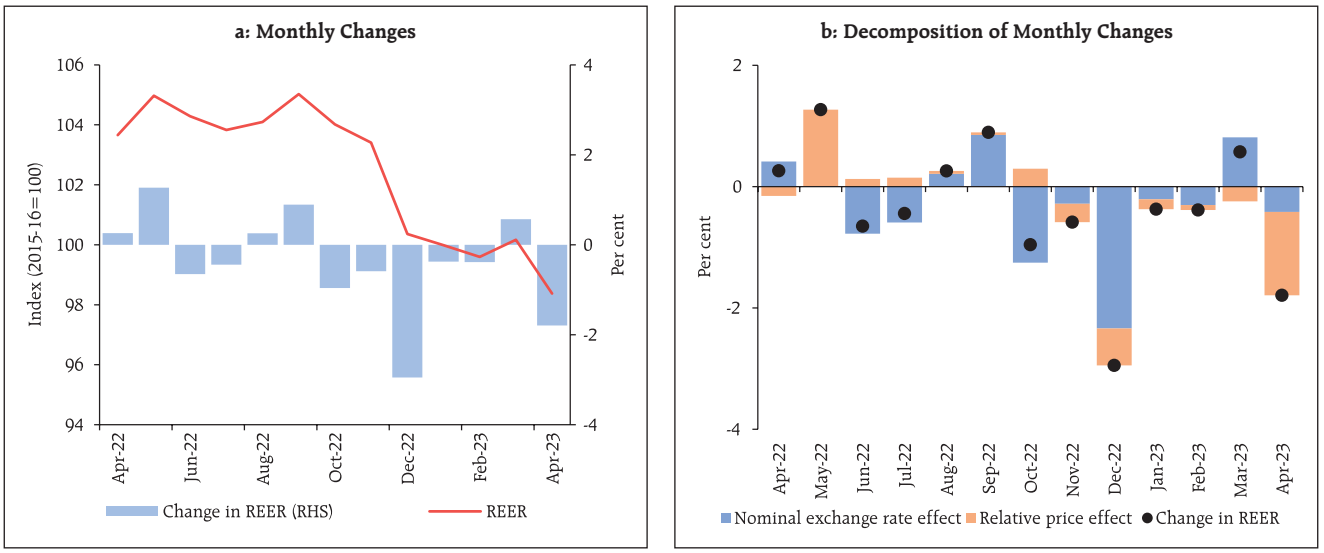
Following the robust expansion in March 2023 due to the annual closing of accounts, digital payments have maintained steady growth across various modes in April (Table 4). The Unified Payments Interface (UPI) has emerged as the second most favoured method for the repayment of digital loans, closely trailing the

Chart 56: Movements of Indian Rupee and Major Currencies against the US Dollar (April 2023, m-o-m)



Sources: FBIL; Thomson Reuters; and RBI staff estimates.

Chart 57: Movements in the 40-Currency Real Effective Exchange Rate



Sources: RBI.

National Automated Clearing House (NACH).[25] Allowing the use of the UPI platform for facilitating payments financed by bank credit is further expected to bolster digital uptake, while simultaneously paving the way for more innovative and inclusive credit disbursals.[26] Additionally, credit card spending recorded a sharp rise, reaching an all-time high of ₹1.37 lakh crore in March 2023 and indicating an overall growth of 47 per cent (y-o-y) in 2022-23. Provisional data show credit cards maintaining a high growth (y-o-y) profile in April (32 per cent). The adoption of e-commerce and point-of-sale transactions have been driving forces in this surge in spending.

India crossed the milestone of US$ 100 billion worth of inward remittances in 2022. The digitalisation of cross-border payment rails can harness this growth momentum by enhancing the ease and cost-effectiveness of these flows. The ongoing efforts to boost the interoperability of the UPI with other fast

Table 4: Growth in Select Payment Systems

(y-o-y in per cent)

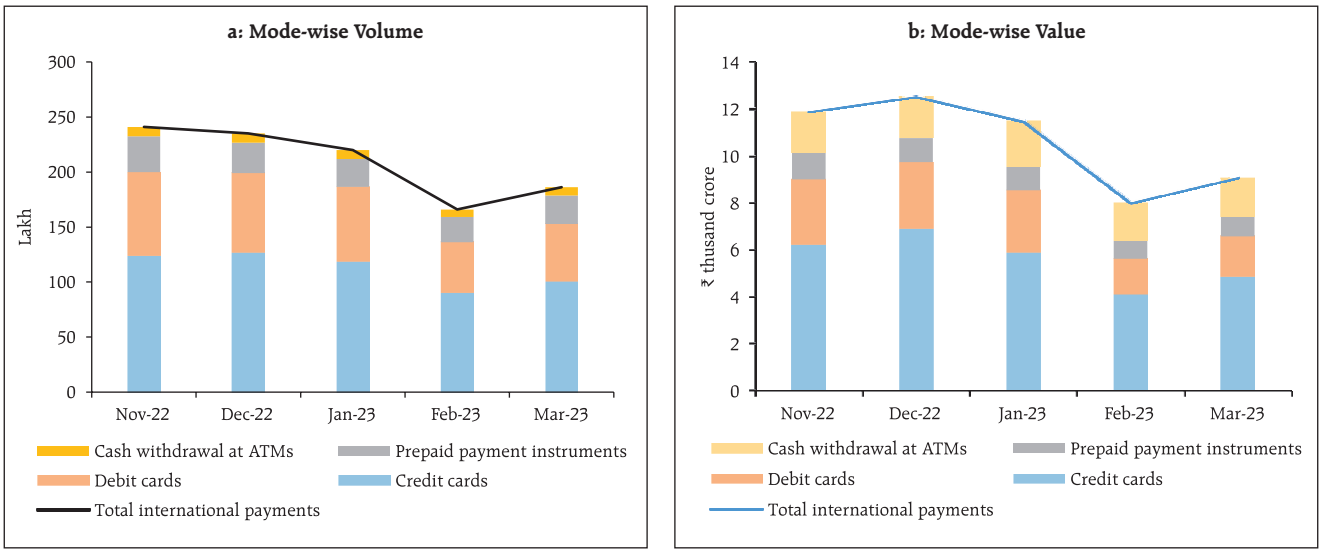
Payment System Indicators	Transaction Volume				Transaction Value			
	Mar-22	Mar-23	Apr-22	Apr-23	Mar-22	Mar-23	Apr-22	Apr-23
RTGS	13.7	7.8	28.9	3.2	11.4	11.5	26.1	7.0
NEFT	23.9	26.8	30.6	29.1	14.6	7.4	22.1	10.5
UPI	97.9	60.0	111.4	58.7	90.3	46.3	99.2	43.9
IMPS	35.5	1.0	46.0	5.1	41.3	18.2	48.4	17.2
NACH	7.5	29.8	19.0	-3.7	-6.3	35.1	14.3	18.4
NETC	39.9	13.3	61.5	14.9	32.7	23.7	51.9	22.1
BBPS	102.4	56.5	110.9	33.5	120.7	61.6	117.7	51.2

Source: RBI.

[25] https://www.thehindubusinessline.com/money-and-banking/upi-payments-second-most-preferred-by-millennials-for-digital-loans-cashe/article66710999.ece

[26] https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=55473

Chart 58: International Transactions through Indian Payment Modes



Sources: RBI.

payment systems[27] and partner with global digital payment facilitators to expand acceptance of the UPI and RuPay cards worldwide[28] will add to the array of policy measures aimed at taking the local payment modes global. Emblematic of these initiatives, international transactions through domestic payment channels have shown a sequential uptick in March 2023. Card payments (through debit and credit cards) comprise a significant share in these payments in both volume and value terms, followed by prepaid payment instruments (Chart 58).

Over 50 per cent of Indians (*i.e.*, 759 million) are currently active internet users, exhibiting the growing integration with technology. It is projected that the internet user base will expand to 900 million by 2025, buoyed by the deepening of internet services in rural India.[29] In the FinTech sector, funding shows early signs of a turnaround with investments worth US$ 1.2 billion recorded in January-March 2023, a sharp growth of 126 per cent over the previous quarter's level of US$ 523 million. Funds raised, however, stood 55 per cent lower than the US$ 2.6 billion recorded in the same quarter of the previous year.[30] Terming this deceleration as a "short-term correction in an otherwise long-term positive trajectory", India is seen as among the largest FinTech markets globally by 2030, driven by financial inclusion prospects and demographic advantage.[31]

Conclusion

Against this backdrop, what does the immediate future in terms of the first quarter of 2023-24 look like? The RBI's projections released in April 2023[32] indicate that real GDP may grow by 7.8 per cent year-on-year (y-o-y), which works out to 13.7 per cent above its pre-pandemic level (the corresponding quarter of 2019-20). This projection embeds a negative momentum [(-) 1.7 per cent] on a seasonally adjusted quarter-on-

[27] https://www.livemint.com/news/india/india-russia-explore-possibility-of-accepting-rupay-mir-cards-11682855523924.html

[28] NPCI Circular. April 27, 2023.

[29] IAMAI and KANTAR. May 2023. *759 Mn Indians Active Internet Users, to Reach 900 Mn by 2025*

[30] https://www.thehindubusinessline.com/info-tech/indian-fintech-start-ups-raise-12-billion-in-q1-2023-tracxn/article66733593.ece

[31] BCG and QED Investors. May 2023. *Global Fintech 2023: Reimagining the Future of Finance.*

[32] Bi-monthly Monetary Policy Statement, 2023-2024: April 06, 2023.

quarter (q-o-q) basis. This is typical of first quarter outturns, but the good news is that the magnitude of negative momentum is less than what it was in the first quarters of the preceding two years.[33] Thus, a gradual normalisation of the hit from the pandemic and the war is setting in.

GDP growth in the first quarter of 2023-24 is expected to be driven by private consumption, supported by revival in rural demand that is underway on the back of the encouraging developments in both the *kharif* marketing season of 2022-23 and the *rabi* marketing season of 2023-24, the sustained buoyancy in services, especially contact-intensive sectors, and moderating inflationary pressures. Investment activity is also expected to improve, drawing strength from the thrust on capital expenditure in public spending and moderation in commodity prices.

Moreover, with capacity utilisation in manufacturing straining at trend levels and above it in some industries, private capital spending will need to get stronger to add additional capacity as demand picks up. The manufacturing sector as a whole is expected to gain from softening input cost pressures. If services exports maintain their recent high profile, the drag from net external demand should moderate through April-June 2023. Domestic service sector activity will continue to be led by the rebound in contact-intensive services and the resilience in construction activity.

To close this edition of the *State of the Economy* on a positive note, the April 2023 monetary policy documents have projected inflation to fall to 5.1 per cent in Q1: 2023-24 from 6.2 per cent in the just preceding quarter. Although the q-o-q change, or momentum, is expected to be higher than in the past quarter - primarily due to the seasonal uptick in food prices - large favourable base effects due to high inflation a year ago following the Ukraine war are expected to counterbalance it and yield the projected moderation in headline inflation.

The CPI inflation print for April 2023 indicates that momentum is turning out to be softer than anticipated on account of a fall in wheat prices, the fifth consecutive monthly decline in prices of oils and fats and the third consecutive monthly decline in the prices of eggs. The prices of vegetables and fruits are also weathering the summer heat better and their momentum is lower than their historical record for this time of the year. Kerosene prices are on the decline and importantly, core inflation – CPI excluding food and fuel – is treading on softer momentum (seasonally adjusted) relative to the persistent elevation over the past 10 months. Rice prices could see a significant correction if sales from buffer stocks, which are three times larger than the norm, are undertaken. The pass-through of wholesale price movements – in deflation in April – could also contribute to the softening of retail inflation going forward.

Summing up, policy frameworks have to be forward-looking, given the lags in the transmission of policy impulses to the rest of the economy. Forecasts play a central role in these frameworks. They provide a glimpse of the future, based on everything we know today and our best judgement, and perform the role of intermediate variables – they capture a reflection of the goal variables. More often than not these reflections can be hazy, obscured by uncertainties and unknowns and when that happens, it becomes standard operating procedure to denigrate the forecasts. Illustratively, the economist Ezra Solomon once remarked that "the only function of economic forecasting is to make astrology look respectable."[34] Economic forecasting is an inexact science, but its criticism has to be tempered by an understanding of what forecasts actually represent. They are conditioned on the best smell test of all available information at a particular point in time.

[33] (-) 4.1 per cent in Q1:2022-23 and (-) 11.9 per cent in Q1:2021-22.

[34] Reader's Digest, 1975.

As new information arrives, judgment has to be recalibrated. As John Maynard Keynes is credited to have remarked: "when the facts change, I change my mind. What do you do, Sir?".[35] Since 2020, economists have had to take positions on epidemiology, military scenarios, supply chains, logistics and international politics in order to make their forecasts. Yet one thing is certain – scarred and scathed by the pandemic and the war, the Indian economy is slowly but surely recovering. Yet there is no room for complacency. An environment of low and stable prices is necessary for strengthening the foundations and resilience of this recovery. Eternal vigil with a readiness to act is its price. On this, a final 'refrain' in the poetic sense of the word[36] – we can do no better than quote the words of Governor, Shri Shaktikanta Das[37]: "We remain firm and resolute in our pursuit of price stability which is the best guarantee for sustainable growth".

[35] Why intellectual humility matters? *Financial Times*, September 1, 2022.

[36] A refrain is a short stanza of a poem (or song) that is repeated at the end of each longer part – Cambridge Dictionary.

[37] Governor's Monetary Policy Statement, April 6, 2023. https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=55471

Exploring India's Export Potential through the Lens of Export Similarity Indices

by Deba Prasad Rath, Abhilasha, Monika Sethi and Rashika Arora ^

This article examines the export potential of India with respect to key geographies covering significant export destinations, Free Trade Agreement (FTA) partners and hitherto under-tapped export markets, deploying the export similarity index (ESI). The evolution of ESI shows that India's export structure is increasingly aligning itself with the average world demand. Moreover, India's merchandise and services exports have recovered from the disruption caused by the COVID-19 pandemic and the ESI can be an effective tool to engage better with trade partners and direct focus on the commodities and services that hasten the path to reach US$ 2 trillion worth of exports by 2030.

Introduction

In 2022, India leapfrogged to the rank of the fifth largest economy in the world, the same year that India's exports surged to a record level, which has been bettered in the subsequent year. The four countries ahead of India in terms of economic size are also the largest exporters in the world. Recognising that trade is an essential engine of growth to transition to the developed country status, the Government has set the aim of reaching US$ 1 trillion worth of exports each of goods and services by 2030.

While India's exports stayed buoyant up to H1:2022, the rapid pace of monetary tightening has led to waning of external demand which is posing headwinds to growth in trade. One of the methods chosen by India to expand its export demand is through actualising free trade agreements (FTAs) with key economic partners. It is expected that synergies through FTAs would be the bedrock for rapid acceleration of trade, growth and welfare. For example, the Joint Statement of the 18th India-Australia Joint Ministerial Commission[1] noted the complementary nature of the two economies offers scope for enhancing, *inter alia*, trade between the two countries. Another method has been diversifying India's export destinations. As the current economic slowdown is more pronounced in the advanced economies (AEs), which are India's major export markets, Africa can be a "new continent of opportunities"[2]. India's exports to Africa stood at US$ 46.4 billion[3] during April 2022-February 2023, 15.4 per cent higher than the total exports to the region in 2021-22. The recently launched African Continental Free Trade Agreement (AfCFTA) – the world's largest free trade area comprising 55 countries – offers huge export potential for India.

In this context, this article is to our knowledge the first which examines the changing pattern of India's exports and competitiveness in relation to the world and select geographies in the 21st century, by computing the export similarity index (ESI). The index, computed for two countries or groups of countries, gives an assessment of whether the export structure of the two are competitive, *i.e.*, whether there is scope for specialisation when the export structures converge and thus reap the benefits of similar-similar trade (Krugman, 2008). Low similarity,

^ The authors are from the Department of Economic and Policy Research. The views are personal views of the author(s) and do not represent the views of the Reserve Bank of India. The authors are thankful to Dr. Harendra Behera for his valuable suggestions.

1 https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1906076 (March, 2023).

2 https://economictimes.indiatimes.com/small-biz/trade/exports/insights/this-time-for-africa-for-indian-exporters-a-new-continent-of-opportunities-as-demand-wanes-in-europe-us/articleshow/94316341.cms?from=mdr

3 Sourced from Ministry of Commerce and Industry where Africa includes the regions namely Southern African Customs Union, other South African countries, West Africa, Central Africa and North Africa.

on the other hand, portends complementarity or the comparative advantage scope for trade creation.

After two consecutive years of slowdown induced by the COVID-19 pandemic, the strong resurgence in exports was a dominant contributor to GDP growth in 2021-22. Our analysis suggests that India has already bridged both the merchandise and services trade gaps that emerged due to the pandemic. The pandemic also heaved a major change in the structure of trade, as noted in an OECD Trade Policy Paper (Arriola *et al.*, 2023). This study finds that the change in India's export structure brought on by the pandemic, endures even after two years. Over the past two decades, however, India's economic structure is aligning with the world, reflective of the specialisation that is taking hold in the economy.

The rest of the article is organised as follows. Review of the literature discussing the ESI, its significance and related concepts is covered briefly in Section II. Section III describes the data and the methodology that is followed to compute ESI in the article. The examination of the Indian ESI and its evolution, the ESI in relation to the pandemic and the ESI with respect to India's key FTA partners and with respect to major competitors in the African market is taken up in Section IV. The strengths and policy implications for India's exports in the face of slowing world demand are enunciated in the concluding Section V.

II. Literature Review

Finger and Kreinin (1979) [FK] introduced an index of export similarity to understand the relationship between similarity of exports by countries and the trade creating/diverting effect of preferential trade agreements between them. Such an index could also be utilised to assess the convergence/divergence in the economic structure of countries. Several studies in the literature have made use of the FK similarity index to analyse the evolution of export structures of countries *vis-à-vis* that of other countries (Schott, 2008; Erlat and Ekmen, 2009; Chow, 2012; Wang and Liu, 2015; Nguyen *et al.*, 2017). Some studies have explored dissimilarity (as opposed to similarity) of exports among countries to draw analogous conclusions (Amable, 2000; Parteka and Tamberi, 2013; Bernatonytė, 2015)[4]. A detailed summary of the literature is presented in the Annex I.

The present study uses FK's ESI to assess the evolution of India's export pattern, the scope for specialisation, particularly with reference to a few key FTAs and possible new markets, and the impact of COVID-19 on the export structure.

III. Data Sources and Methodology

The Export Similarity Index (ESI) as proposed[5] by Finger and Kreinin (1979), and used in this article, is calculated as:

$$S(ab,c) = \sum_i Minimum[X_i(ac), X_i(bc)]$$

where, the index $S(ab,c)$ measures the similarity of the export patterns of countries/country groups a and b to country/country group c. $X_i(ac)$ is the share of commodity 'i' in a's exports to c and $X_i(bc)$ is the share of commodity 'i' in b's exports to c. If the composition or structure of exports of a to c and b to c are identical, *i.e.*, $X_i(ac) = X_i(bc)$ for every i, the value of index will be 1. If there is no overlap in the exports of a and b to c, *i.e.*, for every 'i', $X_i(ac) > 0$ and $X_i(bc) = 0$ or *vice versa*, the index will take a value of 0. Thus, S rises with the rise in similarity of the export structures of two countries/regions with respect to another country/region/world. In this article, for all ESI calculations, 'c' is the world market, unless stated otherwise.

[4] Some studies make use of other similarity indices, such as product similarity index (PSI) and price (or quality) similarity index (Antimiani and Henke, 2007; Erlat and Ekmen, 2009). While ESI refers only to the structure of the merchandise trade flow as it considers ratios of exports, PSI considers absolute export values, capturing the dimensions of the trade flow. Price similarity index compares export prices of countries, with higher prices indicating higher quality of the product.

[5] Finger and Kreinin (1979) had multiplied the index so computed with 100, thus the range of ESI in that paper was 0-100.

For estimation of India's ESI, the Harmonised System (HS) of classification[6] on merchandise trade data from the International Trade Centre's (ITC) Trade Map database is used. The World Trade Organization (WTO) database on services based on sixth edition of Balance of Payments and International Investment Position Manual (BPM6) is used for services trade data. India's ESI for merchandise has been estimated at the HS 2-digit level. The ESI for merchandise trade is analysed from 2002 onwards, while for services, the study starts from 2005, the year from which the data is available, with the latest period as 2021 for both goods and services.

The evolution of India's export structure has been compared with the changing world export structure as also with the G7 countries. A commodity-wise analysis at HS 2-digit and 6-digit has been undertaken to gauge the convergence in the export pattern of India with that of the G7. Further, changes brought about by the COVID-19 in export structure has been analysed. Furthermore, the article analyses the ESI of India *vis-à-vis* five of its existing FTA partners *viz.* ASEAN, Japan, South Korea, UAE and Australia. Additionally, India's merchandise export pattern in the African market is compared with that of its major competitors, and commodities at the HS 4-digit have been identified to ascertain commodities with overlap, and commodities which exhibit export potential for India.

IV. The Indian Case

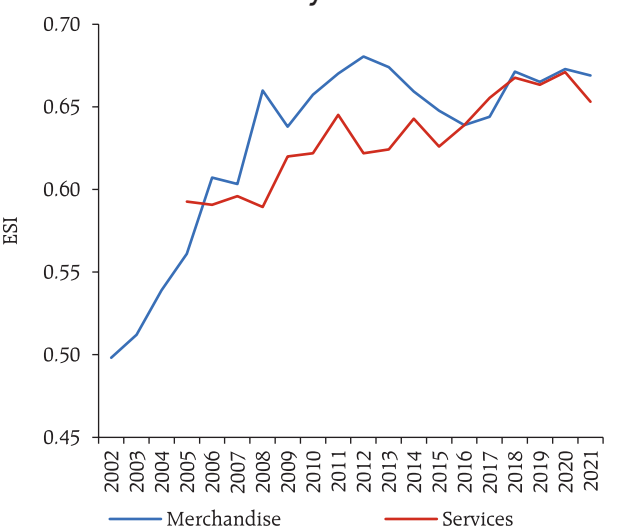
IV.1 India's Changing Export Structure

The extant literature suggests that it is not just export growth that provides a boost to economic growth but the pattern of specialisation, *i.e.*, the composition of exports that describes the potential of exports in raising a country's economic growth. For instance, specialisation brought in through openness that diverts a country from research and/or technology-intensive industries, may lead to lower output growth than in an autarky (Amable, 2000). Therefore, it becomes relevant to analyse the export structure of a country.

Linder (1961) hypothesised that there exists stronger trade between countries with similar demand structures. Trade is beneficial to growth when a country specialises in industries where world demand is strong (Amable, 2000 and Bernatonyte, 2015). An analysis of India's export structure with that of the world demand shows that India's export structure is moving towards the average pattern of world trade, as observed by the increase in ESI over the years (Chart 1). This shows that India is specialising in those products that have relatively higher international demand.

The changing export structure of India is also visible at the commodity level; the share of principal commodities such as engineering goods, chemicals, drugs and pharma, rice, electronics in India's overall

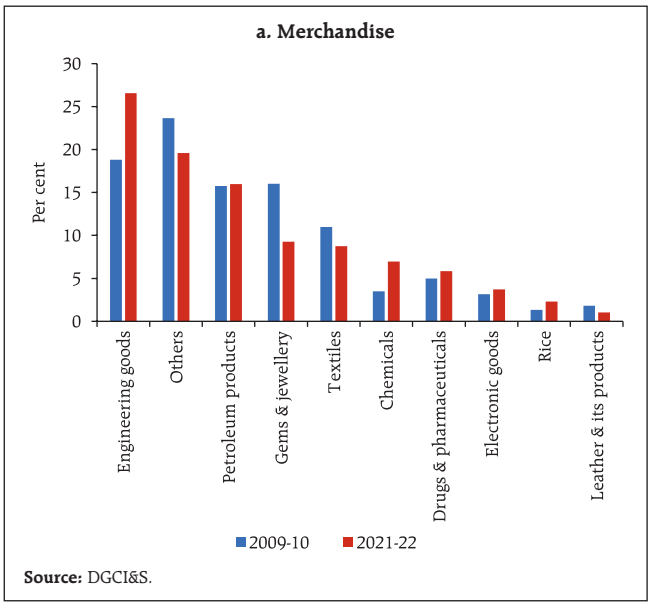
Chart 1: Evolution of India's Export Similarity Index

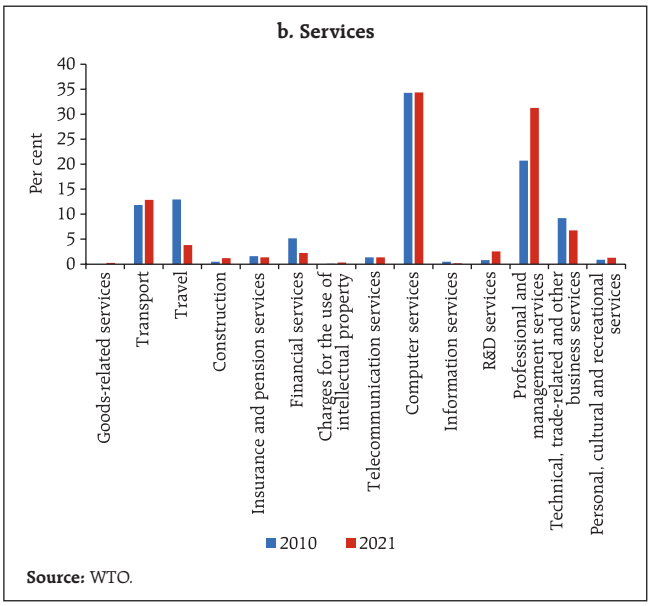


Sources: ITC Trade Map; WTO; and Authors' calculations.

[6] HS System is a standardized numerical method of classifying traded products where commodities are classified into chapters (1 to 99) at HS 2-digit level, which are then disaggregated into around 1200 headings at HS 4-digit level, these are further subdivided into around 5600 subheadings at HS 6-digit level.

Chart 2: Compositional Changes in India's Export Basket





export basket has increased. On the other hand, the share of commodities such as gems and jewellery and other labour-intensive items such as textiles, leather and leather products has declined in the past decade (Chart 2a). This is in line with the shifting pattern in international merchandise trade, characterised by a gradual dip in the shares of textiles and clothing and hides and skins over the decades.

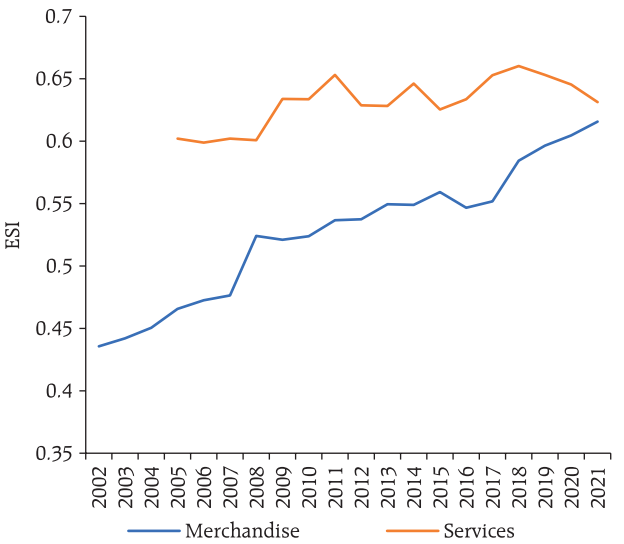
In the case of services also, India's export structure is converging with that of the world as the ESI is increasing over the years. At the disaggregated level, the share of professional and management consulting services has increased between 2010 and 2021 (Chart 2b). The extent of similarity with the world export structure is almost at the same level for both goods and services in recent years. The effect of COVID-19 on the export structure is, however, visible for both goods and services, which will be analysed in a subsequent sub-section.

IV.2 Convergence with the G7 Export Structure

If the ESI between the two countries/regions rises over time, it reflects the converging export structure of the two countries/regions and if this convergence is between AEs and emerging market economies (EMEs), then a rise in the ESI reflects that the economic structures of the two are coming closer and, therefore, indicates rapid economic growth in EMEs (Finger and Kreinin, 1979 and Wang and Liu, 2015). Further, the similarity of a country's export bundle with that of the AEs is considered as a measure of relative sophistication of the country's exports (Schott, 2008).

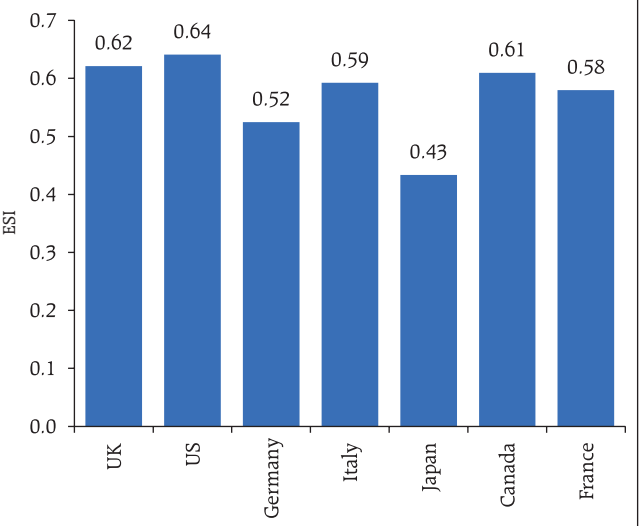
India's converging merchandise export structure with the G7 countries, as reflected in the increasing ESI, indicates that India is on the right path in terms of achieving the developed country status, as greater overlap in the export bundle of an EME with that of AEs reflects growing export sophistication. Currently, around 60 per cent of India's exports are similar to that of the G7, and there exists further scope for convergence (Chart 3). Country-wise, India's merchandise export structure at the aggregate level is the most similar with that of the US (0.64), followed by the UK (0.62) [Chart 4].

Chart 3: Export Structure of India *vis-à-vis* G7



Source: ITC Trade Map; and Authors' calculations.

Chart 4: ESI of India's Merchandise Exports with G7 Countries

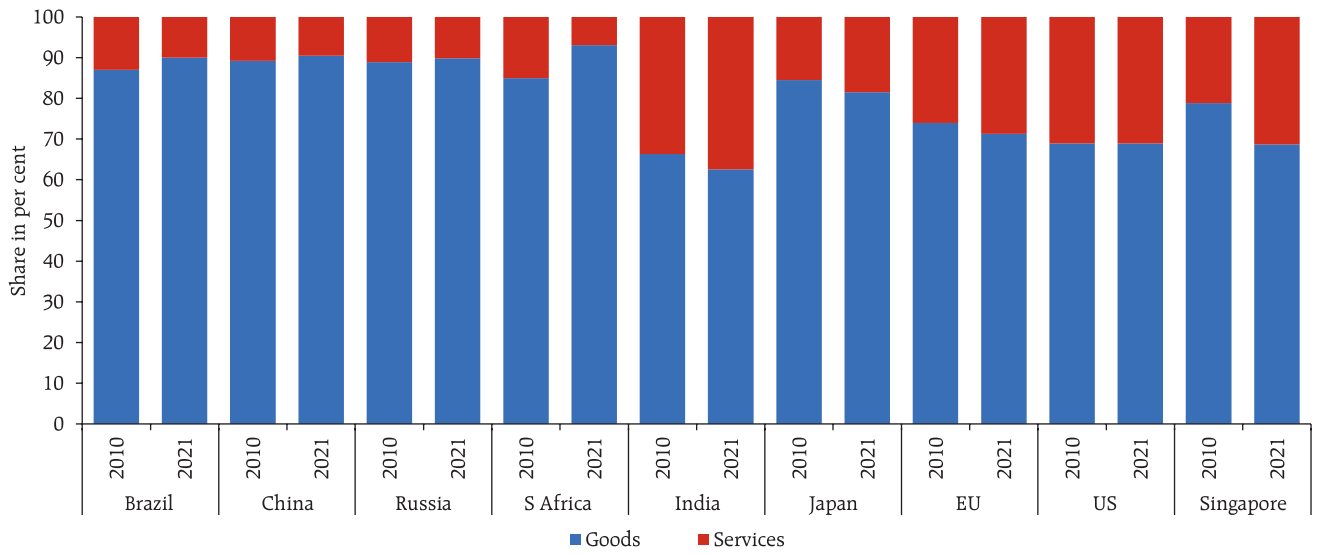


Source: ITC Trade Map; and Authors' calculations.

India's services exports have largely been similar to the G7 services export patterns as its ESI values have hovered around 0.6-0.65 throughout the period under review, witnessing a downward trend in the recent period since COVID-19 when services exports crashed. The rapid growth in services exports has led to their share in India's total exports increasing to high levels, even higher than the average share in AEs (Anand, Kochhar and Mishra, 2015) [Chart 5].

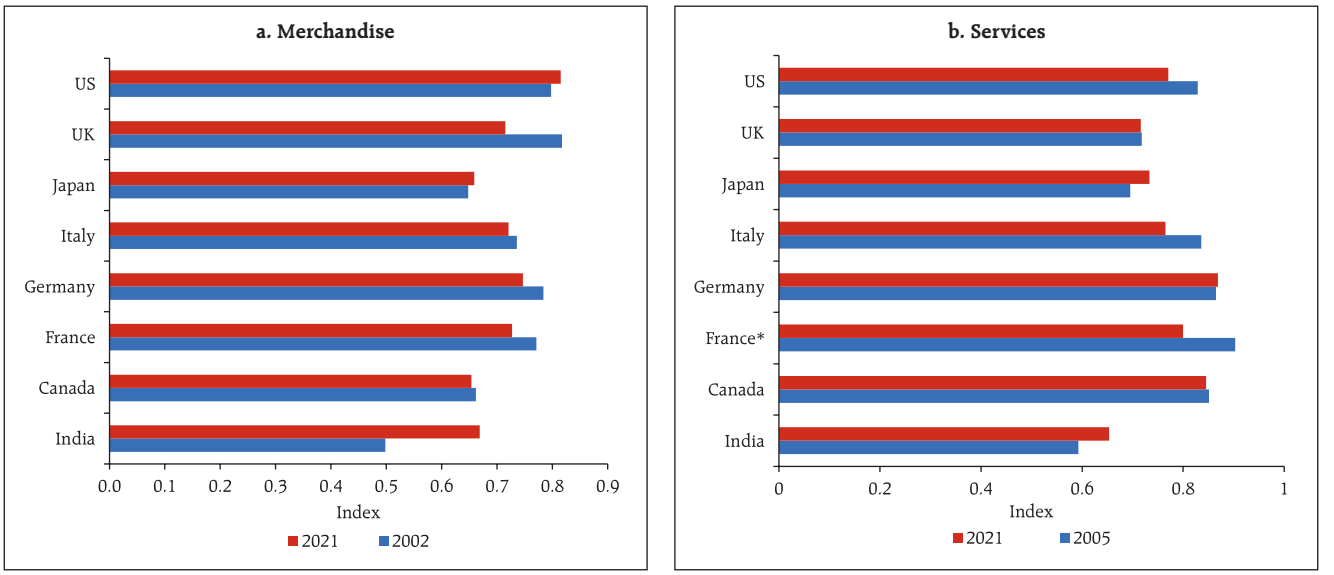
Further, on comparing the export structure of each of the G7 countries with that of the world, it is evident that the export structure of both merchandise and

Chart 5: Composition of Exports



Source: IMF.

Chart 6: ESI of India and G7 Countries *vis-à-vis* the World

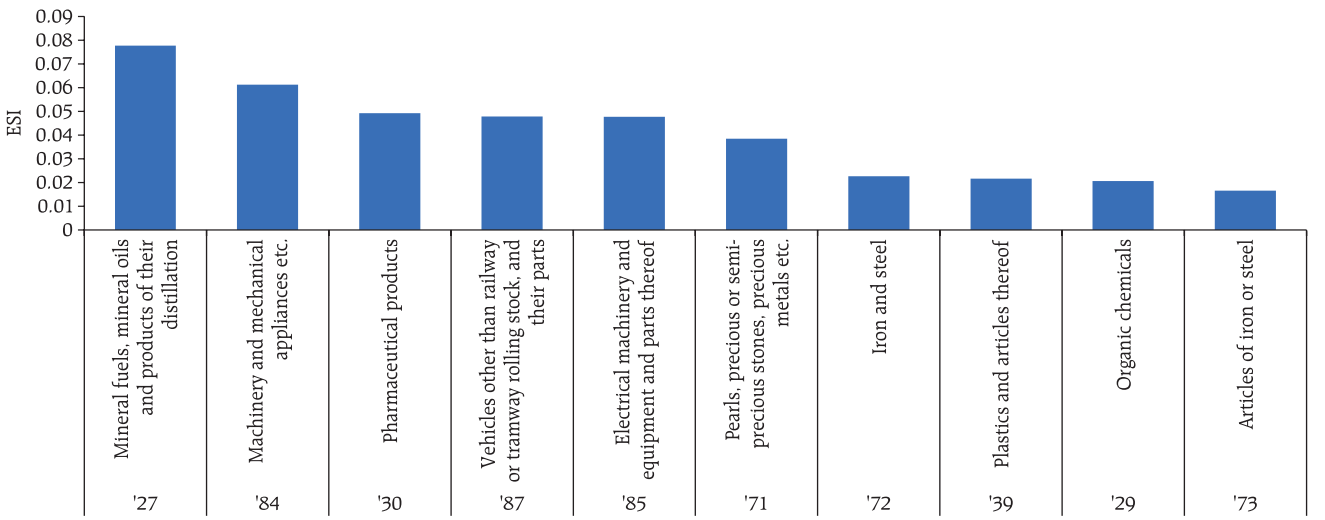


Sources: ITC Trade Map; WTO; and Authors' calculations.

services of G7 countries is similar to that of the world as the ESI is above 0.7 except for Canada and Japan (for merchandise) in 2021. India has progressed remarkably over the years as its index value has improved from 0.50 in 2002 to 0.67 (merchandise), and from 0.6 in 2005 to 0.65 (services) in 2021; however, it is still below the level of many of the G7 countries (Chart 6).

The high ESI of India with that of G7 is visible for commodities such as fuel, machinery, pharmaceutical products, and vehicles *etc.* (Chart 7). At a further disaggregated level of HS 6-digit, commodities such as medicaments, oils and preparations, parts and accessories for heavy vehicles, motor cars *etc.* are the items that make the export structures of India and G7 similar.

Chart 7: Top-most ESI Commodities of India and G7 – 2021



Note: Numbers below the commodity description indicate respective 2-digit HS codes.
Source: ITC Trade Map; and Authors' calculations.

IV.3 Recovery and Structural Changes in the post-COVID Period

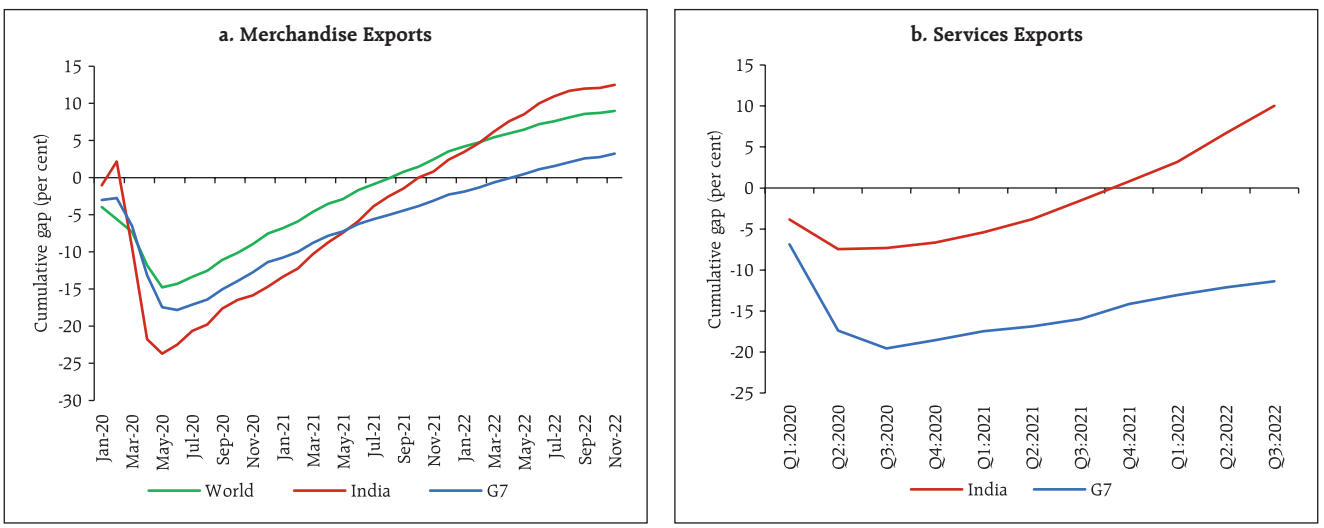
India's merchandise exports witnessed a steeper drop in early 2020 as compared to the world and the G7 countries due to the pandemic shock (Chart 8a). Trade gap has been calculated in this study following Arriola *et al.*, 2023, which is the difference between actual trade realisations and the estimated values of exports for the period starting January 2020, based on the pre-pandemic levels (up to December 2019). The estimated export values are derived from the Seasonal Auto-Regressive Integrated Moving Average (SARIMA) model. The details of the model are given in Annex II.

World merchandise exports attained a positive trade gap – the actual export values exceeding the estimated export values – sooner than India. In turn, India's export gap turned positive earlier than the G7 countries. In recent months, India's merchandise exports have outperformed both the G7 as also the world's goods exports.

The G7 services trade gap (exports) remains negative, staying below the pre-pandemic trend. On the other hand, India's services exports gap turned positive in the Q4:2021 (Chart 8b). According to Arriola *et al.* (2023), trade in services which can be digitally delivered has not been negatively affected by the pandemic. Given the large share of computer services and professional and management consulting services in India's services exports as opposed to contact-intensive services (refer Chart 2b), enabled India to close the services trade gap faster.

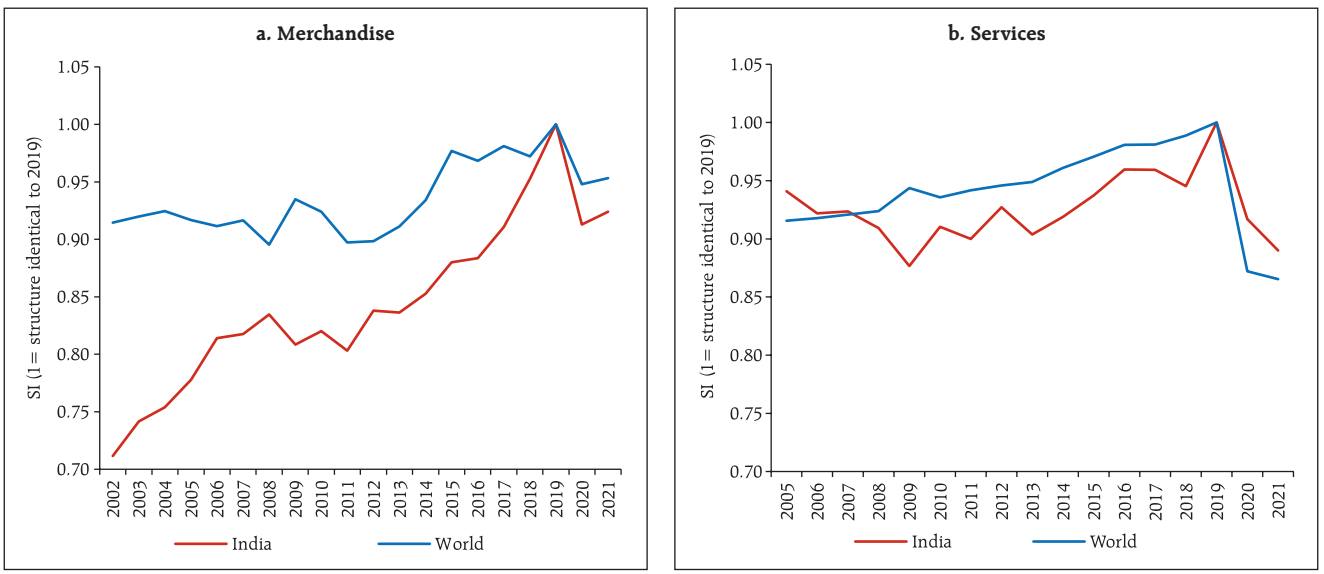
The COVID-19 pandemic caused a large change in the structure of trade of both goods and services. Arriola *et al.* (2023) has noted in the context of G7 and China that the change in merchandise trade structure caused by the COVID-19 in a single year is of similar magnitude to changes that are typically seen over a period of five to seven years. The changes to the structure of services trade are even larger. In line with the global trend, India's export structure in the post-COVID period also differs substantially from

Chart 8: Accumulated COVID-19 Trade Gap



Note: Accumulated trade gap is the difference between actual trade realisations and the estimated export values from SARIMA model for the period starting January 2020, based on the pre-pandemic levels (up to December 2019).
Sources: WTO; and Authors' calculations.

Chart 9: Post-COVID Change in Export Structure



Sources: ITC Trade map; WTO; and Authors' calculations.

that in 2019. This has, however, started reversing for merchandise trade. Comparing the post-COVID services export structure with that which prevailed in 2019, there has been a less sharp structural shift in India's services export basket as compared to average demand pattern of the world (Chart 9). This is likely due to the preponderance of software exports in India's services exports, a segment which did not suffer a demand erosion during the pandemic.

IV.4 An Analysis of India's ESI with Five FTA Partners

India has accorded a high priority to promote its export growth by leveraging export competitiveness through signing of new FTAs and fine-tuning the existing FTAs. India's trade agreements with various countries aim at setting India's export market diversification strategy into motion. In an FTA, the similarity of the export structure of partner countries increases over a period of time with increasing intra-regional trade. While entering an FTA if the potential FTA partner country/ies have high similarity in export structure, the FTA may not yield much benefit in terms of inter-industry trade as partner countries do not have export complementarity (Plummer, Cheong and Hamanaka, 2010). As per the Ricardian/Heckscher-Ohlin model, trade occurs only between industries – inter-industry trade. A country specialises in the production of goods in which it has a comparative advantage derived from its factor endowment and exports the product to rest of the world. Based on comparative advantage, if a partner country of an FTA produces and exports products of a particular industry which are imported by the other partner country, then the trade between the two is complementary in nature. In this case, FTA brings gain in terms of increased inter-industry trade between partner countries or what is known as trade creation.

On the other hand, literature also argues that through export similarity, intra-industry trade is expected to increase the intra-regional trade of the FTA countries (Hapsari and Mangunsong, 2006). Intra-industry trade occurs if countries trade in products that belong to the same industry *e.g.*, trade in branded automobiles. Intra-industry trade arises in differentiated products and gains are derived through better exploitation of economies of scale. With growing internationalisation of production processes,

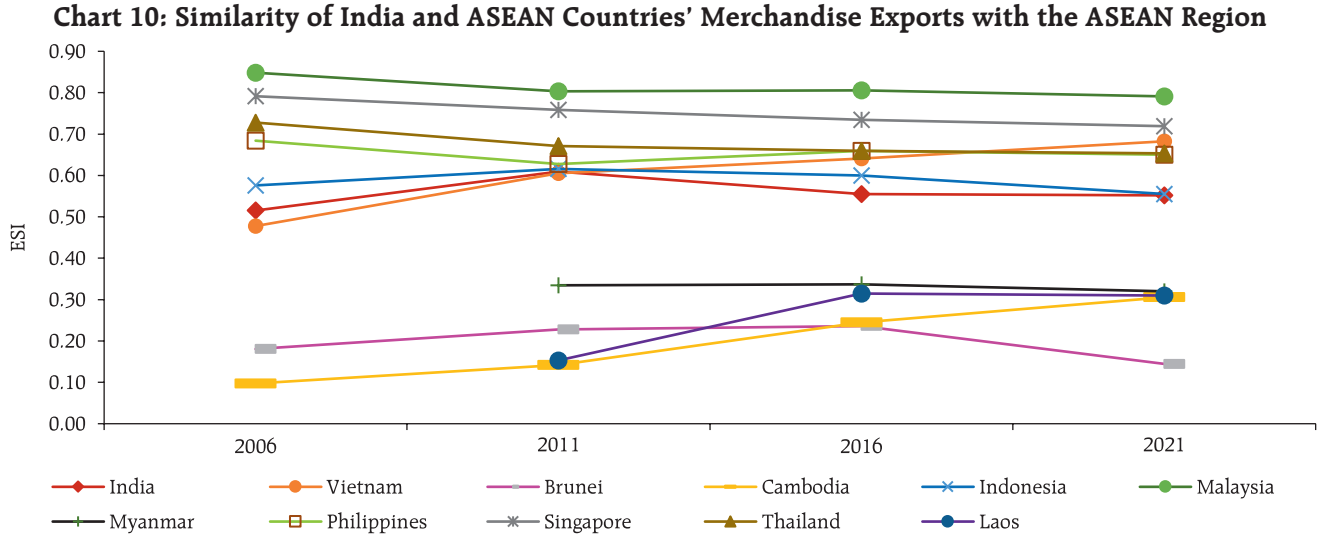
intra-industry trade is increasing over the years. Similarity in export structure of FTA countries implies presence of greater potential for intra-industry trade. Further, FTAs have additional positive effect on trade through their hub-and-spoke nature (Alba, Hur and Park, 2010).

India has so far signed 14 FTAs with its trading partners. In addition, it has signed 6 limited coverage Preferential Trade Agreements (PTAs)[7]. Among these, agreements with Mauritius, the UAE and Australia have been signed recently (with Mauritius in 2021 and with the UAE and Australia in 2022). This sub-section analyses the similarity of export structure of India *vis-à-vis* five of its large FTA partners namely, ASEAN, Japan, South Korea, Australia and the UAE.

India's FTA with ASEAN covers agreement in goods, services, and investment. India's agreements with ASEAN came into effect in 2010 for goods trade and in 2014 for services and investment. To get an idea about the export similarity of ASEAN, the ESI of individual ASEAN countries in relation to the exports of ASEAN region has been computed. Except for Brunei, Cambodia, Myanmar and Lao, member countries have export structures similar to the ASEAN export structure. Further, within ASEAN, Malaysia is the most competitive country with the highest ESI value displaying high similarity of Malaysian export structure with that of ASEAN export structure. Over the years, competitiveness of Vietnam has also increased as reflected in its increasing ESI values. Further, the progress of Vietnam as a world FTA hub is giving it a competitive edge over other member countries. Almost 55 per cent of India's export basket is similar to that of the ASEAN region and the export similarity has not changed much over the years (Chart 10).

With the objective of enhancing its economic partnership with a few Asian countries, India signed a Comprehensive Economic Partnership Agreement (CEPA) with South Korea in 2009 and with Japan in 2011. Further, India signed a CEPA with the UAE and an Economic Cooperation and Trade Agreement with Australia in 2022. The agreements eliminated tariffs on majority of India's trade with these countries.

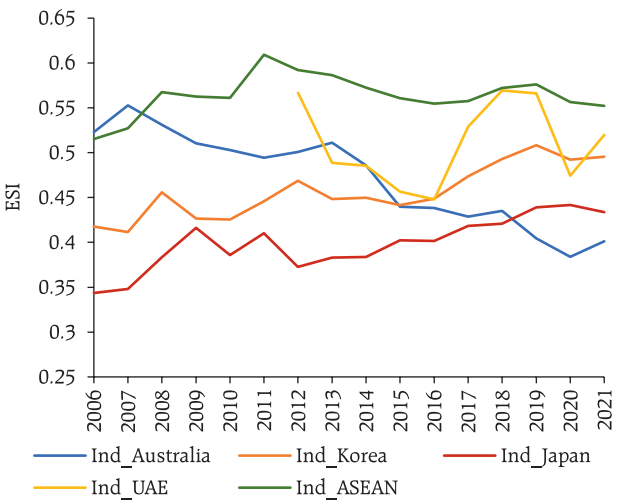
Chart 10: Similarity of India and ASEAN Countries' Merchandise Exports with the ASEAN Region



Notes: 1. These are bilateral ESIs of a country with the overall ASEAN region for exports to the world.
2. Data for Lao and Myanmar available only from 2011.
Sources: ITC Trade map; and Authors' calculations.

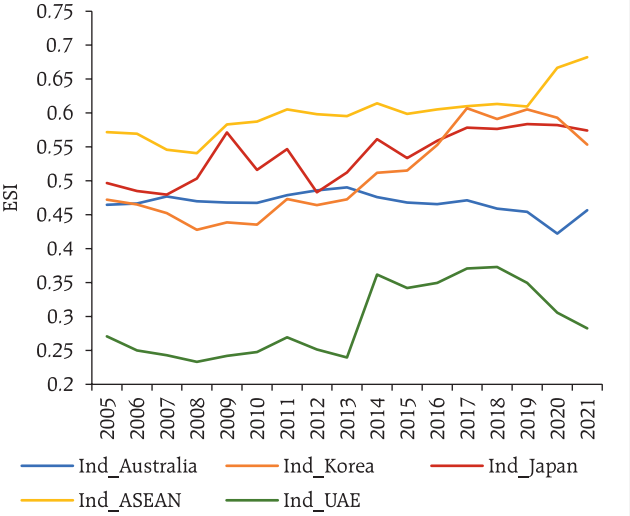
[7] https://pib.gov.in/PressReleasePage.aspx?PRID=1814151; https://commerce.gov.in/international-trade/trade-agreements/

Chart 11: Similarity of India's Merchandise Export Pattern with its FTA Partners



Note: Data for UAE is consistently available only from 2012.
Sources: ITC Trade map; and Author's calculations.

Chart 12: Similarity of India's Services Export Pattern with its FTA Partners



Sources: WTO; and Authors' calculations.

On the basis of the computed ESI values, it can be seen that the export structures of Japan and Australia are quite different from that of India and, therefore, there is huge scope for inter-industry trade expansion of India with these countries. India's exports have increasingly been getting similar to that of South Korea; however, still the two countries' index values show complementarity in their exports. On the other hand, India's export pattern is the most similar with the ASEAN among the selected FTA countries, though the similarity has fallen over the years. Further, the scope for expansion of intra-industry trade by India is more in case of FTA with ASEAN (Chart 11). The UAE is primarily a fuel exporting country with half of its exports comprising 'mineral fuels, mineral oils and products of their distillation *etc'*. The vicissitudes in global oil demand affects its exports significantly and therefore, its export structure is showing volatility. Notwithstanding, India has the second highest similarity in merchandise exports with UAE, possibly reflecting similarity on account of petroleum products and pearls, precious and semi-precious stones.

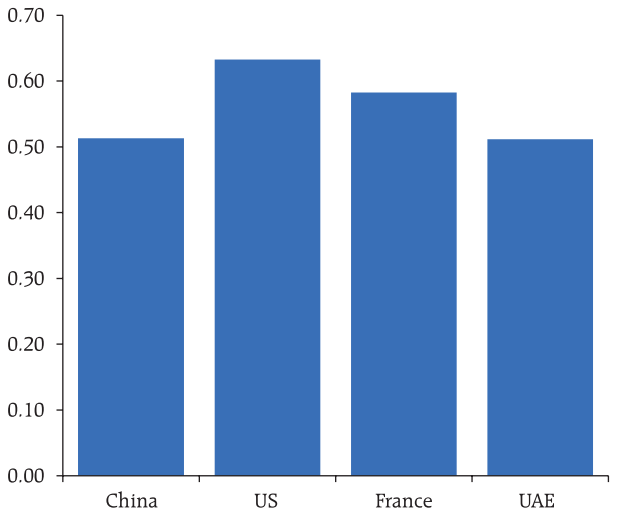
The ESIs of India *vis-à-vis* its FTA partners in the case of services highlight that India's export pattern has greater similarity with those of the ASEAN, South Korea and Japan. The similarity in export pattern with Australia has come down over the years, barring the latest period. With Australia, however, there exists complementarity for services akin to merchandise (Chart 12). The complementarity with the UAE is the highest and is growing, reflecting the higher share of travel and transport in the UAE while India's niche is in telecommunications, computer and information services and other business services.

IV.5 An Analysis of India's ESI with Major Competitors in African Market

Africa is a significant potential market for exporting countries. India is increasingly engaging with Africa and strengthening its trade and investment relations with the continent – its share in Africa's imports increased from around 4 per cent in 2017 to 6 per cent in 2021.

In literature, ESI is applied to gauge the extent of competition a country faces in a particular market.

Chart 13: India's Export Similarity in the African Market (2021)



Sources: ITC Trade map; and Authors' calculations.

For instance, ESI methodology found that Turkey faces strong competition in the EU market, in particular in labour-intensive goods (Erlat and Ekmen, 2009). The estimation of ESI of India with other major merchandise[8] exporters to Africa shows that India's exports to Africa are mostly similar with that of the US and France (Chart 13). Drilling deeper, ESIs at HS 4-digit level indicate petroleum products, motor cars and other vehicles for transport of persons, motor vehicles for goods transport and blood for therapeutic, prophylactic or diagnostic uses are the major commodities with the highest similarity where India faces stiff competition from China, US, France and the UAE. Commodities at HS 4-digit with significant shares in the African import basket, for which the ESI values are lower, indicating trade-creating export potential for India include medicaments consisting of petroleum oils and oils obtained from bituminous minerals, crude; telephone sets; mixed or unmixed products for therapeutic or prophylactic uses; parts and accessories for tractors; automatic data-processing machines and units thereof; magnetic or optical readers; and motor vehicles for the transport of ten or more persons.

V. Policy Implications and Conclusion

This article is possibly the first to undertake an extensive examination of India's export similarity indices in both merchandise and services exports, its evolution over the years and comparison with key AEs and major FTA partners. This also explores the possibility of expanding into the large African market and the commodities that could spearhead the expansion. The ESI gives a visual representation of the strengths and the evolution of India's export pattern. The rapid alignment of India's merchandise export pattern with world exports in the recent years shows that the emphasis given to Make in India and *Atmanirbhar Bharat* is also helping India become a key supplier to the world – Made in India. Increasing specialisation and competitiveness bode well for India to capitalise on the current trend of diversification of supply chains. Amongst the G7 countries, India's ESI for merchandise exports, at 0.64, is the highest with the US, which is also India's top export destination. Growing competitiveness with the world's largest and most advanced economy is a desirable impetus to advancement.

Two caveats are in order. One, the analysis is done at the 2-digit level of commodity classification which may have yielded higher level of indices as higher the level of commodity aggregation, more the intra-industry trade is netted out. The broad trends, however, offer policy implications for taking India to the US$ 2 trillion level of exports by 2030. Two, even as ESI is broadly consistent with economic trends, it may overstate the extent of competitiveness as it does not consider differences in quality and product sophistication (IMF, 2011).

At the same time, the ESI provides insight – increasing ESI at the disaggregated commodity level could indicate where investment and R&D need to be directed to reap the benefits of increasing

[8] This analysis could not be done for services due to unavailability of data on country-wise services imports into Africa.

returns to scale and specialisation. Our analysis at the disaggregated level shows high competitiveness for commodities such as medicaments, oils and preparations, parts and accessories for heavy vehicles, motor cars *etc.* Some of these belong to the sectors that have been given impetus through the Production-Linked Incentive (PLI) scheme introduced by the Government of India in March 2020, with the highest outlay for automobiles and auto components, and the fourth highest outlay for drugs and pharmaceuticals[9]. This augurs well for furthering competitiveness, specialisation and exports from these industries.

In services, in the post-pandemic period, even as India has closed the trade gap faster than the G7 countries, its services ESI with respect to the world is lower than all the G7 countries and has also dipped in the latest year. This shows the need to diversify and achieve niche in areas beyond software and professional services. While the pandemic held India's main services exports in good stead, going forward, India will have to build expertise in transport and travel. The focus on infrastructure under the aegis of the National Logistics Policy 2022, which envisages reduction in logistics cost in the country to less than 10 per cent of GDP from the current 13-14 per cent, should help in this cause.

An analysis of ESIs with India's main FTA trading partners shows that India's merchandise ESI in the ASEAN region is lower than the Big-5 ASEAN economies and has been dipping. Vietnam, which is emerging as a manufacturing and export hub, has registered a sharp increase in its ESI value over the past two decades. This shows that India has significant scope for enhancing its competitiveness compared with its ASEAN peers. The ESIs with Japan and South Korea have increased gradually since the FTAs came into effect indicating increasing specialisation of India's exports in line with the advanced Asian peers. In contrast, the prevailing relatively lower level of ESI with Australia offers scope for expanding exports through complementarity while gradually specialising to enhance trade and competitiveness with the latest entrant to India's FTA partners list. ESI analysis with major competing countries in the African market throws insights into the commodities where we have an edge and where we need to compete.

While this article has done an overview of ESI with select FTA partners, the export similarity index – with simplicity of its concept and broadness of its significance – when computed for granular data and specific markets, can be used as a bellwether for negotiating deals, agreements and concessions in future FTAs.

[9] https://www.pib.gov.in/PressReleasePage.aspx?PRID=1671912

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Annex I: Literature Review of Export Similarity Index

Reference	Period/Geographies	Method	Major Findings/Result
Finger and Kreinin (1979)	Similarity pattern of manufactured exports calculated by using Standard International Trade Classification (SITC) data covering 380 categories. Data from 1960 to 1974. Countries covered included US, Japan, old European Economic Community (six countries) and rest of Industrial Western Europe, three groups of Less Developed Countries (LDCs) – semi-industrial, least developed and others.	The index of export similarity was introduced. The study aimed to: (i) Understand possible trade diversion or trade creation effects of preferential treatment given to a particular country(ies) (ii) Assess the degree to which the economic structure of two countries or groups of countries converge/diverge.	1. Trade diversion occasioned by the Generalised System of Preferences (GSP) of the major industrial countries (the United States, Japan, and Old European Economic Community) will mostly benefit the seven Semi-Industrial LDCs. 2. Tariff concessions exchanged by the industrial countries under General Agreement on Tariffs and Trade (GATT) have probably been helpful in expanding the exports of the Semi-Industrial LDCs, but less so the exports of other LDCs. 3. So long as the LDCs insist on playing a non-reciprocal role at the GATT negotiations, further reductions of trade barriers become less likely. 4. The formation of a free trade area in Europe, much of the preferences in favour of LDCs has been eroded.
Amable (2000)	Investigated the effects of international trade specialisation, using inter-industry specialisation and trade dissimilarity, on economic growth for 39 countries over 1965–1990.	Three indicators of foreign trade are considered - (i) Inter-industry specialisation (ii) Index of trade dissimilarity, and (iii) Comparative advantage in electronics.	Trade dissimilarity index indicates whether the trade pattern of a country is at odds with the international demand. Using the Generalised Method of Moments, the paper concludes that a trade structure dissimilar to world trade affects growth negatively.

Annex I: Literature Review of Export Similarity Index *(Contd.)*

Reference	Period/Geographies	Method	Major Findings/Result
Schott (2008)	Examined the relative "sophistication" of China's exports for the period 1972-2001.	Computed – (i) Market shares and product penetration (ii) FK's SI, and (iii) Price comparisons	1. The study concludes that China's export bundle increasingly overlaps with that of the world's most developed economies. 2. China's exports sell at a substantial and increasing discount relative to the exports emanating from the Organisation for Economic Co-operation and Development (OECD).
Erlat and Ekmen (2009)	Analysed similarity of Turkish exports with other major exporters to the EU-15 group and with the exports of developed countries as a measure of relative sophistication for the period 1996-2007.	Computed – (i) FK's export SI, (ii) Product SI, and (iii) Price SI.	1. Turkey faces strong competition in the EU market. The degree of competition changes with respect to the countries and sectors over the years. 2. Product wise, Turkey faces stiff competition in labour-intensive goods. 3. Turkey's export similarity with developed countries, although increasing, remains low with some developed countries.
Chow (2012)	Analysed the trade similarity index between East Asian countries to explore if the developing East Asian countries compete amongst themselves and explores the relationship between Export Similarity Index and the levels of economic development for the period 1962-2000.	Computed FK's SI.	The analysis revealed that as the income gap between Japan and ASEAN countries narrowed, the overlap among export commodities with Japan in the world market increased, indicating that there is some evidence of a greater overlap among export commodities as the per capita income gap narrows.

Annex I: Literature Review of Export Similarity Index *(Contd.)*

Reference	Period/Geographies	Method	Major Findings/Result
Parteka and Tamberi (2013)	Assessed the relative specialisation patterns of export and import baskets of countries vis-à-vis the world, for 163 countries for the period 1988-2010.	Computed – (i) Relative Theil index, (ii) Relative Gini index, and (iii) Dissimilarity index.	The study concludes that as per capita income increases, the export and import baskets witness a decline in specialisation and become more diversified, and there is an increase in the similarity between import and export structures.
Bernatonytė (2015)	Investigated nature and pattern of export specialisation in Lithuania using SITC data for period 2007-2013.	Computed – (i) Index of export specialisation (modified RCA index), (ii) Trade dissimilarity index.	1. Lithuania's integration into the EU has influenced its export specialisation. Trade structure of Lithuania is similar to that of the EU. 2. Biggest flows from Lithuania to the EU are in food, drink and tobacco; raw materials; mineral fuels, lubricants and related materials.
Wang and Liu (2015)	Export similarity is studied between China and European Union (EU) in world market, American market and Indian market. SITC 1-digit data from 2007-2013 is used.	Computed FK's SI for China and EU in different markets.	1. China and EU have high export similarity in developed countries' market and, therefore, have fierce competition. 2. China and EU have trade complementarity in developing countries' market.
Nguyen *et al.* (2017)	Calculated export similarity index for Association of South East Asian Nations (ASEAN)+3 members at 1 to 4-digit SITC data. Compared that with revealed comparative advantage index. Detected export communities (most	1. Computed Finger and Kreinin (FK)'s Similarity Index (SI) for each member country. 2. Community detection based on SI results through PSEUDO-ALGORITHM in network analysis.	1. Similarity in ASEAN+3's export composition varies among members with Brunei and Cambodia having low levels of SI while China, Japan, Singapore, S Korea and Malaysia experiencing a high export similarity.

Annex I: Literature Review of Export Similarity Index *(Concld.)*

Reference	Period/Geographies	Method	Major Findings/Result
	similar or most competitive) in ASEAN+3. Data from 1990-2014. Countries covered included ASEAN and China, Japan and Korea.		2. Japan, Singapore, China, Malaysia and Korea, with highest SI, form an export community mainly in electronic microcircuits and parts of office machines. 3. Export similarity positively and significantly associated with the Revealed Comparative Advantage (RCA).
Vlasenko (2020)	1. Proposed Composite Export Similarity Index. Panel data of 40 countries at Harmonised Commodity Description and Coding System (HS) 2-digit commodities for 2001-18 is used. 2. Export portfolio of China is compared with 40 other major global exporters covering data for 246 destinations.	Computed Composite Export Similarity Index by integrating Export Similarity Index of Commodities and Export Similarity Index of Destinations.	China's most probable competitors were found as Vietnam, Republic of Korea, Japan, Malaysia and Singapore; least probable competitors with little to none overlap of exports were oil exporting economies of Kuwait, Saudi Arabia and Iran.
Kanupriya (2020)	ESI computed for five key products at HS 6-digit level (under the HS 2-digit level from 56 to 60) for the period 2013 to 2017 for five key markets for each product	ESI computed by dividing the ratio of Indian textiles exports to the partner country (each of the top five markets identified) to the total exports of all products to those countries by the ratio of partner's exports of textiles to total exports of all products to India.	The Indian textiles exports are not competitive in terms of the ESI.

Annex II: Computation of the Trade Gap through Export Forecasts

Autoregressive Integrated Moving Average (ARIMA) model is a class of linear models that utilises historical values to forecast future values. In an autoregression (AR) model, we forecast the variable of interest using a linear combination of past values of that variable. Integrated represents any differencing that must be applied to make the data stationary. Moving average models use past forecast errors rather than past values in a regression-like model to forecast future values. Thus, a typical model is written as:

$ARIMA\ (p, d, q)$

where p: number of lags of the dependent variable (the AR terms),

d: number of differences required to make the series stationary, and

q: number of lagged terms of the error term (the MA terms).

Seasonal Autoregressive Integrated Moving Average (SARIMA or Seasonal ARIMA) is an extension of ARIMA that supports univariate time series data with a seasonal component. Three new parameters to specify the autoregression (AR), differencing (I) and moving average (MA) for the seasonal component of the series, as well as an additional parameter for the period of the seasonality are added. The SARIMA model is written as:

$SARIMA\ (p, d, q)\ (P, D, Q)m$

Where, m is the seasonal period (*e.g.*, number of observations per year), the number of time steps for a single seasonal period

The lowercase notation is used for the trend (non-seasonal) part of the model, while uppercase notation is used for the seasonal parts of the model.

In the article, for forecasting merchandise trade based on the pre-pandemic data, a model with monthly frequency is used. The specification of the model is:

$SARIMA\ (1,1,1)\ (0,1,1)12$

For forecasting services trade based on the pre-pandemic data, with quarterly frequency, the model is:

$SARIMA\ (1,1,1)\ (0,1,1)4$

India's Steady State Equilibrium Inflation: A Revisit

by R. K. Sinha^

The article tracks the stochastic transition of inflation over the period 2014 to 2022, which coincides with the de-facto adoption of inflation targeting by the Reserve Bank followed by its formal institution in 2016 and the experience thereafter including the pandemic-induced era. It finds that the long-run steady state equilibrium level of inflation could be around 4.3 per cent based on the pre-pandemic data. The same may appear to have edged up marginally in the pandemic period, which is likely to be transient and may glide to lower trajectories in due course once macroeconomic conditions normalise globally.

Introduction

In the process of achieving an acceptable and desirable level of inflation, while the policy stance of the Reserve Bank has been the most prominent and guiding factor, there are other domestic and global macroeconomic factors as well, which have been impacting the inflation path. Frequent shocks drag inflation away from its central tendency and disturb smoothness of the inflation trajectory in the short-to-medium term. These shocks are positive (favourable) as well as negative (adverse). The positive shocks (such as the international crude oil price crash) have aided at times in bringing headline inflation down while the adverse shocks (such as sudden and unprecedented rise in the prices of select food items, especially cereals and vegetables, and crude oil price jump), drag inflation out of the normal trajectory in the short run. Notwithstanding vulnerability to these supply shocks, the sustained effort of the Reserve Bank through its policy stance played a vital role in bringing the inflation to 4 per cent mark during the pre-COVID period[1] adding to Flexible Inflation Targeting's (FIT's) credibility.

In the presence of various shocks, it has always been a pertinent question as to what has been the trend inflation[2] in India in the post-FIT period, and where it would hover in the long run under a steady state equilibrium. Against this backdrop, a preliminary exercise of the likely central tendency of the long run inflation was carried out by Reserve Bank revealed that the long run steady equilibrium level of inflation could be settling to around 4 per cent with an upward bias (RBI, 2017). The study tracked transitions of inflation through Markov chains through suitable transition probability matrices (TPMs) using the limited data available. An update on this was also analysed and discussed subsequently, which corroborated the findings of the earlier study (Sinha, 2018).

A recent study by Behera and Patra (2020) estimated the trend inflation through a New Keynesian Phillips curve (NKPC) using a longer series of inflation observed from 2007 to 2020 (prior to the emergence of the COVID pandemic). Before estimating the NKPC model with pre-specification of regimes, a Markov switching regression with unknown regimes was estimated to understand the current regime of inflation. The key findings indicated two regimes in India's recent inflation history – a high inflation regime of 9.4 per cent during 2007-2014 and a low inflation regime of 4.0 per cent during 2015-2020 (prior to COVID). The probability weighted estimate of trend inflation in the latter regime was estimated at 4.2 per

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[1] The emergence of the COVID-19 pandemic and the subsequent Ukraine war led to surges in inflation far from the target point across the globe, including the advanced economies.

[2] Trend inflation is the permanent or the underlying component of inflation to which actual inflation converges after a shock. Alternatively, this is referred to as steady state inflation (Ascari and Sbordone, 2014). In this article, we use trend inflation and steady state (or steady state equilibrium) inflation interchangeably.

cent. The real time filtered and smoothed posterior estimate-based weighted average trend inflation in Q1:2019 was estimated at 4.1 per cent. It was found that the smoothed probability weighted estimates of trend inflation eased steadily from 2009 to reach 4.3 per cent in Q1 of 2020.

With the availability of long series CPI-C based inflation data now, we revisit the steady state equilibrium of inflation and extend the earlier preliminary study (RBI, 2017) and examine the transient changes in the trajectory of inflation from the pre-COVID to post-COVID period. We find the steady state equilibrium of inflation in the pre-COVID era to be broadly in line with the findings of Behera and Patra (2020), which followed an alternate approach. The long-run equilibria for both the sets of data (pre- and post-COVID) indicate 20-40 bps lower levels as compared to the respective observed data recorded in the respective periods.

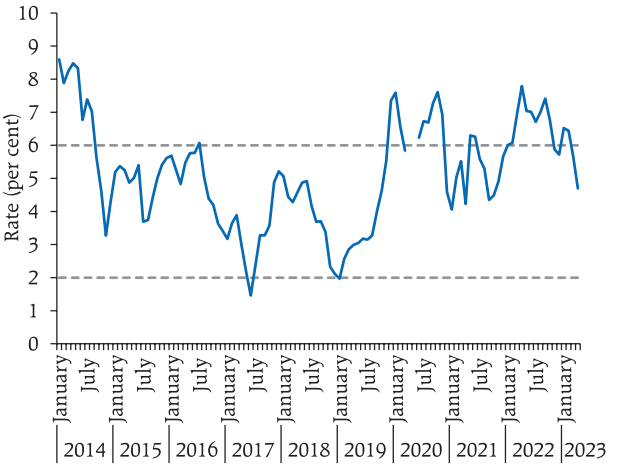
The article is divided into four sections. After the introductory section, the stylised facts are covered in the second section. The third section covers the methodology adopted in the study. The last section concludes the article with some key takeaways from the study.

II. Key Stylised Facts

The CPI-C based inflation rate (y-o-y) witnessed a decline from mid-2014 aided by easing of price pressures in a broad-based manner. The inflation dipped below 6 per cent in September 2014 from its several double-digit prints of the previous year 2013, and remained within the target band till November 2019, breaching only on three occasions[3] during a long period of 63 months (Chart 1).

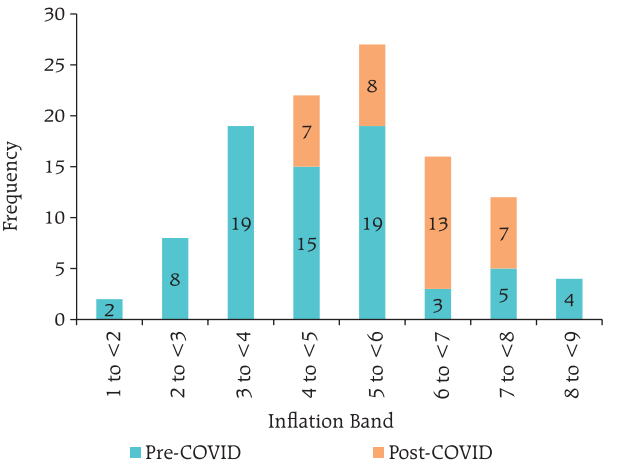
Inflation in several economies, including advanced countries, hovered in double-digits for several months after the emergence of the COVID pandemic followed by the Ukraine war. India could keep its inflation contained in single-digit levels with the highest recording at 7.79 per cent (April 2022). The average overshoot of the upper threshold, in case of a breach, has been relatively low (79 basis points) since the beginning of the pandemic. The lowest inflation in the post-COVID period has been

Chart 1: Time-series of CPI-C Inflation



Note: Inflation prints for April and May 2020 are not included. These were not published routinely by MoSPI due to pandemic-induced economy-wide lockdowns and were imputed subsequently.
Source: Ministry of Statistics and Programme Implementation (MoSPI).

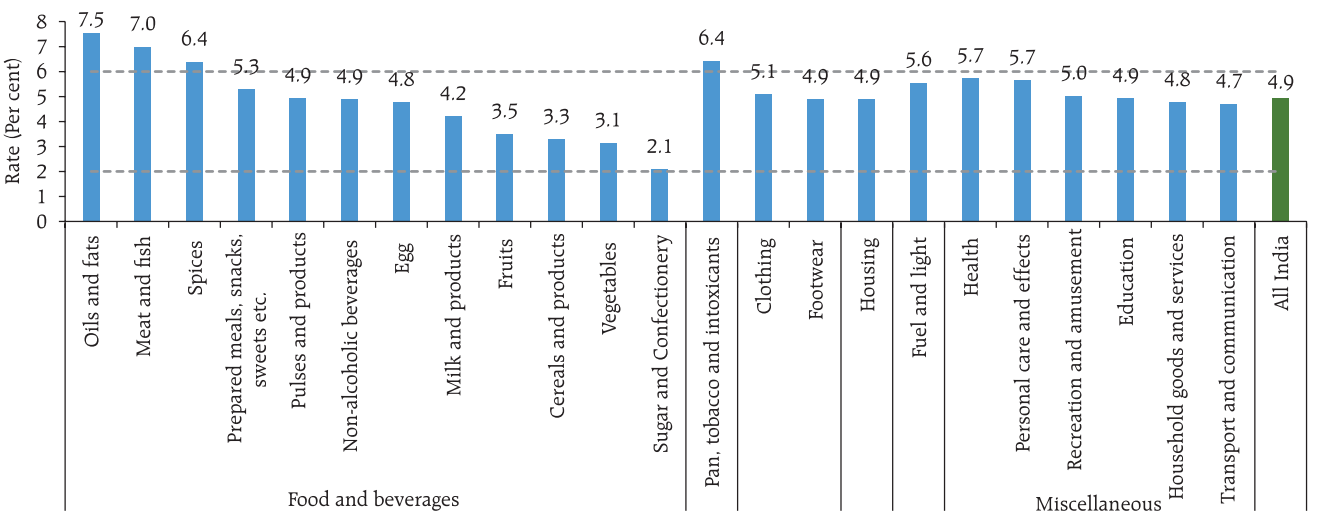
Chart 2: Frequency Distribution of CPI-C Inflation



Note: The Pre-COVID and Post-COVID periods pertain to January 2014 to March 2020 and June 2020 to April 2023, respectively.
Sources: MoSPI; and Author's calculations.

[3] Inflation breached the lower threshold two times (1.46 per cent in June 2017 and 1.97 per cent in January 2019), and the upper threshold once (6.07 per cent in July 2016). Noticeably, out of these three breaches, two were minuscule (just 3 and 7 basis points).

Chart 3: CAGR of CPIC-C Components (2014-2022)



Note: The CAGR is calculated as the growth over eight years (by taking the average index in the calendar year 2022 over the average index in the calendar year 2014).
Source: Author's calculations.

at 4.06 per cent recorded in January 2021 (Chart 1 and Chart 2).

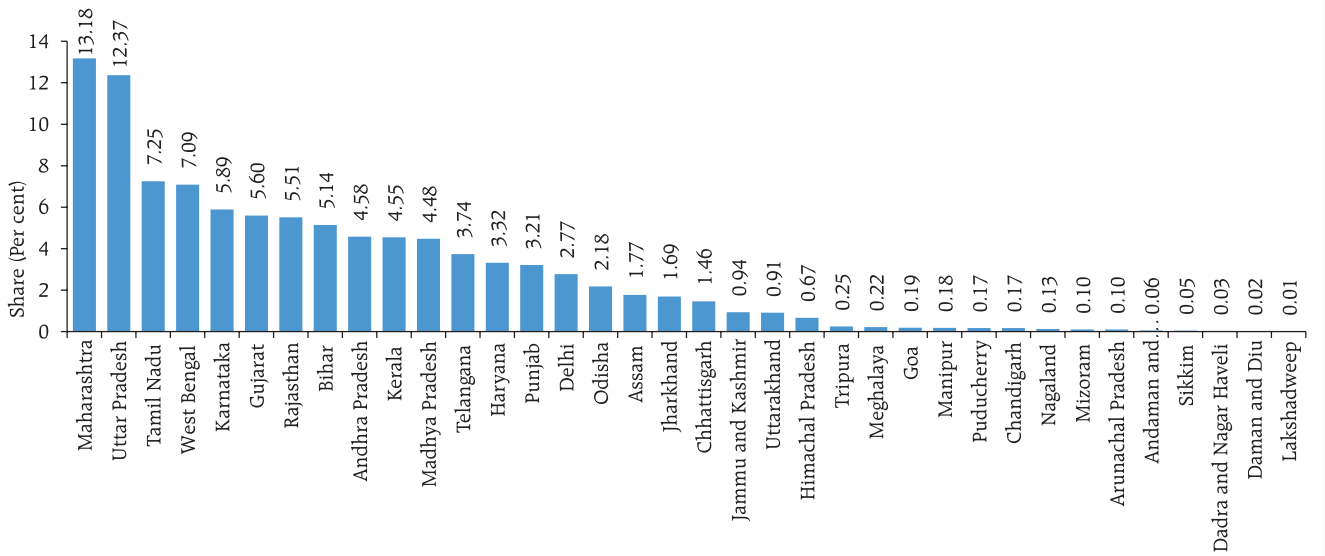
The average inflation over a longer period *viz.*, 2014 to 2022 across the components of CPI-C indicates large variations in some product sub-groups, especially in 'food and beverages' *viz.* 'meat and fish', 'oils and fats' and 'spices' at a higher side with a compound annual growth rate (CAGR) of above 6 per cent. In contrast, the CAGR of 'sugar and confectionery' remained lowest, slightly at above 2 per cent (Chart 3).

The variation in CAGRs of the sub-products are reflective of the relative demand for and supply of these products and their intra-year and inter-year variations may represent several generic and specific shocks in the economy. The CAGRs of inflation across States and Union Territories (UTs) have remained in greater sync during the period. The weights (share) of States appeared to have concentrated amongst the top few States, *e.g.*, the top six States, collectively cover more than 50 per cent of weight in the CPI-C basket (Chart 4).

The MoSPI publishes higher levels of disaggregated data of inflation for the larger 22 States/UTs. These cover granularity – by area (rural and urban), by product groups (*viz.* 6 groups – 'food and beverages', 'pan and tobacco', 'clothing and footwear', 'housing', 'fuel and light' and 'miscellaneous') and by product sub-groups (total 23 sub-groups). The smaller 14 States/UTs, which have individual weights of less than or equal to 0.25 per cent do not have the information at the product sub-group levels. The granular level weights have been taken from CSO (2015). The set of 22 larger States/UTs can be considered to be a proxy for the aggregate CPI-C, as they comprise 98.30 per cent of the aggregate CPI-C of India. It is observed that the compilation of aggregate inflation from the disaggregate (granular) level inflation may have some divergence with the published aggregate inflation prints due to methodological/aggregation issues (Das and George, 2023).

The rest of the analysis in this section and subsequent sections is based on the dataset of 22 large States/UTs. Further, the analysis incorporates appropriate probability-weighted distributions in the

Chart 4: Relative Weight of States/UTs in CPI-C Basket



Source: MoSPI; and Author's calculations.

computations as exhibited in the Tables and Charts barring one Table (Annex Table A1), which is a simple demonstration of unweighted count of transitions.

As the prime objective of this study is to track monthly transitions of annual inflation from one level to another at the most granular level[4], the granular level inflation data of larger States are considered. Based on this disaggregation of data, the gradual decline in the share[5] of products having high inflation (above 6 per cent) till mid-2017, touching a trough of 13.75 per cent in June 2017, appears to be an important contributor in bringing the CPI-C inflation down and containing it in the desired corridor comfortably. Interestingly, the share of products with inflation between 2 per cent and 6 per cent peaked at around 58 per cent (58.87 per cent in May 2017 and 57.18 per cent in June 2017) during this period reflecting moderate inflation across the board (Chart 5).

Inflation has generally risen with the rise in the share of products having high inflation across the months. However, the relationship does not appear to be linear and rather a log-linear relationship exhibits a better association (Chart 6).

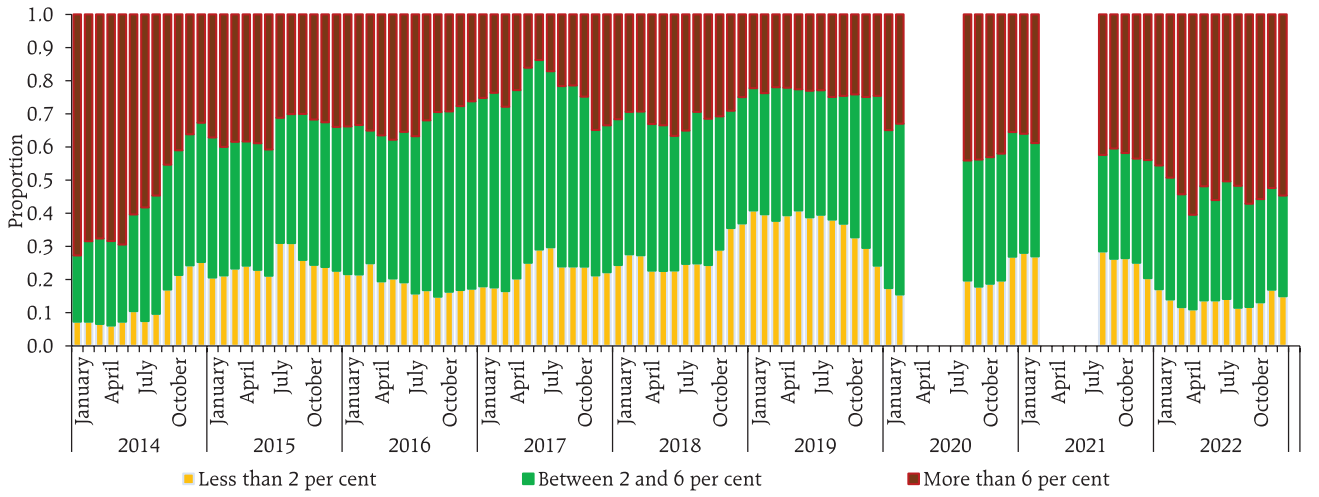
It may be noted that the relative share of products in the high and low inflation bands is expected to offset each other to some extent, in addition to their joint impact with the inflation profile of products in the moderate band of 2 per cent to 6 per cent. The crucial value is indeed not just the share but the conditional distributions in these strata.

The conditional mean, *i.e.*, the average value given that it is in a particular band, has bigger relevance for both the tails, as these are unbounded. As an illustration, the high inflation at 7.35 per cent recorded in December 2019, was driven by a very high conditional mean of higher band (inflation above 6 per cent), *i.e.*, the right tail. This, at 21.98 per cent, happens to be an all-time peak during the months

[4] The MoSPI also publishes item-level inflation for all 299 items, as used to construct the CPI-C. However, this is not published by area or by States/UTs. Accordingly, the overall granularity of the larger States is much higher covering 990 (=2*22*23 - 22) data points. The Sub-group 'Housing' is not applicable for Rural areas and, accordingly, is neither available for the States nor for the aggregate CPI-C, and accordingly is not available.

[5] The share incorporates the appropriate weights of the respective product sub-groups, and not just simple averages, in order to represent CPI-C the way it is compiled.

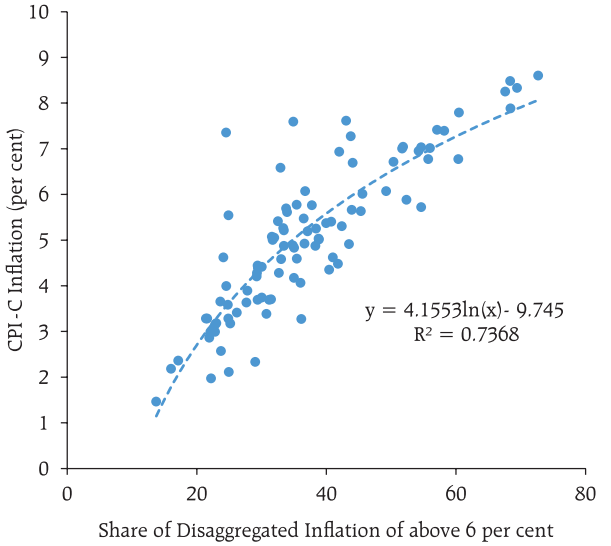
Chart 5: Distribution of CPI-C Disaggregated Data (2014-2022)



Note: Adequate granularity of data (either index or rates or both) is not available from March 2020 to July 2020 and again from March 2021 to July 2021 due to the first and second waves of COVID. Accordingly, these incomplete data points were discarded from the study and for all the subsequent Charts/Tables, wherever applicable.
Source: Author's calculations.

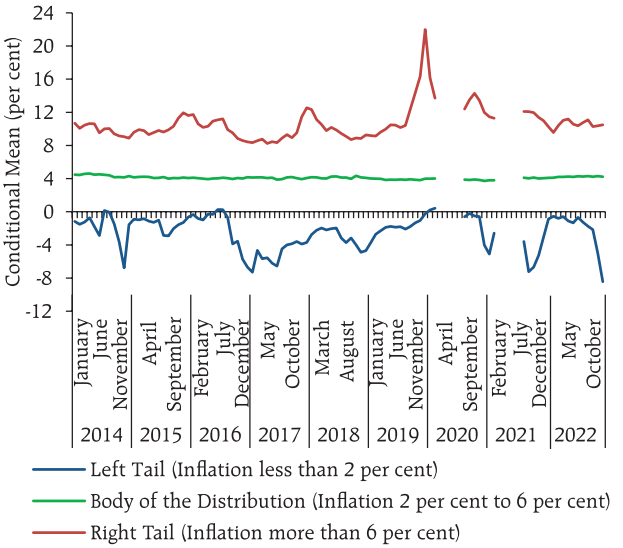
of 2014 to 2022. Surprisingly, while the positive and negative shocks, in terms of share of left tail (24.18 per cent) and right tail (24.55 per cent), were able to offset each other in December 2019, the spread[6] of their conditional means was quite different from the target of 4 per cent. This was otherwise also quite different from the average profile[7] of other months (Chart 7).

Chart 6: CPI-C Inflation and Tail - Scatter Plot



Source: Author's calculations.

Chart 7: CPI-C Inflation - Mean of Tails

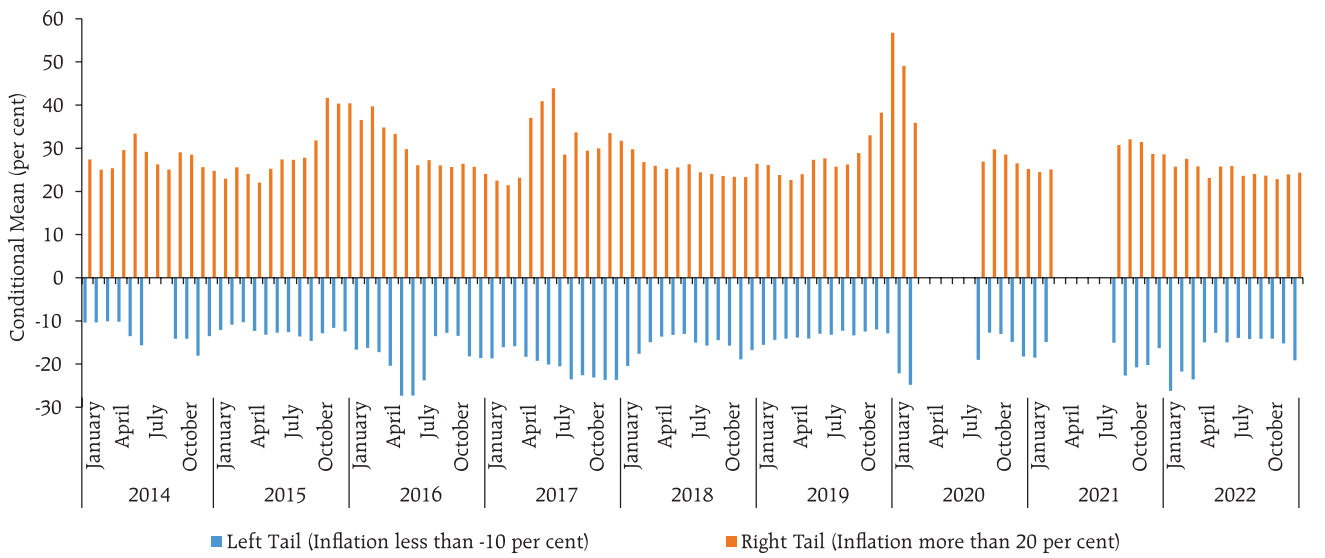


Source: Author's calculations.

[6] The spread (distance) of the conditional mean of the right tail from 4 per cent was at 17.98 per cent in December 2019, while it was only -4.24 per cent for the left tail, which had a conditional mean of -0.24 per cent.

[7] Based on the simple average of the 98 observed months under the study period, the conditional means of the left tail and right tail are computed as –2.50 per cent and 10.61 per cent, respectively, while it is 4.10 per cent for the body of the distribution.

Chart 8: CPI-C Inflation - Mean of Extreme Tails



Source: Author's calculations.

Due to the high importance of tails in the inflation disaggregated data, their extreme values were also investigated. These extreme tails demonstrate the vulnerability of inflation prints when the positive and negative shocks fail to offset each other, in terms of their decomposed asymmetric contributions in shaping the final single print of CPI-C inflation (Chart 8).

III. Methodology

A stochastic process is a family or set of ordered random variables. It is a model for a time-dependent random phenomenon. It is a collection of random variables X(t), one for each time t in some set J. The same is denoted as {X(t)}. The set of values that the random variable X(t) are capable of taking is called the state space of the process. A stochastic process is said to be stationary or strictly stationary, if the joint distributions of $X(t_1)$, $X(t_2)$, $X(t_3)$, ……., $X(t_n)$ and $X(k+t_1)$, $X(k+t_2)$, $X(k+t_3)$, ……., $X(k+t_n)$ are identical for all t_1, t_2, t_3,……., t_n and $k+t_1$, $k+t_2$, $k+t_3$,……., $k+t_n$ in J and for all integers n. That is to say that the statistical properties of the process remain unchanged as time elapses. The statistical properties pertain to probabilities, expected values, variance *etc.* The failure of any of these conditions to hold could be used to show that the process is not stationary.

A continuous stochastic process {X(t), t ≥ 0} is said to be a first-order Markov process, if for a set of time points $t_0 < t_1 < t_2 \ldots. < t_n$, the conditional distribution of the random variable $X(t_n)$ can be defined in terms of only $X(t_{n-1})$. That is the history of the process prior to time t_{n-1} is assumed to be irrelevant to the value taken by the variable at time t_n. Formally, the stochastic process {X(t)} is a Markov, if for all time points $t_0 < t_1 < t_2 \ldots. < t_n$,

$$\text{Prob.}\ [\, X(t_n) \le x_n \mid X(t_k) \le x_k ; k = 0, 1, 2, 3, \ldots., n\text{-}1]$$

$$= P\ [\, X(t_n) \le x_n \mid X(t_{n-1}) \le x_{n-1}]$$

where, Prob. is the probability, x_0, x_1, x_2, x_3, ……., x_n belong to a set of real numbers.

A discrete-time first-order Markov process described by a sequence of random variables X(t), t = 0, 1, 2, 3, …, with discrete state space is referred to as a first-order Markov chain or simply as a Markov chain.

We define the stationary probability distribution of a Markov chain with transition probability matrix P if the following conditions hold for all j in S:

1. $\pi_j = \sum \pi_i p_{ij}$

2. $\pi_j \geq 0$

3. $\sum_{j \in S} \pi_j = 1$

These three conditions can together be represented in a matrix equation, $\pi P = \pi$.

where, π is a row vector, thus, $\pi = (\pi_1, \pi_2, \pi_3, \ldots\ldots \pi_n)$

The meaning of this is if we take π as our initial probability distribution, that is,

$P [X_0 = i] = \pi_i$

Then, the distribution at time 1 is again given by π:

$P [X_1 = j] = \sum_{i \in S} P [X_1 = j / X_0 = i] P[X_0 = i]$

$= \sum_{i \in S} p_{ij} \pi_i = \pi_j$

The same is valid for all times $n \geq 1$. The probability distribution of π is invariant. If the chain ever reaches the distribution π at some time, say, n, that is, $P [X_n = i] = \pi_i$ for all values of i, then the distribution of X_t will be π for all subsequent times $t \geq n$. This is because the transition matrix will remain unchanged. With this, the statistical properties of the process will not change over time and the Markov chain will have a stationary process.

A Markov chain may or may not have a stationary probability distribution. Also, if it has a stationary probability distribution, it may not necessarily be unique. However, if a chain is having a finite space, it must have the existence of at least one stationary distribution. In practice, the transition probabilities (p_{ij}, the probability of transition from i^{th} state to j^{th} state in one step for all i and j) are not available. However, these could be estimated from the empirical data. For example, let $x_1, x_2, x_3, \ldots\ldots, x_N$ are the observations available from the empirical data. Let,

n_{ij} = number of times t ($1 \leq t \leq N-1$) such that $x_t = i$ and $x_{t+1} = j$

$n_{i.}$ = number of times t ($1 \leq t \leq N-1$) such that $x_t = i$

In fact, n_{ij} is the observed number of transitions from the i^{th} state to the j^{th} state, and $n_{i.}$ is the observed total number of transitions originating from the i^{th} state.

With this, the transition probabilities could be estimated as:

Est. $p_{ij} = n_{ij} / n_{i.} = n_{ij} / \sum n_{ij}$ (summation over j)

As an extension to the above methodology, we develop a weighted count concept to differentiate a transition of a particular product sub-group across States/UTs and Areas (Rural/Urban) having different weights in the CPI-C basket. This ensures that the transitions through granular data represent aggregate inflation. Accordingly, we now define it as:

Let $w_{g,s,a} * n_{ij}$ be the (weighted) number of moves from the i^{th} state (an inflation band) to j^{th} state (an inflation band) in a one-step period (one month) for a granular category - g^{th} product-group (total 23) of a^{th} area (either Rural or Urban) in the s^{th} State/UTs (total 22).

let p_{ij} be the corresponding (weighted) probability, which can be estimated by equating to:

$p_{ij} = w_{g,s,a} * n_{ij} / \sum_j (w_{g,s,a} * n_{ij})$, where the denominator is the sum of terms (row marginal totals) in the i^{th} state (an inflation band).

Also, $\sum_j p_{ij} = 1$ for any state i.

Let $P = \{p_{ij}\}$ be the matrix of such probabilities and let π be the row vector of $1 \times i$. This will convert P into a stationary solution, which can be obtained by solving the equation $\pi P = P$.

The present article attempts to build a simple stochastic process for the transition of CPI-C using the observed (empirical) data as discussed in the introductory section. The transitions of inflation at the granular level are analysed through the stochastic process to derive the long-run steady state of headline inflation. The study uses Markov chains (as defined

above) to carry out the exercise. The Markov chains assume discrete state space and discrete time. The discrete-time spaces are considered as "months", in line with the frequency of CPI-C inflation data. The discrete state spaces are considered as various inflation bands.

The granular dataset of 22 States/UTs is used, as discussed in the second section, to the fullest to investigate every transition. A transition requires pair-wise inflation data for two consecutive months. It may be noted that the data of a particular month is used twice, one for destination (previous month to current month) and the other for origin (current month to next month). However, due to a structural break in the time series leading to the non-availability of complete data from March to July of each year 2020 and 2021, some of the pairs of consecutive months are not available and so are discarded from the study. This way, some of the months are utilised only once (such as February 2020 is used for transition only as a destination), while some others (such as March 2020) are discarded.

We now define our states (*viz.* the CPI-C inflation bands) in five broad categories, extreme low (EL), low (L), middle (M), high (H) and extreme high (EH) with sub-levels of 10 bands each for the low, middle and high bands. This results in 32 bands for inflation (Table 1).

It may be noted that the tolerance band for inflation for Reserve Bank is 2 per cent to 6 per cent, *viz.* bands M03, M04, M05 and M06, in the above-defined classification. However, it may be mentioned that it is meant for the CPI-C All India (Aggregate) inflation and not for its components/granularity. Nevertheless, these bands for the granular data may be useful for policy analysis.

Based on the classification of bands, we track the monthly transitions of the annual inflation at the granular level with appropriate weights assigned to them. Once the transitions from one band to another band for each category of granular-level data are compiled, the transition probability matrix (TPM) of size 32-by-32 is constructed. The same is done for the Pre-COVID, Post-COVID and combined period for the valid pair[8] of consecutive months. The statistical

Table 1: Bands for CPI-C Inflation

Inflation (j) (Broad Levels)	Band Codes (Sub-Levels)	State Number
Extreme Low (EL)	EL ($j < -10$)	1
Low (L)	L01 ($-10 \le j < -9$)	2
	L02 ($-9 \le j < -8$)	3
	L03 ($-8 \le j < -7$)	4
	L04 ($-7 \le j < -6$)	5
	L05 ($-6 \le j < -5$)	6
	L06 ($-5 \le j < -4$)	7
	L07 ($-4 \le j < -3$)	8
	L08 ($-3 \le j < -2$)	9
	L09 ($-2 \le j < -1$)	10
	L10 ($-1 \le j < 0$)	11
Middle (M)	M01 ($0 \le j < 1$)	12
	M02 ($1 \le j < 2$)	13
	M03 ($2 \le j < 3$)	14
	M04 ($3 \le j < 4$)	15
	M05 ($4 \le j < 5$)	16
	M06 ($5 \le j < 6$)	17
	M07 ($6 \le j < 7$)	18
	M08 ($7 \le j < 8$)	19
	M09 ($8 \le j < 9$)	20
	M10 ($9 \le j < 10$)	21
High (H)	H01 ($10 \le j < 11$)	22
	H02 ($11 \le j < 12$)	23
	H03 ($12 \le j < 13$)	24
	H04 ($13 \le j < 14$)	25
	H05 ($14 \le j < 15$)	26
	H06 ($15 \le j < 16$)	27
	H07 ($16 \le j < 17$)	28
	H08 ($17 \le j < 18$)	29
	H09 ($18 \le j < 19$)	30
	H10 ($19 \le j < 20$)	31
Extreme High (EH)	EH ($j \ge 20$)	32

[8] The data from January 2014 to December 2022 has 95 valid pairs of consecutive two months, for which granular data is available. This includes 73 pairs for the Pre-COVID period and 22 pairs for the Post-COVID period.

characteristics of this granular level observed data exhibit clear distinction in the Pre-COVID and Post-COVID periods, in line with the CPI-C Aggregate data (Table 2).

The observed data highlight a shift in the inflation trajectory after the emergence of the COVID pandemic and the subsequent Ukraine war. The evolution of the probability density function of CPI-C inflation at a granular level since 2014 is provided in the Annex, which exhibits how the density is re-shaped after the incoming of every 6-monthly new (incremental) data – both during the pre-COVID and post-COVID periods. The skewness of the density function of the increamental dataset decreased consistently during

Table 2: Probability Density Function (PDF) of Observed Data

Band	Pre-COVID		Post-COVID		Combined	
	Mid-Point	PDF	Mid-Point	PDF	Mid-Point	PDF
EL ($j < -10$)	-16.787	0.02483	-18.451	0.02483	-17.198	0.02483
L01 ($-10 \le j < -9$)	-9.518	0.00382	-9.504	0.00250	-9.515	0.00349
L02 ($-9 \le j < -8$)	-8.541	0.00379	-8.450	0.00146	-8.531	0.00322
L03 ($-8 \le j < -7$)	-7.453	0.00376	-7.491	0.00272	-7.461	0.00350
L04 ($-7 \le j < -6$)	-6.480	0.00463	-6.510	0.00278	-6.485	0.00417
L05 ($-6 \le j < -5$)	-5.465	0.00568	-5.494	0.00401	-5.470	0.00527
L06 ($-5 \le j < -4$)	-4.471	0.00701	-4.506	0.00622	-4.479	0.00681
L07 ($-4 \le j < -3$)	-3.492	0.00941	-3.418	0.00517	-3.481	0.00836
L08 ($-3 \le j < -2$)	-2.489	0.01397	-2.501	0.01143	-2.492	0.01334
L09 ($-2 \le j < -1$)	-1.496	0.02006	-1.515	0.01620	-1.500	0.01911
L10 ($-1 \le j < 0$)	-0.507	0.02832	-0.494	0.02004	-0.505	0.02628
M01 ($0 \le j < 1$)	0.500	0.04658	0.544	0.04165	0.510	0.04537
M02 ($1 \le j < 2$)	1.536	0.06263	1.520	0.04727	1.533	0.05883
M03 ($2 \le j < 3$)	2.524	0.08532	2.531	0.07453	2.526	0.08265
M04 ($3 \le j < 4$)	3.510	0.11637	3.510	0.08650	3.510	0.10899
M05 ($4 \le j < 5$)	4.499	0.11660	4.488	0.09480	4.497	0.11122
M06 ($5 \le j < 6$)	5.491	0.10950	5.498	0.08463	5.492	0.10335
M07 ($6 \le j < 7$)	6.474	0.08870	6.492	0.08567	6.478	0.08795
M08 ($7 \le j < 8$)	7.473	0.06270	7.476	0.07198	7.474	0.06499
M09 ($8 \le j < 9$)	8.467	0.04859	8.467	0.05997	8.467	0.05140
M10 ($9 \le j < 10$)	9.475	0.03373	9.474	0.04677	9.475	0.03695
H01 ($10 \le j < 11$)	10.473	0.02480	10.471	0.03839	10.472	0.02816
H02 ($11 \le j < 12$)	11.478	0.01608	11.473	0.02800	11.476	0.01903
H03 ($12 \le j < 13$)	12.461	0.01049	12.479	0.02443	12.469	0.01394
H04 ($13 \le j < 14$)	13.489	0.00813	13.461	0.01844	13.477	0.01067
H05 ($14 \le j < 15$)	14.485	0.00586	14.518	0.01588	14.501	0.00834
H06 ($15 \le j < 16$)	15.486	0.00492	15.468	0.01238	15.478	0.00676
H07 ($16 \le j < 17$)	16.481	0.00442	16.438	0.00935	16.463	0.00564
H08 ($17 \le j < 18$)	17.401	0.00379	17.476	0.00871	17.434	0.00501
H09 ($18 \le j < 19$)	18.465	0.00260	18.416	0.01041	18.437	0.00453
H10 ($19 \le j < 20$)	19.451	0.00254	19.467	0.00723	19.459	0.00370
EH ($j \ge 20$)	32.003	0.02035	26.962	0.03564	30.164	0.02413
Mean (Per cent)		**4.66**		**6.16**		**5.03**

Note: The probability density function of the disaggregate and aggregate inflation data would be different though the central tendency derived from these two datasets would be the same or comparable. However, other statistical moments of the data (*viz.* standard deviation, skewness and kurtosis) may differ significantly. For example, the standard deviation of the granular data would be higher than that of the aggregate data.
Source: Author's calculations.

2014 and 2015, together with the lowering of inflation. The distribution turned more peaked (leptokurtic) subsequently (during 2016 and H1:2017) with more concentrated values around the central tendency coupled with generally lower extreme values at each end. The frequency of extreme low values increased significantly in H2:2018, which helped aggregate inflation to moderate. The frequency of high extreme values surged in H1:2020, prior to the emergence of COVID. In the post-COVID period, an overall rightward shift in the inflation distribution is consistently observed with varied intensity coupled with remarkable changes in the densities at extreme ends (Annex Chart A1).

To derive the long-run stationary distribution (LRSD), implementation of a large-sized matrix was possible due to the availability of a large number of observations in the dataset as we chose the highest order of granularity, yielding in a good representation of 1,024 (=32*32) cells in the matrix. As mentioned earlier, we have 990 observations for each of the valid pairs of observations leading to 94,042 observations[9]. The transition matrix for these observations (simple/unweighted count) for the combined period is provided (Annex Table A1) for ready reference for easy demonstration.

It is interesting (and logical) to see that the probability from one extreme band (say, EL) to another extreme band (say, EH) in one month is very unlikely. The *vice-versa* is also true.

As evident from the Table, there are tiny number of observations of such cases. Accordingly, in a short period of one month, the inflation (y-o-y) is unlikely to either surge or fall drastically.

To better visualise the transitions, we collapse the 32-by-32 matrix into a much smaller matrix (of 3-by-3). It is observed that the persistency of inflation has reduced in the Post-COVID period as compared to the Pre-COVID period in case of low and moderate inflation, while it has increased at a high level. Further, the extreme shifts in transition *i.e.*, from Band A to Band C and also from Band C to Band A have also increased in the Post-COVID phase (Table 3).

Using the above persistency levels of inflation bands in the granular data, the long-run (steady state) mean reversion time of the high inflation band (Band C) appeared to have reduced considerably from the pre-COVID period (3.20 months) to Post-COVID period (2.05 months), which is compensated by an increase in the same for the other two bands. The mean reversion time for Post-COVID indicates that if a transition moves out from band C (either to band A or band B), it is expected to come again to this band (*viz.* band C) quicker (in around two months), which was 3.20 months for the Pre-COVID era (Table 4).

Based on the transition matrix [P], we can derive a stationary distribution (steady state equilibrium), which is the long-run stationary distribution (LRSD) following these transitions, by solving the set of

Table 3: Persistence of Inflation (Transition Probability Matrix)

Pre-COVID			
Band	**A**	**B**	**C**
A	0.8456	0.1365	0.0179
B	0.0760	0.8322	0.0918
C	0.0143	0.1298	0.8559

Post-COVID			
Band	**A**	**B**	**C**
A	0.8058	0.1723	0.0220
B	0.0719	0.7938	0.1343
C	0.0190	0.0822	0.8988

Source: Author's calculations.
A: Inflation below 2 per cent B: Inflation within 2 per cent to 6 per cent C: Inflation above 6 per cent

[9] Eight pairs of observations were missing in the granular dataset, and accordingly, were discarded from the study resulting in 94,042 observations instead of 94,050.

Table 4: Mean Reversion Time (in Months)

Band	Pre-COVID	Post-COVID
A	4.0607	5.7720
B	2.2642	2.9483
C	3.2043	2.0510

Source: Author's calculations.
A: Inflation below 2 per cent
B: Inflation within 2 per cent to 6 per cent
C: Inflation above 6 per cent

equations $\pi P = \pi$, where π is a 1*32 row vector and P is a 32*32 matrix. The transpose of the row vector π for these three datasets represents the LRSD (Table 5).

Table 5: Forecasted Probability Density Function (PDF) of LRSD

Band	Pre-COVID	Post-COVID	Combined
EL ($j < -10$)	0.02456	0.03079	0.02595
L01 ($-10 \le j < -9$)	0.00388	0.00297	0.00369
L02 ($-9 \le j < -8$)	0.00384	0.00153	0.00337
L03 ($-8 \le j < -7$)	0.00378	0.00309	0.00357
L04 ($-7 \le j < -6$)	0.00473	0.00276	0.00425
L05 ($-6 \le j < -5$)	0.00583	0.00385	0.00538
L06 ($-5 \le j < -4$)	0.00717	0.00629	0.00694
L07 ($-4 \le j < -3$)	0.00968	0.00458	0.00848
L08 ($-3 \le j < -2$)	0.01480	0.01086	0.01373
L09 ($-2 \le j < -1$)	0.02141	0.01340	0.01938
L10 ($-1 \le j < 0$)	0.03081	0.01723	0.02723
M01 ($0 \le j < 1$)	0.05126	0.03703	0.04769
M02 ($1 \le j < 2$)	0.06911	0.04334	0.06261
M03 ($2 \le j < 3$)	0.09392	0.07076	0.08870
M04 ($3 \le j < 4$)	0.12582	0.08444	0.11649
M05 ($4 \le j < 5$)	0.12225	0.09583	0.11694
M06 ($5 \le j < 6$)	0.10993	0.08949	0.10631
M07 ($6 \le j < 7$)	0.08454	0.09243	0.08725
M08 ($7 \le j < 8$)	0.05633	0.07810	0.06158
M09 ($8 \le j < 9$)	0.04218	0.06471	0.04740
M10 ($9 \le j < 10$)	0.02783	0.04917	0.03273
H01 ($10 \le j < 11$)	0.01962	0.03995	0.02416
H02 ($11 \le j < 12$)	0.01275	0.02832	0.01610
H03 ($12 \le j < 13$)	0.00846	0.02502	0.01195
H04 ($13 \le j < 14$)	0.00662	0.01757	0.00898
H05 ($14 \le j < 15$)	0.00485	0.01477	0.00700
H06 ($15 \le j < 16$)	0.00381	0.01191	0.00559
H07 ($16 \le j < 17$)	0.00370	0.00830	0.00472
H08 ($17 \le j < 18$)	0.00314	0.00788	0.00417
H09 ($18 \le j < 19$)	0.00230	0.00944	0.00390
H10 ($19 \le j < 20$)	0.00222	0.00625	0.00314
EH ($j \ge 20$)	0.01888	0.02793	0.02059
Estimated Mean (Per cent)	**4.31**	**5.92**	**4.67**

Source: Author's calculations.

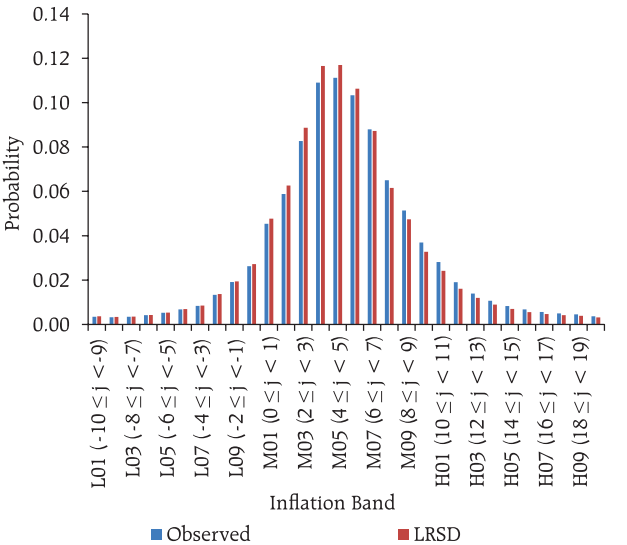
From Table 2 and Table 5, we observe that the long-run steady-state level of inflation would likely be lower than the observed levels, as is seen consistently across the datasets. This signals that the steady state is closer to the mandated target inflation of RBI, as compared to the observed data.

It may be noted that the Pre-COVID dataset is expected to be more robust being longer in series and does not cover one-off episodes of severe events such as COVID and war. Still, we observe a drop of 20-40 basis points in the inflation rate going forward if the current and past transitions hold and other underlying assumptions and conditions continue to prevail.

The nature of the shift (change) in the probability density function from the observed to the LRSD is also worthy of investigation. For example, in the case of the Pre-COVID dataset, although, the shift is small in magnitude, like in the full (combined) dataset (Chart 9), there is an indication of transitions moving towards the central value (Chart 10).

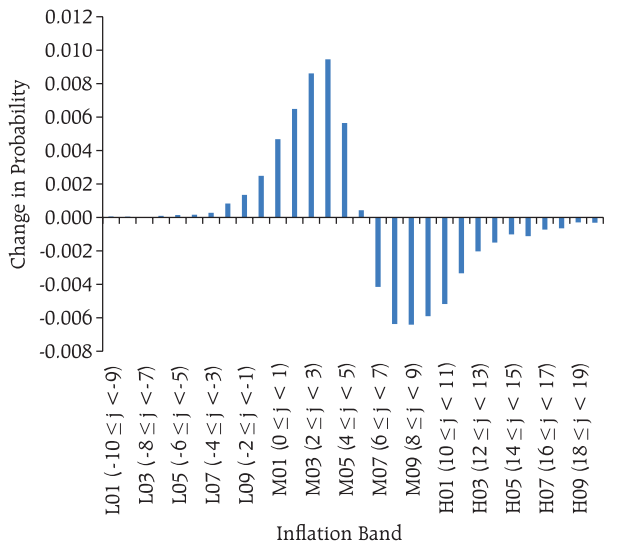
The forecasted probability density of LRSD indicates that the frequency of observations may be slightly more around the central tendency (inflation

Chart 9: PDF of Observed and LRSD



Source: Author's calculations.

Chart 10: Shift (Change) in PDF



Source: Author's calculations.

0 per cent to 6 per cent) from the observed granular data, which could be compensated with reduced observations in the high inflation bands.

IV. Conclusion

Inflation in India surged since the emergence of the COVID pandemic and the subsequent Ukraine war and became a major policy concern. With the pandemic impact waning, and the supply chains are easing, however, the long-run steady state level for inflation using stochastic transitions at the micro-level data shows a tendency of inflation to tread slowly towards its central value. This study shows that the inflation long-run steady state equilibrium level could be around 4.3 per cent based on the pre-pandemic datasets. The marginal uptick in steady state inflation observed during the pandemic period is likely to be transient and steady state inflation may revert to lower trajectories going forward. The precise speed of the recovery and normalisation of business conditions coupled with evolving situations may dictate how much and how soon the inflation glides onto a lower trajectory.

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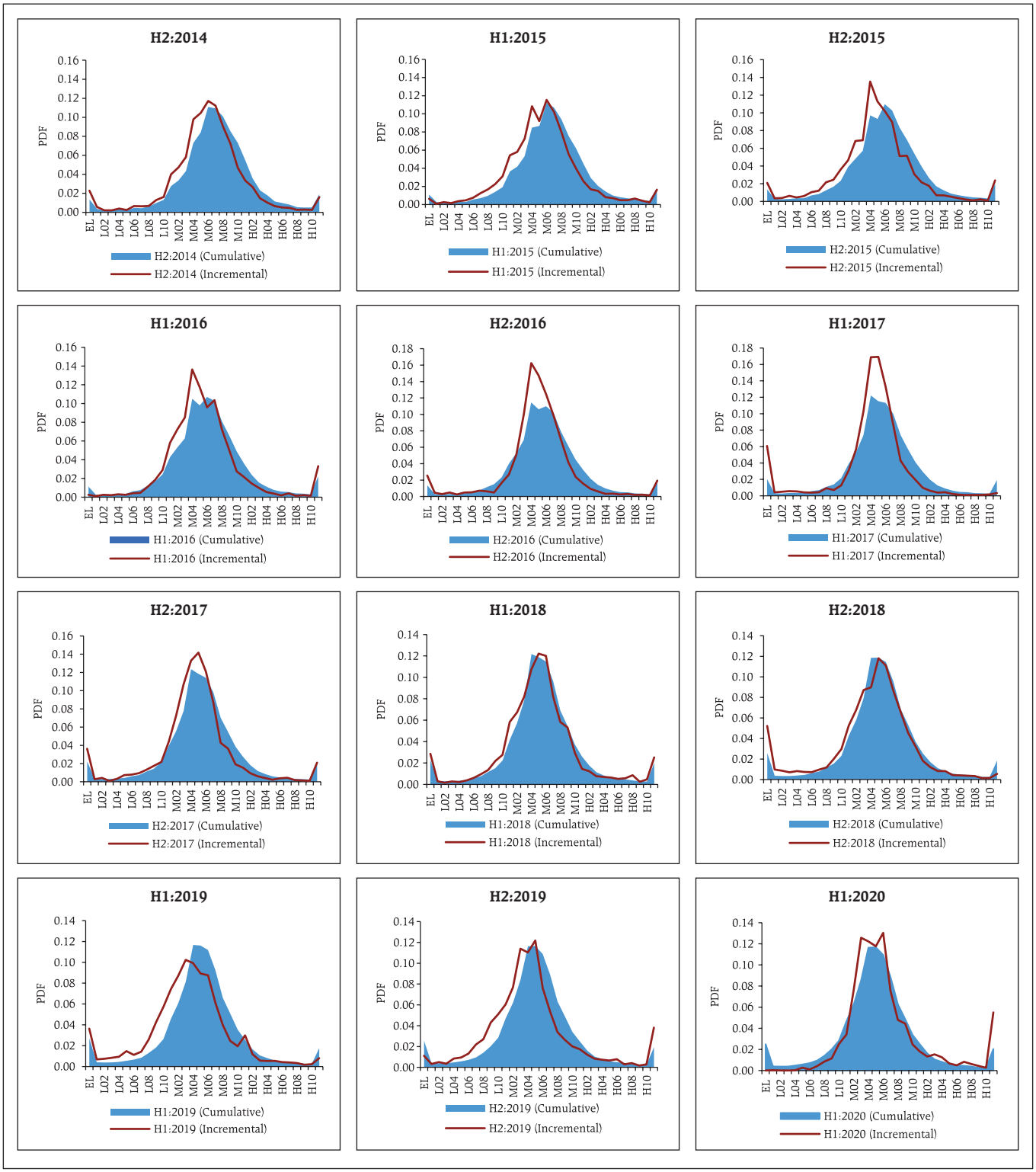
Annex

Annex Table A1: Transition Probability Matrix (Count-wise) – Combined Period

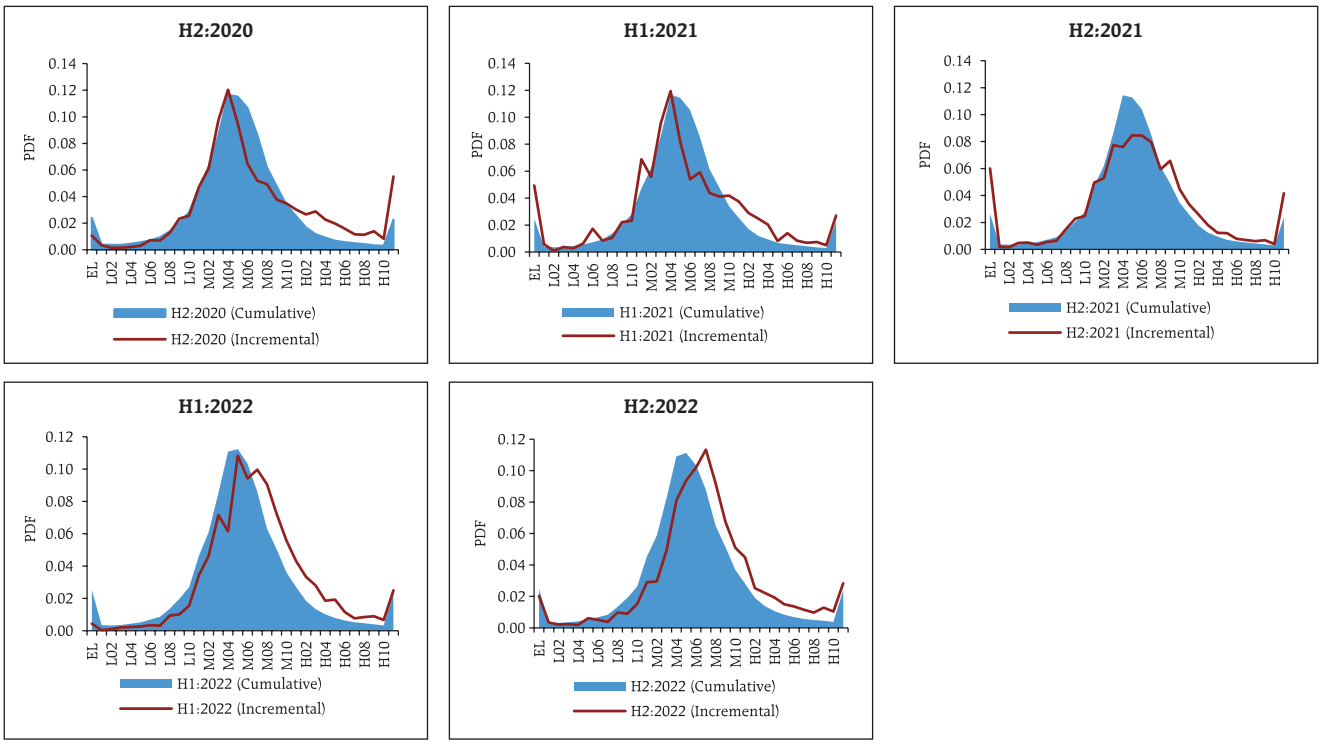
From the Current Month \ To the Next Month	EL	L01	L02	L03	L04	L05	L06	L07	L08	L09	L10	M01	M02	M03	M04	M05	M06	M07	M08	M09	M10	H01	H02	H03	H04	H05	H06	H07	H08	H09	H10	EH	Total
EL	1785	121	87	64	49	33	34	20	27	14	10	10	12	10	5	6	7	8	3	1		4		3	2	2			1			2	2320
L01	120	54	43	33	30	20	17	12	7	4	2	4	2	2	1	3		2	2		1										1	1	361
L02	88	50	60	38	33	33	17	15	10	5	7	3	4	2	7	3		3															380
L03	66	28	36	67	66	49	30	23	10	9	9	4	4	6	2							1			1			1	1				423
L04	53	27	38	45	76	77	60	37	32	11	18	6	8	7	7	7	3	1			1	2				1		1	1				521
L05	40	14	30	43	63	105	108	61	54	32	16	21	11	8	8	3	8	3	2	3	2			1	2							1	639
L06	32	14	15	33	47	97	144	136	99	55	34	22	18	21	8	12	5	4		4	1	2	1	1						1		3	809
L07	23	10	14	18	36	61	108	205	193	115	75	49	24	22	19	12	8	2	5	2	3		2	1	1	1	1		1				1011
L08	20	5	10	15	33	45	91	176	363	303	180	115	63	48	14	16	14	9	7	2	4	1	2	1	1		1				2	2	1543
L09	16	2	6	8	18	27	53	108	286	508	416	184	114	55	46	24	16	14	8	6	4	4	5	5	2	1	2	1	2				1941
L10	14	8	7	7	12	15	36	65	166	372	724	651	270	107	64	39	27	19	12	9	2	3	1	3	4	1	1				2	1	2642
M01	14	6	5	6	10	15	28	40	100	218	633	1609	960	397	164	93	48	24	11	12	12	2	7	3	2	1	2	1	1		2		4426
M02	9	3	6	8	6	13	21	34	65	125	249	972	2564	1318	483	171	101	47	18	16	13	6	5	5	2	2	2	1		2		4	6271
M03	8	4	2	1	7	6	9	13	38	47	119	365	1346	3292	1560	478	222	95	60	27	24	9	10	4	2	2	1	4	1	1	2	2	7761
M04	5	2	5	4	8	4	8	11	16	37	59	183	476	1592	3801	1758	522	223	92	43	28	28	15	12	2	4	8	3	1	1		9	8960
M05	5	1	2	6	5	8	2	12	13	27	28	89	201	547	1804	3791	1738	528	203	85	40	30	12	15	5	6	6	5	2		2	7	9225
M06	9	1	3	2	1	2	7	8	7	19	19	55	99	215	551	1821	3379	1570	521	169	82	61	17	18	11	8	7	8	1	3	2	9	8685
M07	6	2	3	2	1	2	8	10	8	9	10	36	54	81	207	541	1629	2741	1284	448	155	62	41	22	10	10	7	7	6	4	3	11	7420
M08	7	1		3	1	2	2	4	5	7	14	23	26	43	97	219	557	1346	2097	1029	342	141	52	34	26	21	10	4	3	3	2	8	6129
M09	3	1	1		2	3	3	2	4	13	10	17	10	35	56	114	209	429	1044	1531	711	297	100	45	51	19	10	7	4	8	5	12	4756
M10	3	2		1	2	1	4	2	1		6	10	11	8	29	42	70	154	393	792	1066	555	231	95	49	25	15	9	7	3	3	12	3601
H01	6		1	2	1	3	5	3	8	2	3	6	14	10	12	31	45	73	159	276	604	752	411	187	83	42	23	11	10	11	3	13	2810
H02	6	2	1		2	2		1	4	5	6	2	9	10	17	15	30	38	91	122	217	433	500	288	123	72	24	24	14	8	6	26	2098
H03	2			1		2		2	3	4	1	2	3	4	10	12	20	26	36	51	99	182	291	321	203	101	68	26	26	9	5	29	1539
H04				3		1	1	1	1	2	1	2	6	3	6	8	11	20	21	30	50	81	137	221	240	167	83	47	29	21	15	24	1232
H05	1		1				2	4	1	3	1	3	4	6	5	8	8	7	12	15	31	34	70	100	174	185	136	82	32	26	18	39	1008
H06							2	1	1		4		1		4	2	4	2	11	11	17	21	42	49	85	117	143	106	47	39	23	43	775
H07				2			1	1	1	1	1	1	4	2	2	2	3	3	9	6	11	13	29	36	53	77	70	88	84	46	29	64	639
H08	1				1		1	1	1				5	3		4	4	4	7	9	12	10	16	9	29	38	59	60	81	65	40	75	535
H09	2		1		1			2	2		1	1	2		3	3	1	5	3	8	10	11	16	13	16	20	28	37	52	58	43	107	446
H10			1		2							2	1	1	3	4	5	2	3	5	10	5	12	6	11	22	16	29	46	45	49	119	399
EH	1	1					2	2	1	3	3	2	4	4	2	5	13	15	8	10	13	26	24	34	36	41	34	65	70	90	135	2093	2737
Total	2345	359	378	412	513	626	804	1012	1527	1950	2659	4449	6330	7859	8997	9254	8711	7417	6125	4722	3565	2776	2049	1532	1226	986	756	628	523	444	392	2716	94042

Chart A1: Evolution and Stabilisation of the Probability Density Function with the Incoming of every Half-Yearly Incremental Data (2014-2022)

Pre-COVID



Post-COVID



Note: H1:2020 and H1:2021 cover only January and February of the respective year. H2:2020 and H2:2021 do not cover July of the respective year. These are not available fully at the granular level.
Source: Author's calculations.

India and COP-26 Commitments: Challenges for the Mining sector

*by V. Dhanya, Gautam and Arjit Shivhare^*

India's commitment to clean energy is anchored around renewable energy sources, though, in the medium run, coal is likely to continue to play a major part. In the fast-changing technological world, the country has followed a multi-prong approach to reduce dependence on fossil fuel, exploring new energy sources like hydrogen and biofuel along with solar and wind power. The shift to clean energy has changed the dynamics in the mining sector with a gradual shift from coal to other critical minerals required to produce renewable energy. The recent global supply chain bottlenecks in the energy sector underscores the necessity of building a cost-effective sustainable and self-sufficient energy system.

Introduction

The mining sector provides opportunities for economic and social development of an economy, the benefits of which have been different across countries. While some resource-rich countries like Australia and Botswana benefitted from their rich resources, many countries failed to do so, leading to coinage of the term 'resource curse'. Many reasons were cited for this, the most prominent being the appreciation of the real exchange rate also known as the Dutch Disease syndrome. Recently, renewed interest in sustainable resources and growth following the United Nations Framework Convention on Climate Change (UNFCCC) held in Glasgow, United Kingdom (COP26[1]) has once again brought natural resources to the limelight. As natural resources form the base of both conventional, as well as renewable energy sources, the importance of mineral resources are likely to go up in the case of the latter on sustainability considerations. On the contrary, supply disruptions following the COVID-19 pandemic and geo-political tensions saw deglobalisation and raising concerns of energy security in many parts of the world. Concomitantly, it has also prompted concerns about near monopoly of a limited number of countries for many essential minerals. In this context, natural resources as an input assume importance for the energy security of a country, particularly considering the world's commitments for sustainable energy sources. India's transition to net zero emission rests on harnessing renewable energy sources, though in the medium term, coal would continue to play a major role considering the developmental needs of the country. At the same time, sustainable development of renewable energy sources depends on the unhindered availability of mineral resources required for generation of renewable resources. In this study, we examine India's path to energy security in the backdrop of its commitments to COP26 and its impact on the mining sector for broader energy security.

The rest of the article is organised as follows. Section II investigates the major features of COP26 and the status of global warming. It also explains India's commitments under COP26. Section III explores India's strategy for achieving net zero emissions and energy security. This section will also make a comparative analysis of strategies followed by various countries in reducing emissions. Section IV examines role of the mining sector in the overall framework of energy security and emission reduction commitments. And Section V concludes with major observations.

II. COP26: Commitments and Status

COP26 summit saw nearly 140 countries accounting for around 90 per cent of world GDP coming together towards achieving net zero carbon emissions, with

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[1] "Conference of the Parties" or COP is a global climate summit started by United Nations (UN) and the 2021 meeting at Glasgow, United Kingdom was the 26th annual summit of COP's giving it the name COP26.

India being one of them. The conference put forth 'new building blocks' to advance the implementation of the Paris Agreement through actions that can get the world on a more sustainable, low-carbon pathway [2]. It was the first climate deal to explicitly commit to reducing the use of coal. The pact "Reaffirmed the Paris Agreement on holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels" and "recognised that limiting global warming to 1.5 °C requires rapid, deep and sustained reductions in global greenhouse gas emissions, including reducing global carbon dioxide emissions by 45 per cent by 2030 relative to the 2010 level, and to net zero around mid-century, as well as deep reductions in other greenhouse gases."[3] Carbon dioxide (CO2) forms nearly three-fourth of greenhouse gas (GHG) emissions, and hence reduction in carbon emissions was accorded priority by the Summit. According to (IPCC, 2015) CO2 emissions from fossil fuel combustion and industrial processes contributed about 78 per cent of the total GHG emission increase from 1970 to 2010, with a similar percentage contribution for the period 2000–2010.

In the summit, India made a commitment to net zero emissions by 2070. As per India's commitment to COP26, the country aspires to reduce dependence on fossil fuels. India's major announcement[4] in COP26 includes.

- India will progress towards its non-fossil energy capacity to 500 gigawatts by 2030
- India will meet 50 per cent of its energy requirements by 2030 with renewable energy
- India will reduce its projected carbon emission by one billion tonnes by 2030
- India will reduce the carbon intensity of its economy by 45 per cent by 2030, over 2005 levels.
- India will achieve net zero emissions by 2070

Among the various greenhouse gas emitters, energy sector is the major contributor. As per World Resources Institute, energy sector alone contributed to 74.5 per cent of total greenhouse emissions in the world in 2018 within which electricity and heat accounted for 31.9 per cent[5]. Therefore, a commitment to the reduction of emissions have a direct bearing on the energy sector. A shift to renewable energy is expected to bring-down carbon emission to a large extent. An addition of 100 GW of solar and 60 GW of wind is projected to bring down fuel requirement for coal by 20 per cent and gas by 32 per cent and ultimately reduce CO2 emission by 280 million tonnes (GOI, 2017). Thus, a pre-requisite for achieving net zero emission is a transition towards cleaner energy.

Status of Greenhouse Gas Emission

Traditionally, developed countries have been the major emitters of greenhouse gases, with industrialisation playing a major role in global warming with economic prosperities. Developing countries like China and India also have emerged as major emitters of CO2 (Karstensen *et al.*, 2020). As of 2021, India is the third largest emitter of carbon dioxide (CO2) in the world after the China and United States (US), emitting 2.7 billion tonnes of CO2 annually. On the other hand, in per-capita terms India's GHG emission at 1.9 tonnes CO2 per-capita in 2021 is much below the global average of 4.7 tonnes CO2 per person in 2021 (Chart 1).

Similar to per capita CO2 emission, India's carbon emission intensity, measured as the kilograms of CO2 emitted per dollar of GDP, is one of the lowest among

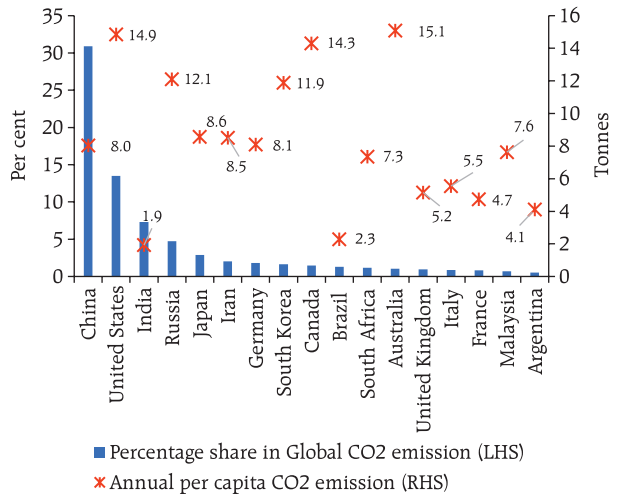
[2] https://www.un.org/en/climatechange/cop26

[3] Glasgow Climate Pact

[4] Press Information Bureau (pib.gov.in)

[5] world-greenhouse-gas-emissions-sankey-chart-2021-02(1)_0.png (1575×1047) (wri.org)

Chart 1: CO2 emission



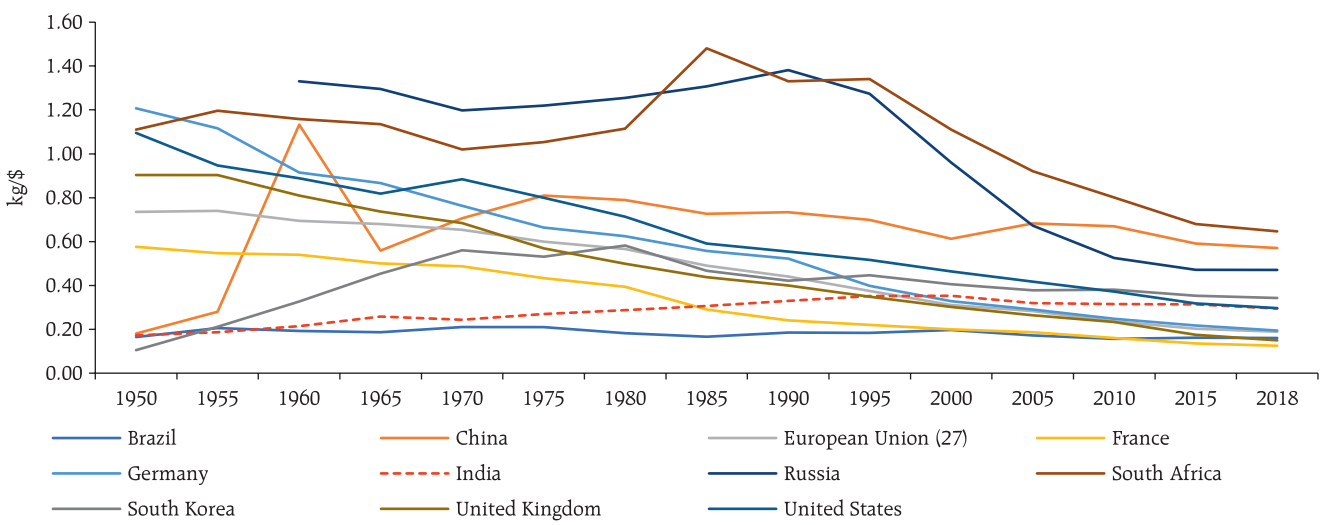
Note: CO_2 emissions from fossil fuels and industry. Land use change is not included.
Source: Global carbon project 2022.

major economies (Chart 2). Developed countries, though made a significant improvement in energy efficiency, their high growth phase coincided with high energy intensity. Gains in industrial energy efficiency is the main reason for fall in energy intensity as heavy machinery of manufacturing sector are energy intensive. Further, services sector emerging as the major contributor of GDP has also contributed to fall in emission intensity. India's emission intensity though has increased over the years, it is lower than most countries and the intensity is also on the decline in recent years (Chart 2).

Energy sector is the major emitter of GHG globally. About 80 per cent of global energy needs are met by coal, natural gas and oil within which coal accounts for the major portion. Concomitantly, in terms of emission also, coal has been the major source, accounting for 40 per cent of global CO2 emission. Compared to global average, India's dependence on coal and emissions from coal are higher (Chart 3a &3b). Emission from coal accounts for 65 per cent of India's total CO2 emission which is 25 per cent higher than global average.

While most countries have recorded a decline in coal usage over the years. China and India have a higher share of coal in their primary energy basket, the former has reduced its share over time. Compared to that India saw marginal rise in the coal's share in

Chart 2: Carbon emission intensity of major economies



Notes: Carbon emission intensity is measured as the kilograms of CO2 emitted per dollar of GDP. Emission includes fossil fuel and industry emissions.
Source: Global carbon project 2021; and Our World in Data.

Chart 3a: Sector wise CO2 emission-World

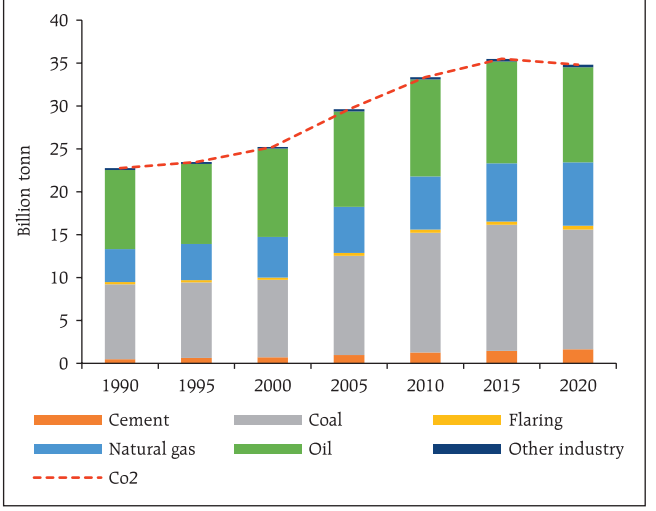
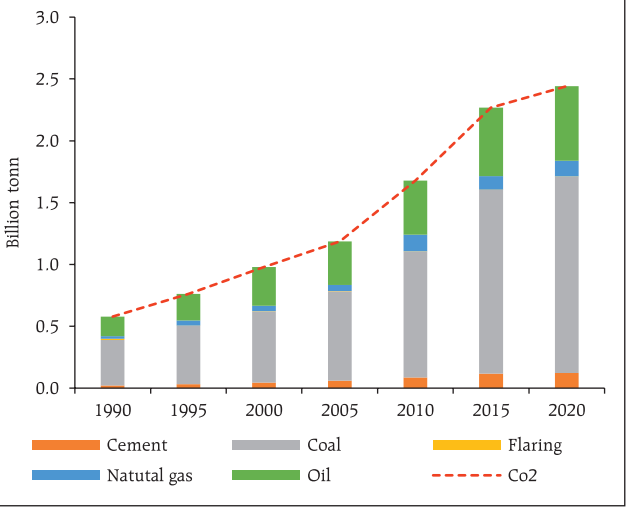


Chart 3b: Sector-wise CO2 emission -India

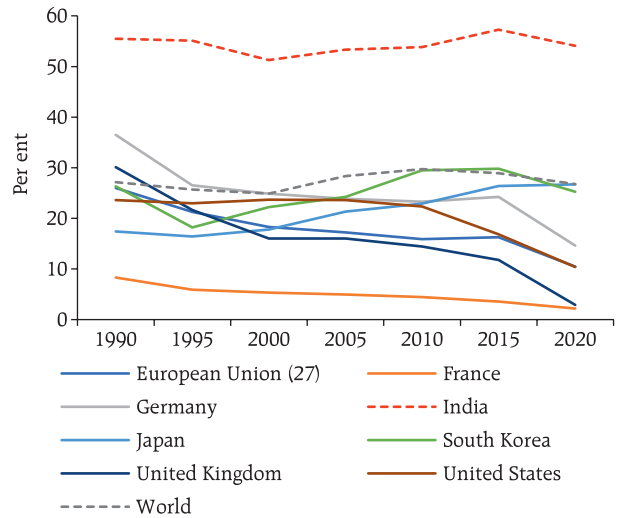


Sources: Global carbon project 2021; and Our World in Data.

total energy consumption (Chart 4). Coal is the most important fossil fuel in India, it accounts for 55 per cent of India's energy need which is almost twice as compared to world.

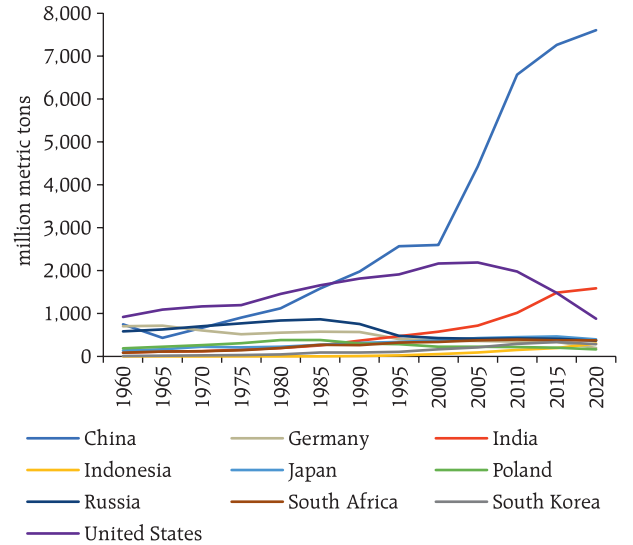
Irrespective of declining share of coal in total primary consumption, China remains the major emitter of GHG from coal use, and its emission from coal increased diabolically after it became part of the WTO in 2001 and increased its share in world manufacturing. India's emission from coal is also on the rise and is above that of developed as well as other emerging market economies (EMEs) [Chart 5].

Chart 4: Share of coal in primary energy consumption



Sources: BP Statistical Review of World Energy 2022; and Our World in Data.

Chart 5 : Emissions from Coal use - 1960 to 2020



Source: Global Carbon Project, 2021.

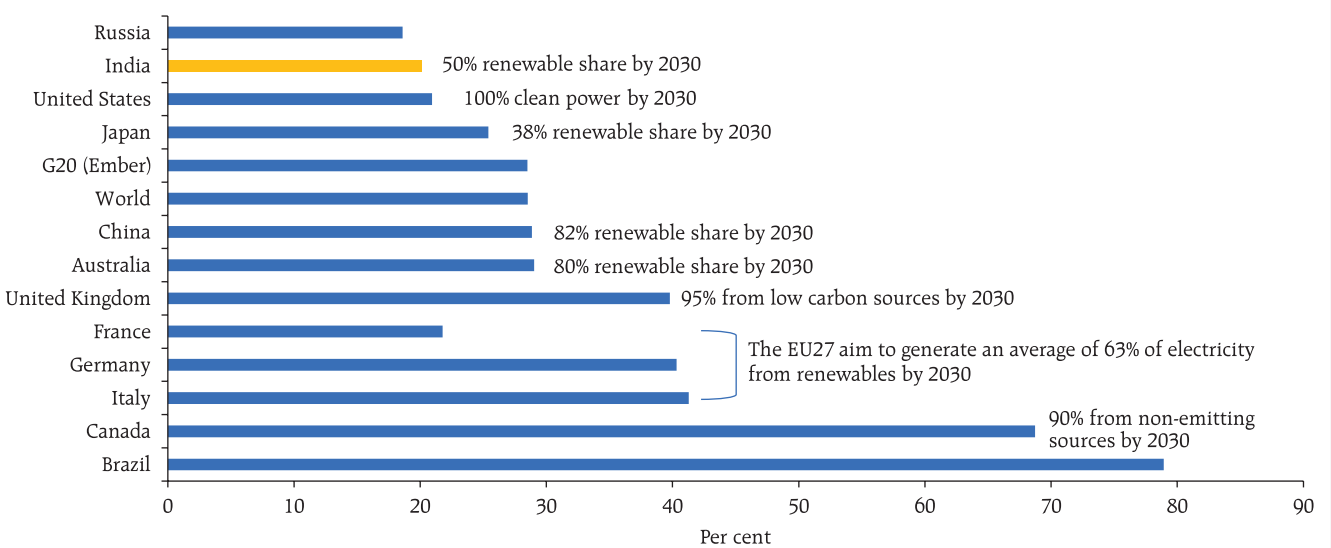
Renewables as Major Energy source

In the global fight to GHG emission control, renewables play a crucial role. Almost all countries have made ambitious targets for the reduction of fossil fuels anchoring on renewable energy in the COP 26 summit with a significant reduction in the usage of coal (Chart 6). The renewable transition, however, differs across countries, as it depends on geographical location, mineral reserve, technological advancement, *etc.* For example - renewable transition in Brazil and Canada is led by hydropower, France (Nuclear, and hydro), the UK and Germany (wind and solar), the US (solar, and wind), Italy (solar), and Australia (solar, and wind).

Global investment in renewables have far outweighed investment in conventional energy sources. As per World Energy Investment Report 2022, world energy investment is set to rise over 8 per cent in 2022 to reach a total of USD 2.4 trillion, well above pre-COVID (IEA, 2022a). Clean energy investment is expected to exceed USD 1.4 trillion in 2022, accounting for almost three-quarters of the growth in overall energy investment. On the other hand, investment in conventional sources remained below pre-COVID levels and continued to have a downward trend visible since 2015. In India too investment in renewable energy more than doubled in 2021-22 to reach USD14.5 billion[6]. While the Russia-Ukraine war posed some threats on this path, with many European countries opening many of the closed coal plants, the continued investment in renewable energy sources offers hope to the global emission reduction plans.

As per World Energy Outlook 2022, global demand for fossil fuels is projected to decline steadily from mid-2020s by around 2 exajoules (EJ) (equivalent to 1 million barrels of oil per day [mboe/d]) every year on average, till (IEA, 2022b). The coal demand is projected to peak in the next few years and oil demand to come down after the mid-2030s. Accordingly, the share of fossil fuels in the total energy supply will come down to less than three-quarters of the total energy supply by 2030 and to around 60 per cent by 2050 from the current 84 per cent. The declining cost of solar PVs, benefitting from technological developments provided

Chart 6: Renewable Energy Path: Cross Country



Sources: US Geological survey; Statista; Financial Times; and IEA.

6 As per institute for Energy Economics and Financial Analysis.

renewed vigor to the move towards renewable energy. As per IEA (2022), renewables are expected to grow at an accelerated rate of 85 per cent compared to the previous five years. China's 14th five-year plan focusing on renewables, REPowerEU plan, US Inflation Reduction Act, and India's push to renewables are cited as the main drivers of this growth.

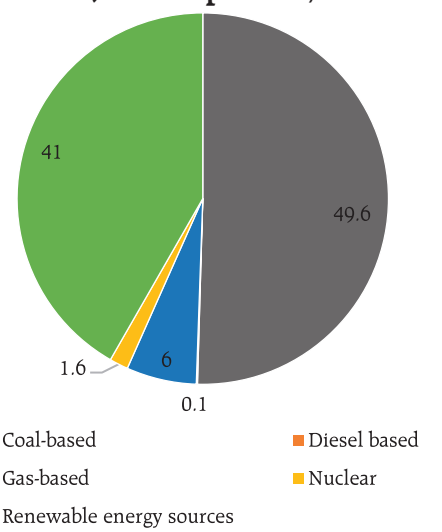
III. Strategies for Emission control

Achieving energy transition to meet climate goals requires concerted efforts from various stake holders, and a balanced approach. The global pathways for achieving net zero emissions follows a holistic approach encompassing energy efficiency measures, behavioural changes, electrification, renewables, hydrogen and hydrogen-based fuels, bioenergy and Carbon Capture, Utilisation and Storage (CCUS) [IEA, 2021]. Thus, in addition to shifting away from carbon emitting fossil fuel-based energy, the paradigm shift also depends on reducing energy usage harping on energy-efficient technological advancements as well as behavioural changes by the consumers. In India too, emission reduction strategies have largely followed the same paradigm. India's long-term transition to low emission rests on seven pillars focusing on low carbon electricity, transport and industrial system, energy-efficient urban design, innovative technology for carbon removal, enhancing forest cover and low-cost climate finance (GOI, 2022).

Compared to developed countries, which have already witnessed a significant reduction in coal usage, the success of India's commitments would also require efficient use of thermal sources, at least in the short to medium term. India's energy consumption basket is heavily skewed towards coal compared to the more diversified one globally, partly reflecting the domestic availability and large investments in thermal power. Globally, share of coal in total energy mix is less than one third, while in India it stands at 55 per cent. Developed countries have reduced their dependence on coal by largely moving towards natural gas and oil. Gas accounts for roughly one-third of the share in primary energy consumption in US and one-fourth share in European Union. However, India's consumption basket saw little change with the share of coal remaining stable around 55 per cent since 1990. In India, consumption of natural gas is meagre as compared to the global average and is one of the lowest in the world - only 6.5 per cent in primary energy generation, due to low natural gas reserves.

Low-emission sources account for 40 per cent of global electricity generation with 30 per cent coming from renewables and 10 per cent coming from nuclear energy (IEA, 2022). In the coming years, globally, electricity generation from renewables, particularly from solar and wind are expected to increase. While India primarily targets renewable energy for emission control, achievement of net zero by 2070 would depend a lot on reducing emissions from conventional energy sources. India has made significant strides in renewable installed capacity with its share in total installed capacity at 41.3 per cent (including large hydro) in March 2023[7] (Chart 7). However, its share in electricity generation is low at 22.8 per cent.

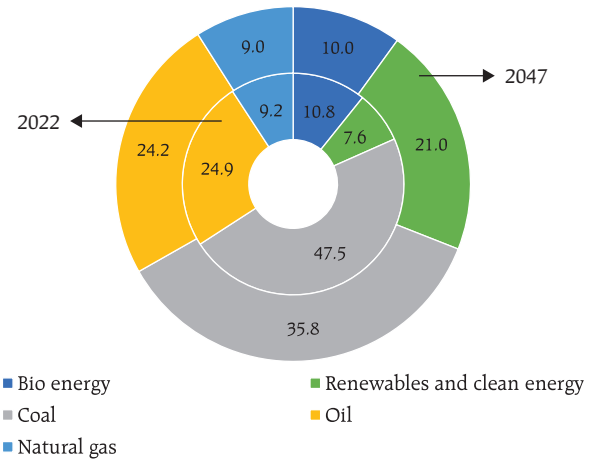
Chart 7: Total installed capacity by source (share in per cent)



Source: Central Electricity Authority, Ministry of Power.

[7] Government in March 2019 included large hydro power under renewables. Prior to that only small hydro projects with less than 25 MW capacity were considered as renewables.

Chart 8: Share (in per cent) of various energy sources in total energy supply in case of maximum clean and renewable energy pathway in 2022 and 2047



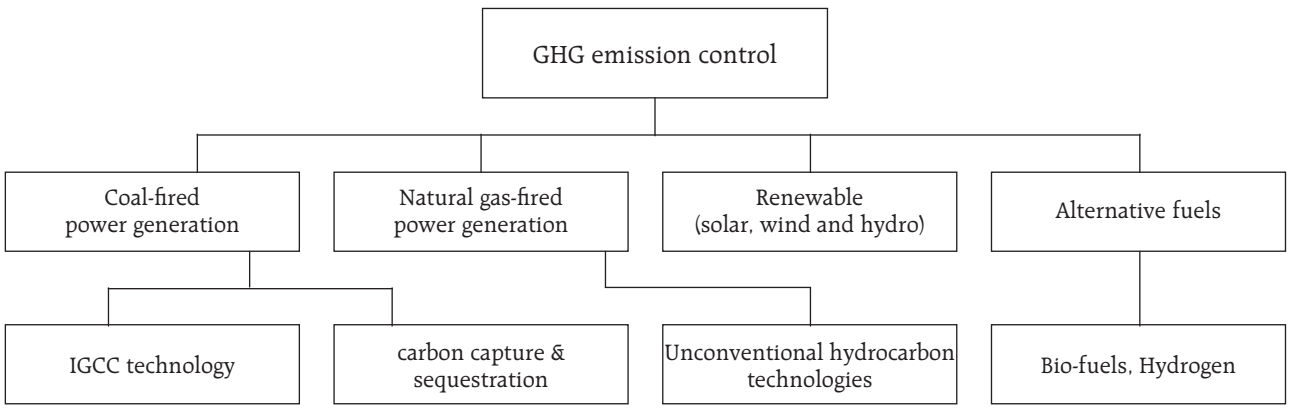
Source: iess2047.gov.in.

While initiatives towards grid connectivity and smoothening of supply mismatches are being made, in the short to medium term, conventional sources would continue to play a major role. As per energy security scenarios[8], even a maximum clean and renewable energy pathway would continue to have a higher share of coal in the total energy supply accounting for 35.8 per cent of the total energy supply in 2047 (Chart 8).

Accordingly, India's emission control strategy to a great extent depends on reducing carbon emissions from coal usage through technological advancement. Thus, the strategies are focused on renewables along with the emission reducing technologies in the conventional energy segment (Figure 1).

India's broader developmental goals require efficient use of conventional energy sources, particularly thermal energy where India has a natural advantage. India hosts roughly 7 per cent of global coal reserves and with the current rate of usage, India has reserves that can last more than a century (Vedachalam, Ramadass, & Atmanand, 2020). The emission of CO2 happens during the combustion of coal to thermal energy. By adopting alternative technologies like Integrated Gasification Combined Cycle (IGCC) technology, where coal is converted into fuel gas, CO_2 emissions can be reduced to a large extent. IGCC systems can improve power generation efficiency by approximately 15 per cent and reduce CO_2 compared to conventional coal-fired thermal power systems[9]. While initiatives of adapting the IGCC system started in the 2000s itself, large-scale adaptation of it in India is still in the offing. India is aiming for 100 million tonnes of gasified coal by 2030.

Figure 1: India's Clean Energy Path



Source: Adapted from Vedachalam *et al.*, 2020.

8 iess2047.gov.in

9 Mitsubishi Power | Power Plants: Integrated Coal Gasification Combined Cycle (IGCC) Power Plants (mhi.com)

The resultant fuel gas can yield gaseous fuels like hydrogen, methanol, and ethanol. Another clean coal technology that is being explored is Carbon Capture and Sequestration (CCS) which collects CO2 and stores it away deep underground. The government has waived the inter-state transmission charges for energy storage projects which are commissioned before June 2025. The government is also working on the National Energy Storage Policy to tackle the bottlenecks facing the industry.

An alternative to high-emission electricity is low-emission fuels like biofuels and green hydrogen. In India, efforts are being made in this direction as it has a crucial role in attaining the net zero objective with green hydrogen alone has the capacity to abate 400 million tonnes of CO2 by 2050 (Birol *et al.,* 2022). It is estimated that the country has a great potential to become a significant player in green hydrogen as green hydrogen with renewable batteries and other low – carbon technologies can create market worth up to USD 80 billion in India by 2030[10]. India's refineries and fertiliser sector alone can create demand for 5 million tonnes of green hydrogen, resulting in 28 million tonnes of carbon dioxide abatement. Projects are being launched in India to tap its green hydrogen production. In April 2022, ReNew Power (an Indian renewable energy developer) announced its joint venture with Indian Oil Corporation and Larsen and Toubro (engineering and construction major) for developing green hydrogen projects in a time-bound manner. An MoU worth USD 7 billion was signed between ACME (Indian renewable energy developer) and the Karnataka government to generate 1.2 million tonnes a year of green hydrogen by 2027, through integrated solar to green hydrogen to green ammonia facility.

While various alternative sources of energy are explored, India's path to net zero achievement is heavily weighted towards renewable energy sources.

Table 1: Projections in Installed Capacity

Energy Sources	Installed Capacity in GW		Share in Installed capacity		Projected Annual Growth
	Feb-23	2030	Feb-23	2031-32	
Fossil Fuel	**230**	**292**	**55.8**	**35.7**	**3.4**
of which					
Coal	204	244	49.5	29.9	**2.3**
Non-fossil fuel	**176**	**525**	**42.7**	**64.3**	**16.9**
of which					
Renewable Including Hydro	169	500	41.0	61.2	**16.8**
Total Installed capacity	412	817	100	100	**10.3**

Source: Author calculations based on CEA data.

As per CEA projections, renewable energy should grow at a compound annual growth of 16.8 per cent in the remaining seven years to arrive at 500 GW capacity by 2030. Given that, the large hydro segment has reached a point of stagnation, the future growth of renewable segment is expected to come from solar, wind and other renewable energy sources. In the past five years till the pandemic *i.e.,* upto 2019-20[11], the renewable sector (excluding hydro) has witnessed an annual average capacity growth of 23.0 per cent which is in line with the required growth. Nevertheless, while the share of coal will be coming down, it will continue to play a major role given the development requirements of the country (Table 1).

In the following section we explore how India's mining sector is adaptable to the changing energy requirements.

IV. Impact on Mining Sector

Mining sector in India contributed to 2.3 per cent of GDP, 10.4 per cent of Industrial GVA and provided direct and indirect employment to about 1.10 crore people in 2020-21. India has one of the largest reserves of metallic, non-metallic, fuel and minor minerals in the world. India has the fifth-largest reserve of coal and iron ore in the world. Of the total mining output, fuel minerals including coal, petroleum, and natural gas accounted for 53.8 per cent of total output

[10] *Ibid.*

[11] It refers to the period from 2015-16 to 2019-20.

followed by metallic and non-metallic minerals at 28.2 per cent, and minor minerals contributed to only 18 per cent of mining output. India's commitment to climate change has a direct bearing on mining sector-first through its impact on coal mining and secondly from the demand arising for critical minerals required for renewable energy sources. With the increase in the share of renewable sources, average amount of minerals required for a new unit of power generation capacity has increased by 50 per cent (IEA, 2022)

Generating one terawatt-hour of electricity from wind and solar could consume two time and three time more metals as compared to gas based power plant, respectively (Azevedo *et al.*, 2022). For example, an onshore wind plant requires nine times more mineral resources than a gas-fired plant (IEA, 2022). Similarly, requirement for minerals is higher in solar PV compared to conventional energy sources. For Wind turbines, Zinc, Manganese, Rare-earth material are crucial (Balaram, 2019). For Solar Photo voltaic modules, Silicon is a critical mineral apart from Copper and Zinc (chart 9a). Electric vehicles are therefore, more than four times mineral intensive than a traditional car (Chart 9b). An electric car requires more minerals, such as Lithium, Nickle, Graphite, Manganese, Cobalt, Rare-earth material, among others. Future requirements of EV and battery storage infrastructure is expected to increase demand for Lithium by over 40 times by 2040, and by about 25-30 times for Graphite, Cobalt and Nickel. Alternate sources of energy, such as fuel cells is expected to push the demand for Platinum group materials; for Hydrogen, demand for Nickel is expected to rise, and for electrolysers demand for Zirconium is expected to increase.

According to (IEA, 2022), mineral requirements for clean energy technologies are set to rise by two to four-fold by 2030, with demand of Lithium increasing by 40 times, Nickel and Cobalt increasing by 20-25 times and demand for Manganese and Rare Earth materials growing by 5-10 times in sustainable development scenario[11] (SDS) (Chart 10). Thus, a

Chart 9a: Mineral used in clean energy technologies (kg/MW)

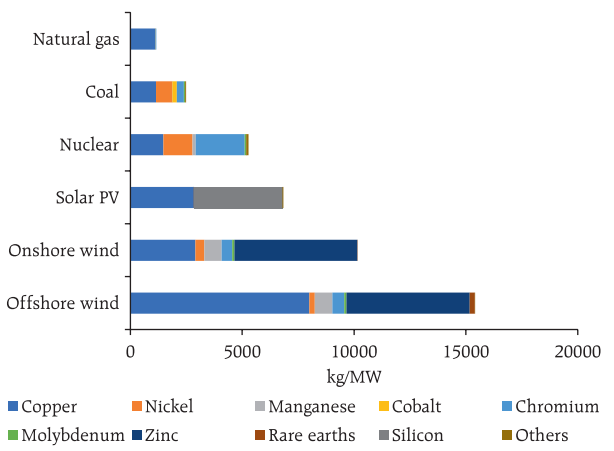
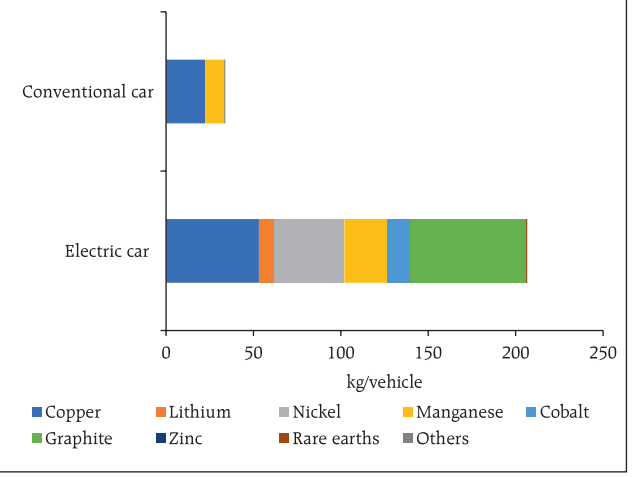


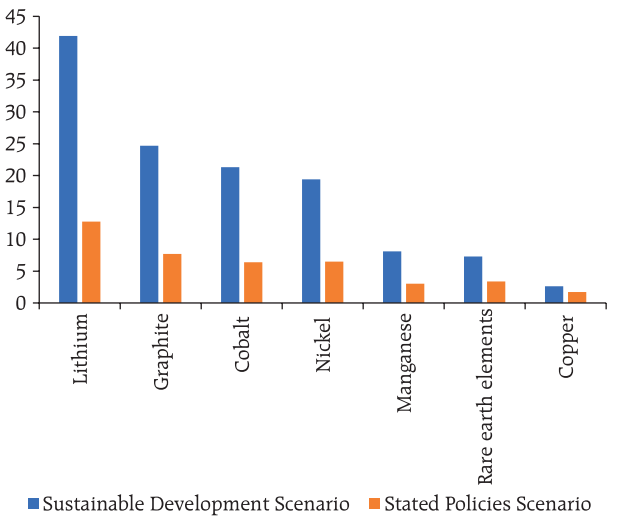
Chart 9b: Mineral used in clean energy technologies (kg/vehicle)



Source: International Energy Agency, 2022.

[12] IEA's Sustainable Development Scenario (SDS), indicating what would be required in a trajectory consistent with meeting the Paris Agreement goals, Stated Policies Scenario (STEPS), an indication of where the energy system is heading based on a sector-by-sector analysis of today's policies and policy announcement

Chart 10: Projected Growth for selected minerals: 2040 relative to 2020

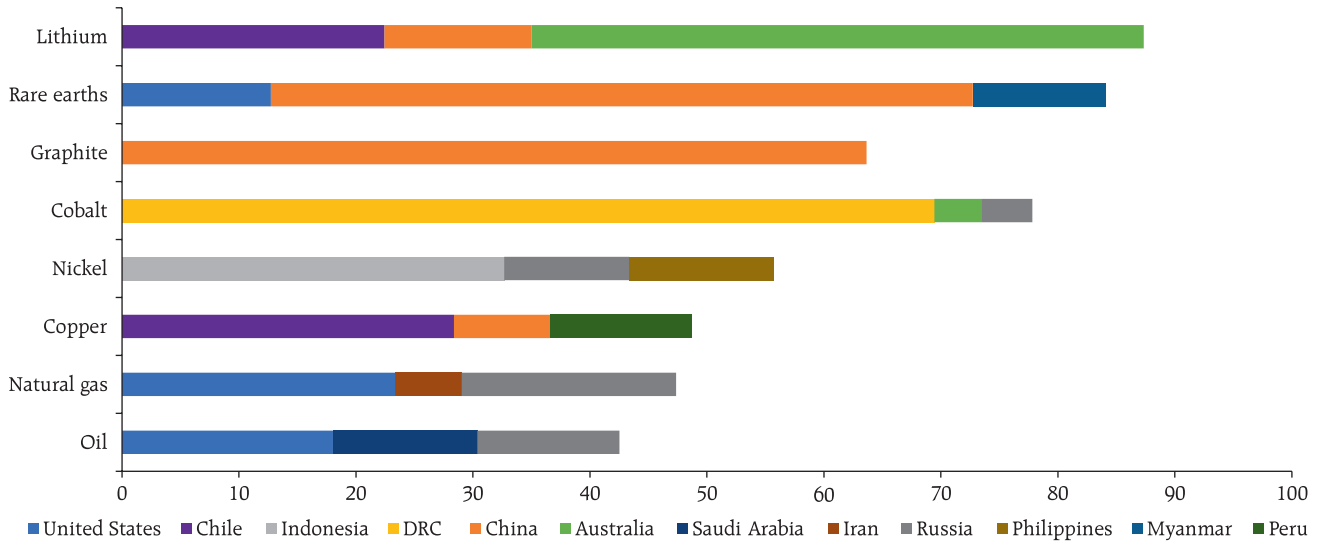


Source: International Energy Agency, 2022.

move towards renewables does not undermine the importance of mining sector. In fact, it increased the potential of the sector and thus making it more diversified. The minor minerals which had contributed to only 18 per cent of India's mining output would assume more importance in the coming years.

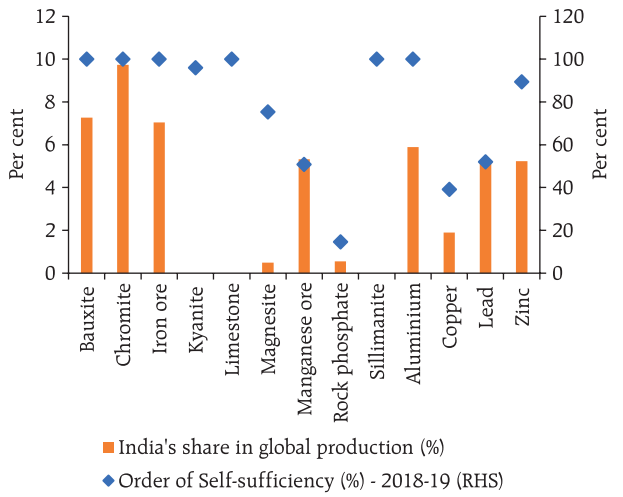
While India had abundant coal reserves, the same cannot be said about the minerals required for a clean energy transition. With the rise of RE share in total generation, shift towards EV, battery storage infrastructure demand of critical minerals has increased. India is currently dependent on imports for many of these critical minerals. These critical minerals are geographically concentrated to few locations as compared to coal, petroleum, and natural gas. In terms of global reserve, the top three countries share more than half of total global reserve of these critical minerals (Appendix table 1). Due to high capital expenditure and complex technology required, the production share of these critical minerals is highly skewed towards a few countries (Chart 11). More than three-fourth of lithium, cobalt and rare-earth elements are concentrated in top three producing countries. Further, refining and processing of these minerals require huge capital expenditure, where China has the early-starter advantage. China's share of refining/processing is about 90 per cent for Rare earth materials, 50-70 per cent for Lithium and Cobalt, 40 per cent for copper and around 35 per cent

Chart 11: Share of top producing countries in extraction of selected minerals and fossil fuels, 2019



Source: International Energy Agency, 2022.

Chart 12: Degree of Self-sufficiency in Principal Minerals & Metals, 2018-19



Sources: National Mineral Scenario; Ministry of Mines; Mineral commodity summary 2022; and U.S. Geological survey.

for Nickel. India is dependent on China for import of photovoltaic modules. At present more than 80 per cent of solar panels and modules are imported, primarily from China. Australia shares nearly half of global Lithium production and South Africa shares 43 per cent of global Chromium production in 2021 (Appendix table 1).

India's share in global reserve of these critical minerals are low except for Chromium (17.5 per cent) and silicon (abundant). India accounts for around 5-6 per cent of global rare earth material stock, 3.64 per cent of Zinc reserve and around 2-3 per cent of global Copper and Manganese reserve. At the current demand level, India has near self-sufficiency in minerals such as Bauxite, Chromite, Iron ore, Aluminum, Zinc and Copper. However, India is deficient in Manganese ore, Graphite, Rare earth material, Lithium, Kyanite, *etc.* for which import dependency is indispensable. Even in minerals near self-sufficiency is achieved, future constraints may arise as impetus on clean energy increases. Huge capital expenditure is required for extraction and production of these minerals, and efforts towards this needs to be taken on a priority basis. Further, strategic acquisition of these minerals also needs to be taken up to ensure a stable supply for meeting the emerging demand (Chart 12 and Appendix Table 2).

V. Summary and Conclusion

India's commitment to clean energy is anchored around renewable energy sources, though, in the medium run, coal is likely to continue to play a major part. In the fast-changing technological world, the country has followed a multi-prong approach to reduce dependence on fossil fuel, exploring new energy sources like hydrogen and biofuel along with solar and wind power. With the move towards clean energy, India's reliance on mining sector has to shift from coal to other essential minerals for production of renewable energy.

Present clean energy technologies are mineral intensive, supply of which is concentrated in a few countries. Supply chain disruptions during COVID-19 pandemic and subsequent Russia-Ukraine war raised concerns on import dependence on critical minerals. The government is in the process of forming various strategic alliances with mineral-rich countries. India is working with lithium and cobalt producing countries like Argentina, Bolivia and Chile. In collaboration with Australia, it has undertaken projects for lithium and cobalt mineral assets identification. The Quad grouping of India, Japan, USA and Australia has introduced a "Critical and Emerging Technology" working group which focuses on supply chain security for critical minerals. India and Japan have entered into an agreement to develop rare earths, which are used in manufacturing of several high-tech goods (Indian minerals yearbook 2019). Indian Rare Earth Limited (IREL) is working on Rare Earth Permanent Magnet (REPM) plant to manufacture samarium-cobalt magnets required in Defense and space sector.

A second approach is to reduce import dependence for these critical minerals. Accordingly, various companies are investing in those clean energy technologies that do not require these rare earth minerals. Efforts are made to produce battery chemistry which uses inexpensive, abundant, and sustainable minerals such as calcium ions, sodium ions, aluminum ions *etc.* Hydrogen fuel cell electric vehicles (FCEVs) also has the potential for greater use in future due to its high energy content per unit of weight. Advancement in battery technologies is expected to further accelerate the move towards non-fossil fuel in a more sustainable way. Initiatives such as introduction of the Faster Adoption and Manufacturing of Hybrid and Electric vehicle (FAME) scheme, Production Linked Incentive (PLI) scheme for 'National Programme on Advanced Chemistry Cell battery storage, tax breaks with an aim to promote battery infrastructure aims to reduce import dependence on key inputs.

Keeping the interest of energy security of India in mind, coal mining may be significant in the medium term. However, in the long term, it is desirable to shift towards renewables where technological innovations aided by superior manufacturing processes and designs in which fewer or no critical minerals are required. Efforts towards this are taken up globally like the Advanced Research Projects Agency-Energy (ARPA-E) of the United States which introduced Rare Earth Alternatives in Critical Materials (REACT) program (Grainger, 2022). Further, the achievement of COP-26 commitments depends to a large extent in adopting energy-efficient mechanisms following behavioral changes in energy usage. The recent supply chain bottleneck has brought to forefront the importance of energy security across the world. It also underscores the requirement of building a cost-effective sustainable energy transition and more importantly a self-sufficient energy system.

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Appendix Table 1: Top Countries having reserves and production of selected minerals (percentage share in global reserves and production)

Coal				Cobalt			
Reserve		**Production**		**Reserve**		**Production**	
United States	23	China	50.8	DR Congo	48.2	Congo (Kinshasa)	68.4
Russia	15	Indonesia	9.0	Australia	18.1	Indonesia	5.3
Australia	14	India	8.0	Indonesia	7.2	Russia	4.7
China	13	Australia	7.4	Cuba	6.0	Australia	3.1
India	10	United States	7.0	Philippines	3.1	Canada	2.1
Natural gas				**Graphite**			
Reserve		**Production**		**Reserve**		**Production**	
Russia	25.5	United States	23.6	Turkey	27.3	China	65.4
Iran	21.9	Russia	17.7	Brazil	22.4	Mozambique	13.1
Qatar	16.9	Iran	6.5	China	15.8	Madagascar	8.5
Turkmenistan	9.3	China	5.3	Madagascar	7.9	Brazil	6.7
United States	8.6	Qatar	4.5	Mozambique	7.6	Korea, Republic of	1.3
Lithium				**Rare rath material**			
Reserve		**Production**		**Reserve**		**Production**	
Chile	35.8	Australia	46.9	China	33.8	China	70.0
Australia	23.8	Chile	30.0	Vietnam	16.9	United States	14.3
Other countries8	12.7	China	14.6	Brazil	16.2	Australia	6.0
Argentina	10.4	Argentina	4.8	Russia	16.2	Burma	4.0
China	7.7	Brazil	1.7	India	5.3	Thailand	2.4
Copper				**Chromium**			
Reserve		**Production**		**Reserve**		**Production**	
Chile	21.3	Chile	23.6	Kazakhstan	41.1	South Africa	43.9
Australia	10.9	DR Congo	10.0	South Africa	35.7	Turkey	16.8
Peru	9.1	Peru	10.0	India	17.9	Kazakhstan	15.9
Russia	7.0	China	8.6	Turkey	4.6	India	10.2
Mexico	6.0	United States	5.9	Finland	1.5	Finland	5.6
Nickel				**Zinc**			
Reserve		**Production**		**Reserve**		**Production**	
Australia	21	Indonesia	48.5	Australia	27.5	China	38.7
Indonesia	21	Philippines	10.0	China	17.5	Peru	14.7
Brazil	16	Russia	6.7	Russia	8.8	Australia	12.0
Russia	7.5	New Caledonia9	5.8	Mexico	7.6	India	7.5
United States	7.37	Australia	4.8	Peru	7.6	United States	6.8
Manganese				**Silicon**			
Reserve		**Production**		**Reserve**		**Production**	
South Africa	37.6	South Africa	36.0	China	68.2		
China	16.5	Gabon	23.0	Russia	7.3		
Australia	15.9	Australia	16.5	Brazil	4.5	abundant	
Brazil	15.9	China	5.0	Norway	4.1		
Ukraine, concentrate	8.2	Ghana	4.7	United States	3.5		

Sources: Mineral commodity summary 2023, U.S. Geological survey; and BP Statistical Review of World Energy 2022.

Appendix Table 2: India's Share in Global Production and Global Reserve of Critical Minerals

(in per cent)

	Production share (2021)	Reserve share
Chromium	7.3	17.5
Copper	2.28	2.0
Graphite	0.65	2.5
Manganese	3.0	2.3
Rare earth material	1.0	5.8
Silicon	0.7	abundant
Zinc	6.2	3.64

Sources: National Mineral Scenario; Ministry of Mines; and Mineral commodity summary 2022, U.S. Geological survey.

Basic and Digital Financial Literacy in the Last Mile: A Snapshot from Rural West Bengal

by Sakshi Awasthy^, Rakhe Balachandran#, Barkha Gupta^, Rajas Saroy^, Ashish Khobragade^, Gunveer Singh, Rekha Misra^, Sarat Chandra Dhal^*

Financial literacy is important to make financial inclusion meaningful in leading to economic well-being. This article derives insights from a survey conducted among the household financial decision-makers who are yet to be covered by financial literacy programmes (FLPs). Financial literacy is heterogenous across financial aspects and demographic segments. Higher financial literacy is associated with individuals who are economically well-off, educated, younger and have access to smartphones. While basic financial concepts are reasonably understood, there is scope for raising awareness regarding digital aspects, complaint escalation mechanisms and overall, comprehensive financial knowledge.

Introduction

Financial literacy is defined as a combination of financial awareness, knowledge, skills, attitude, and behaviour necessary to make sound financial decisions and achieve individual financial well-being (OECD, 2012; RBI, 2021). From a generalised perspective, financial literacy encompasses three components; (a) financial awareness and knowledge of financial products and institutions (Carpena *et al.*, 2011); (b) financial capability involving money management and financial planning (Xu and Zia, 2012), and (c) financial skills required to understand complex concepts like interest compounding, inflation, and risk diversification (Lusardi and Mitchell, 2014). With the growing availability of complex products, consumers are confronted with baffling choices in the financial arena. Without necessary financial literacy, consumers often miss the downside risks associated with these products and get exposed to financial losses. Further, financial education plays a vital role in creating demand-side response by enabling greater awareness and access to appropriate financial products and services through regulated entities; thereby strengthening the financial resilience of households (Das, 2020; 2021). Thus, financial literacy constitutes a pre-condition for financial inclusion and a necessary condition for economic well-being. Documenting financial literacy is important as it would reveal the financial aspects and population segments that deserve targeted policy attention. Driven by this perspective, this article presents facts on the financial literacy of rural masses belonging to remote villages.

In India, financial literacy forms an important developmental agenda for the Government, the Reserve Bank of India (RBI), and other financial sector regulators. The RBI has taken various initiatives in the pursuit of creating a financially aware India including, *inter alia*, the setting up of the National Centre for Financial Education (NCFE) in collaboration with other financial sector regulators, the Centre for Financial Literacy (CFL) project - an innovative way to impart financial education through community approach, and public awareness campaigns *via* various media channels. Adopting a multi-stakeholder approach, the

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NCFE has laid out the National Strategy for Financial Education (NSFE) for 2020-2025, with the objectives of inculcating financial literacy concepts and augmenting safe use of digital financial services while managing risks.

To stocktake financial literacy, a survey was conducted in eight randomly selected villages of West Bengal, having a population of less than 2000, with questions focussing on financial awareness and knowledge of financial concepts/products/institutions. Since the selected sample is representative of more than 2.5 lakh villages (in terms of literacy), takeaways from the study could be useful in fine-tuning existing policies to impart financial and digital literacy in the hinterlands. However, the respondents did not receive any Financial Literacy Programmes (FLPs) at the time of this survey, either from the RBI or scheduled commercial banks or CFL. Hence, the extent of financial literacy revealed in this study does not, in any way, reflect the effectiveness of FLPs.

In a highly literate economy, financial literacy should be distributed with negative skewness, *i.e.*, with the majority of the participants at the right end of the distribution. In contrast, a slightly positively skewed financial literacy curve, revealed in this study, indicates that there is scope for improving financial literacy in the far-off villages. The level of awareness is relatively reasonable on basic financial concepts, *albeit*, low on digital aspects, complaint escalation mechanisms and overall comprehensive financial knowledge. Empirical analysis using beta regression and linear models underscores the significance of demographic drivers of financial literacy, *viz.*, economic background, age, education and occupation. In sum, along with the horizontal expansion of including various demographic segments and financial aspects under the FLPs, vertical deepening in terms of enhancing detailed financial knowledge is also important to make financial literacy meaningful for economic well-being.

The remainder of the study is presented in seven sections: a review of the literature (II), features of the questionnaire (III), details of the study area and sample selection (IV), the estimation of financial literacy indices (V), survey findings (VI), regression results for covariates of financial literacy (VII) and conclusion (VIII).

II. Review of Literature

The role of financial literacy is extensively addressed in the literature. Besides ensuring a household's well-being and economic stability, financial literacy has been identified as a growth augmenting factor (Huston, 2010; Beckmann, 2013). Households with higher levels of financial literacy are more likely to plan for retirement (Banks *et al.*, 2010); participate in financial markets with a more sophisticated investment outlook (Christelis *et al.*, 2010); and accumulate more wealth (Behrman *et al.*, 2010). On the other hand, the absence of the necessary financial knowledge has been associated with costly borrowing and high debt load for economies (Klapper and Panos, 2011). Research has shown that financial mistakes are often an upshot of lower financial knowledge and underdeveloped cognitive ability, warranting focussed policy emphasis on developing financial prowess (Agarwal *et al.*, 2009).

Among various factors impacting financial literacy, age, education, gender, occupational status, and income have gained prominence in the literature (Morgan and Trinh, 2017). Women have lower levels of financial knowledge than men in most countries, while both younger and older populations showcased lower financial know-how than their middle-aged counterparts. There exists a positive relationship between income and financial literacy, as well as between education and financial knowledge (Singla and Mallik, 2021). Further, studies have also found that retired or self-employed individuals possess lower financial literacy than their salaried counterparts (Choudhary and Kamboj, 2017). Besides, urban

people possess higher financial literacy than the rural populace (Klapper and Panos, 2011). Such variations in socio-demographic characteristics also have a bearing on attitude, beliefs, confidence level, and willingness of an individual to learn financial concepts (Australian Securities and Investments Commission, 2011).

A segment of the literature has also assessed the pathways through which FLPs can influence financial behaviour, economic performance, and social welfare of households. Although the relevant literature is vast, there is mixed evidence on the effect of FLPs in influencing economic behaviour. Survey data-based analysis indicates positive correlations between FLPs and behaviours, however, there exists a dearth of causal experimental analysis eliciting a clear positive impact (Carpena *et al.*, 2015). Some studies have concluded a modest impact of FLPs on financial behaviour (Fernandes *et al.*, 2014), and a quick dissipation of impacts (Bruhn *et al.*, 2014). Lack of consensus on the effectiveness of FLPs can be ascribed to heterogeneity in financial literacy measures across studies and possible omitted variable bias that make comparisons tricky (Fernandes *et al.*, 2014). Hence, target-specific interventions rather than a one-size-fits-all policy are deemed better at accounting for baseline differences in individual behaviour.

III. Survey Design and Questionnaire

The study uses a detailed questionnaire to document financial literacy, defined as 'knowledge of banking concepts/products/institutions, including digital banking and complaint escalation mechanisms, that are required to make informed, safe and convenient banking decisions and to protect oneself from financial frauds'. The financial literacy material of the Financial Inclusion and Development Department (FIDD), RBI, was utilised to design the questionnaire. The questions were divided into sections on basic financial literacy, digital financial literacy, and literacy on frauds and complaint escalation mechanisms.

At the outset, the purpose of the survey was explained to the respondents. Participation in the survey was optional and the participants were not rewarded. The confidentiality statement, that '*the individual specific information collected through the survey will only be used for research and policy purposes*', was spelt out to the participants before starting the survey. Computer-assisted personal interviews (CAPIs) were conducted for the survey using tablets so that the collected data is immediately saved to a server, thus, avoiding possible manual data entry mistakes.

To minimise investigator-induced bias, a training programme was conducted, where the purpose of each question, along with the manner of posing the questions was detailed. The survey was monitored in the field to ensure consistency of the questioning method across enumerators, to avoid inducing any answers from the respondents and to prevent sharing of any additional information with the respondents.

Further, various steps were taken to address questionnaire-induced bias, including pre-testing the survey questionnaire through pilots, and translating the questionnaire into local language (Bengali). All questions were close-ended to make data collection and processing easier, and had the option 'Do Not Know' to avoid imposing any given answer on the participants. This helps in conceptually differentiating between a wrong answer and a 'Do Not Know', while measuring financial literacy. Similarly, all the multiple-choice questions (MCQs) had the option of 'Others', so that the respondent is not constrained by the limited choices provided in the questionnaire. Further, all the options of MCQs were presented before the participants in the same order to avoid bias in responses that may stem from differential impact on the thought process of respondents.

Consumption expenditure is used as a proxy for income, as respondents were seen sidestepping questions on income in the pilot. However, data on

monthly consumption expenditure is beset with the problem of recall error. While weekly consumption expenditure data is usually free from recall error, extrapolating these data to the monthly level is not conceptually sound as it implicitly assumes uniform consumption pattern across the weeks of a month. In the pilot survey, it was noticed that most of the households purchased monthly groceries from a local grocery shop (*kirana* shop), and these items were comparable across shops in different villages. It was also observed that participants were more confident about providing their monthly grocery expenditure than providing expenditure on specific items. Hence, in the main survey, a question on monthly grocery expenditure was included to approximate consumption expenditure.

To supplement the data on consumption expenditure, information on housing conditions and household assets was collected. Data on housing conditions included number of bedrooms, whether there is a separate kitchen and living/dining room, and material used for constructing the roof, wall, and floor of the house. Data on household assets collected information regarding the possession of various assets such as fridge, television, bicycle, *etc.* The questionnaire also collected detailed information on demographic and social characteristics of the households.

The respondents can induce bias in multiple ways in primary survey-based studies. To capture unbiased information on the usage of banking channels, it was ensured that only the main financial decision-maker of the household was interviewed. If the main respondent was not available at the time of the survey, a member who was aware of all the major financial decisions of the household was interviewed. Further, when some respondents are uninterested in the survey and decide to respond a specific option in the MCQs (*e.g.*, first option or third option for all questions irrespective of the financial literacy aspect), it distorts the correct estimation (*viz.*, either underestimation or overestimation) of financial literacy. To address this, correct answers were randomly placed in all the MCQs, such that the average estimations are not affected. Further, participants could select more than one answer in MCQs to distinguish between the participants who were guessing the answers from those who had clear knowledge, thus, minimising the respondent-induced bias.

A section on verification questions on each financial aspect was also introduced to approximate the correct level of financial literacy. To illustrate, in the basic financial literacy section, it was enquired whether the respondent is aware of savings/current account. In the verification section, it was further enquired whether the respondent knows which type of account (savings/current) provides interest. These verification questions were deliberately placed towards the end of the survey to ensure unbiased answers to these questions, irrespective of answers in the other financial literacy sections.

IV. Study Area and Sample Selection

For the selection of the sample district from West Bengal, literacy rates and labour force participation rates (LFPRs) of districts at the all-India level were considered from the Census 2011. First, for analytical convenience, literacy rates and LFPRs of each district of West Bengal were standardised using the averages of the mean and standard deviation of these two variables at the all-India level. Following this, weighted arithmetic means of standardised literacy rate (60 per cent) and LFPR (40 per cent) were calculated for each district of West Bengal. Finally, among the six districts of West Bengal that had weighted mean within the range of 0 ± 0.2, Paschim Medinipur was selected after considering the survey logistics.

For the selection of blocks from Paschim Medinipur, the distance of each block from the average literacy rates and LFPRs of the district was calculated.

Kharagpur II is the block closer to the district average in terms of literacy (60 per cent) and labour participation rate (40 per cent). Next, the distance of other blocks from Kharagpur II on these criteria was calculated. From among the various blocks that were closer to Kharagpur II, Garbeta II was selected after considering the survey logistics.

Four villages each from Kharagpur II and Garbeta II with a population of less than 2000 were selected randomly. To ensure the random selection of households from these villages, different *paras* (meaning 'cluster of households' in *Bengali*) in the villages were identified. Village-level *paras* are often differentiated by caste or community. Hence, to bring down the sample-induced bias, households were selected from each *para* of the sample villages. Within the *paras*, to ensure a random selection of households, every 3rd household was included in the sample. This was done as a second-best option in the absence of a reliable village-level household list that can be used as a sampling frame. The total sample size was 505 households across eight villages and the survey was conducted in the last two weeks of September 2022.

The primary considerations for selecting West Bengal for the survey was the relatively low banking penetration in the eastern areas and survey logistics. Even though the sample villages belong to West Bengal, the validity of the results need not be restricted to the State alone. To illustrate, the average literacy rate of sample villages is 0.70, whereas the average literacy rate of villages having less than 2000 population at the all-India level is 0.57. There are around 2,58,429 villages that fall right to this mean literacy rate, *i.e.*, 0.57, and whose average literacy rate is 0.68. The average LFPR of these right-tail villages at 0.46 is also close to that of the sample villages at 0.44. Further, another important covariate of financial literacy, the gender ratio, is also comparable between these right-tail villages (0.97) and the sample villages (0.97). Hence, the insights from this survey-based study on eight random villages can be roughly representative of more than 2.5 lakh villages in the country.

V. Estimation of Financial Literacy and Economic Indices

Based on the data collected through the questionnaire, the financial literacy index for each survey participant was calculated. While doing this, all 'YES' answers received a score of one and all 'NO' answers received a score of zero in all the 'YES' or 'NO' (Y/N) questions. In questions with options of 'YES', 'NO', and 'DO NOT KNOW' (YND), while the right answer received a score of one, the wrong answer received a score of *minus* one and 'DO NOT KNOW' received a score of zero. Thus, a confident wrong answer is penalised more than a 'do not know'. For MCQs, only the right answer received a score of one. If the right answer was selected along with a wrong answer, negative marking was applied to the score of one. Illustratively, if there are a total of four answer options, each wrong answer is assigned a negative score of 0.25, and the selection of the right answer along with a wrong answer result in a score of one *minus* 0.25, and so on. This allowed capturing of the partial knowledge accurately.

Thus, the indices based on Y/N questions were in the range of zero to one, while indices based on YND and MCQs were in the range of *minus* one to *plus* one. The indices based on YND and MCQs were normalised within the range of zero to one, to work out three combined indices on Basic Financial Literacy (BFL), Digital Financial Literacy (DFL), and Complaint Escalation Mechanism (CEM). The percentage of questions in each category was used as weights in these three indices (Table 1). Followed by this, three variants of the Combined Financial Literacy (CFL) index were worked out. In CFL-SD, the standard deviations were used for computing weights to combine the sub-indices of BFL, DFL, and CEM, following the methodology of Global Gender Gap Index of the World Economic Forum {Table 2}.

Table 1: Construction of BFL, DFL and CEM sub-indices of Combined Financial Literacy Index (CFL) – By Question Type

Combined Indices	Basic Financial Literacy (BFL)	Digital Financial Literacy (DFL)	Complaint Escalation Mechanism (CEM)
Yes/No Questions	0.41	0.40	0.10
Yes/No/Do not know Questions	0.37	0.55	0.60
Multiple Choice Questions	0.22	0.05	0.30

This weightage will provide a lower weight to the sub-index with higher standard deviation. In CFL-GM, the geometric mean of three sub-indices was taken to arrive at the final combined index, following the methodology of Human Development Index of the United Nations Development Programme. This method reduces substitutability across the three sub-indices in the final index. In CFL-PCA, the principal component analysis (PCA) was employed and the first component was taken as the final index. For calculating the economic index, the information on housing conditions, household assets and consumption patterns was combined using PCA.

Sample Profile

The total sample size was 505 households spread across eight villages of Paschim Medinipur district. The study sample is relatively young with a mean age of 39 and a standard deviation of 12.8. The number of respondents having education higher than matriculation is low, even though the literacy rate is high in the sample. Two-thirds of the sample are males. The sample shows a good representation of different caste groups. All economic indicators point to the low economic status of households in the sample. To illustrate, among the housing characteristics, only 38 per cent have a separate kitchen and 21 per cent have a separate living/dining room in their houses. The monthly grocery expenditure is positively skewed, even though the distribution of households with more than four members is comparable across the expenditure categories, except 'less than ₹1,000/-'. The frequency of consumption of different food items indicates that the relatively expensive food items like fruits and mutton are consumed by a relatively lower percentage of the sample as compared to the frequency of consumption of other items like vegetables, fish, and eggs even after adjusting for households who permanently do not eat some of these food items (Annex I-a, I-b and I-c).

Table 2: Construction of CFL-SD Index

	Mean	Std. Dev.	0.01/Std. Dev	Weights used in index
BFL	0.53	0.13	0.073	(0.073/0.219) = 0.34
DFL	0.46	0.16	0.062	(0.062/0.219) = 0.28
CEM	0.62	0.12	0.083	(0.083/0.219) = 0.38

VI. Survey Findings

The financial literacy landscape of the sample villages displays a mixed picture. The preferred CFL-SD index is distributed with a mean of 0.54 with the lowest value being 0.31 and the highest value being 0.93. Since in this index, higher weightage is given to the sub-index with lower standard deviation, community closeness in literacy is given higher weightage and *vice versa*. Hence, CEM received the highest weightage followed by BFL and DFL in this index. In CFL-SD, 364 observations (72.1 per cent) fall within one standard deviation of the mean. Yet,

Table 3: Descriptive Statistics - Financial Literacy Indices

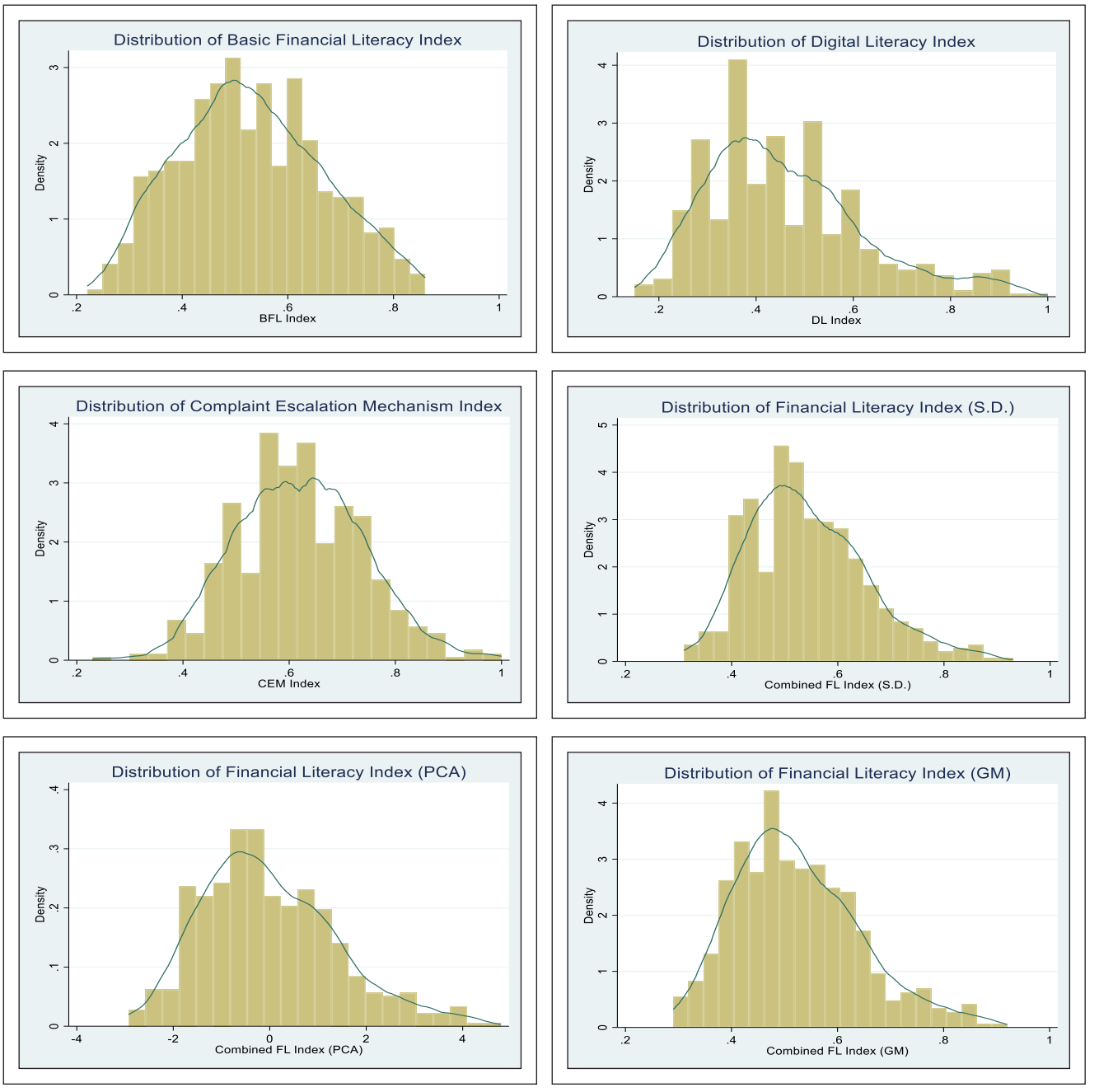
Variable	Obs	Mean	Std. dev.	Min	Max
BFL	505	0.53	0.14	0.22	0.86
DFL	505	0.46	0.16	0.15	1
CEM	505	0.62	0.12	0.23	1
CFL_SD	**505**	**0.54**	**0.11**	**0.31**	**0.93**
CFL-PCA	505	-3.78e-09	1.40	-2.93	4.79
CFL_GM	505	0.52	0.12	0.29	0.92

Note: BFL: Basic Financial Literacy Index; DFL: Digital Financial Literacy Index; CEM: Index on Frauds and Complaint Escalation Mechanism; CFL-SD: Combined Financial Literacy Index using an inverse of Standard deviation as weights; CFL-PCA: Combined Financial Literacy Index as the first component from Principal Component Analysis; CFL-GM: Combined Financial Literacy Index as the geometric mean of three sub-indices.

overall financial literacy is slightly positively skewed in the whole sample as against a negatively skewed distribution expected in a highly financially literate economy. Interestingly, the positive skewness is more prominent in the DFL as compared to other indices, indicating low digital financial literacy (Table 3 and Chart 1).

The awareness regarding nomination in the bank accounts and passbook is very high in the sample, especially on why the regular updating of the passbook is important. The awareness thins down on cheques, different types of bank accounts, and interest rates. A relatively higher percentage of respondents were aware of savings accounts (51.0 per cent) as compared

Chart 1: Distribution of Financial Literacy Indices



to current accounts (17.2 per cent). Forty-one per cent reported that they knew what an interest rate is, however, only 38 per cent responded that a higher interest rate on deposits is beneficial. While 67 per cent had heard about cheques, only 26.5 per cent could answer whether 'a cheque has an expiry date'. While 10 per cent had heard about overdraft, none of them could answer the concept of overdraft correctly (Annex II).

Eighty-five per cent of the respondents knew about ATM/Debit cards, yet only 63 per cent answered that they could not withdraw coins from ATMs and only 34 per cent could explain how to withdraw money from ATMs. Kisan credit card (KCC) is more popular (73.3 per cent) in rural areas as compared to general purpose credit card (GCC) [28.7 per cent]. Only 10.9 per cent could answer which card does not allow borrowing of money from among the KCC, GCC and debit cards. Awareness regarding one-time password (OTP) was relatively low with 47 per cent reporting that they had heard about it, and only 35 per cent of the respondents providing the correct answer to 'where can you find the OTP'. A relatively higher percentage of respondents (42.4 per cent) were aware that they could conduct banking transactions through smartphones as compared to using feature phones (15.1 per cent). Even though 35 per cent of the respondents reported that they knew internet banking, only nine per cent could correctly tell the information required to conduct an internet banking transaction. While 23 per cent reported that they knew what a Unified Payments Interface (UPI) ID is, when asked which among the four mediums - IFSC code, QR code, UPI ID and mobile number - cannot be used to send money through UPI, only nine per cent could answer correctly (Annex III).

Literacy on possible fraud and complaint escalation mechanisms is essential to manage one's bank account safely. Most of the respondents were aware that they are not supposed to reveal their bank account details to anyone else, including handing over the chequebook. Respondents were also aware that they should not click on any link that they receive through digital platforms offering big gifts/ lottery/job offers. However, roughly 42 per cent were either confused or believed that banks/RBI can indeed call them directly asking for the bank credentials. Regarding the complaint escalation mechanism, around 76 per cent confidently stated that in case they lose money from their bank account/ATM, they should immediately inform their bank branch, while 25 per cent stated along with informing the branch, they would also inform the police. However, only 23.5 per cent knew that they could escalate the complaint to banking lokpal/Ombudsman if the bank is not promptly helping them. Moreover, a majority reported that the banking ombudsman is available at the bank branch (Annex IV).

VII. Financial Literacy – Significant Covariates

In line with the existing literature, the major socio-demographic-economic and financial variables are taken as independent variables. Given the bounded and continuous nature of the outcome variable (CFL Index) within the standard unit interval (0,1), the beta regression model (Ferrari and Cribari-Neto, 2004) is employed for empirically estimating the association between demographic characteristics and financial literacy levels (Model 1). In these cases, beta regression is considered superior to ordinary least squares (OLS) as the latter assumes homoscedasticity of errors that may not be satisfied as variability of such indices (scores) reduces as the mean approaches the bounds (Kieschnick and McCollough, 2003), leading to biased and out-of-range predictions. For robustness checks, two other variants of the CFL index are modelled, as detailed in section V, computed using (a) geometric mean (Model 2) and (b) principal component analysis (Model 3) on the BFL, DFL and CEM sub-indices. Since the index constructed using PCA breaches the (0,1)

Table 4: Zero-order Correlation Matrix

Variables	Age	HH size	Education	Occupation	Smartphone	Eco Index
Age	1.00					
HH size	-0.05	1.00				
Education	-0.22	0.05	1.00			
Occupation	-0.44	-0.04	0.22	1.00		
Smartphone	-0.45	0.09	0.42	0.27	1.00	
Eco Index	0.01	0.08	0.25	0.07	0.23	1.00

Note: HH size – Household size and Eco Index – Economic Index

constraint, the OLS regression is used to estimate this model. To account for heteroscedasticity, robust standard errors are used across the models. The zero-order correlation matrix with all the variables is provided in Table 4.

Financial literacy levels vary significantly by the socioeconomic profile of the populace (Xu and Zia, 2012). The results show that higher educational attainment is associated with improved financial literacy (Table 5). Compared to the base of farming as an occupation, homemakers are relatively less financially literate. Age is negatively associated with financial awareness in the sample, suggesting that the younger generation tends to be more well-versed in financial concepts. On the economic front, better financial security in the household is linked to higher levels of financial literacy. Interestingly, smartphones emerge as a key enabler of literacy, indicating that access to internet-enabled handsets can open avenues for improving financial knowledge. The size of the household does not significantly impact financial literacy scores. These inferences hold across rest of the models regardless of the model type and methodology, thus, validating the robustness of results (Table 5).

Table 5: Regression Results for Socioeconomic Determinants of Financial Literacy

	(1) Model 1	(2) Model 2	(3) Model 3
Dependent variable	**CFL_SD**	**CFL_GM**	**CFL_PCA**
Method	**Beta Regression**	**Beta Regression**	**OLS**
Age	-0.004***	-0.005***	-0.001***
	(0.001)	(0.001)	(0.001)
Occupation			
Labour	-0.061**	-0.057*	-0.018
	(0.032)	(0.034)	(0.011)
Self-employed	0.040	0.058	0.021
	(0.040)	(0.042)	(0.014)
Salaried class	0.098*	0.113*	0.037
	(0.062)	(0.064)	(0.023)
Homemaker	-0.111**	-0.131***	-0.045***
	(0.044)	(0.048)	(0.016)
Not working	-0.051	-0.056	-0.019
	(0.045)	(0.049)	(0.017)
Level of education	0.062***	0.068***	0.023***
	(0.009)	(0.009)	(0.003)
Economic Index ^	0.062***	0.064***	0.023***
	(0.009)	(0.011)	(0.003)
Household size	0.009	0.009	0.003
	(0.009)	(0.009)	(0.003)
Smartphone	0.085***	0.088***	0.029**
	(0.031)	(0.032)	(0.011)
Intercept	-0.341***	-0.398***	0.487***
	(0.072)	(0.075)	(0.026)
Number of observations	504	504	504
BIC	-960.59	-913.32	-931.01
AIC	-1015.48	-968.21	-981.68
Log pseudolikelihood	520.74	497.11	-
Wald Chi-square (11)	326.18***	354.24***	-

Note: (a) Robust standard errors in parenthesis with significance levels: * p < 10 per cent, ** p < 5 per cent, and *** p < 1 per cent.

(b) Reference categories for occupation: Farming; for smartphone: no access.

(c) Level of education is on the scale 1 (never attended school and cannot read and write), 2 (never attended school but can read and write), 3 (primary), 4 (matriculation), 5 (higher secondary), 6 (diploma course), 7 (graduation), and 8 (post-graduation).

(d) ^ Economic Index is constructed by using Principal Component Analysis (PCA) on three sub-indices – asset ownership, consumption expenditure, and housing facilities.

(e) Model selection criteria for Models 1 and 2 show that the appropriate link function is complementary log-log (cloglog) with the lowest Bayesian Information Criterion (BIC).

VIII. Conclusion

This study provides a snapshot of the extent of financial literacy in rural West Bengal. The stocktaking of financial literacy would be beneficial in revealing gaps and adopting a targeted approach. Given that the selected sample is representative of more than 2.5 lakh villages (in terms of literacy), takeaways from the study could be useful in fine-tuning existing policies to impart financial and digital literacy in the hinterlands. However, this study does not reveal the effectiveness of FLPs since the sample villages did not receive any literacy programmes.

Using a detailed questionnaire that comprised questions on basic financial concepts/products/institutions, digital aspects and complaint escalation mechanisms, it is found that the distribution of the financial literacy index (CFL) in the sample is slightly positively skewed as against a preferable negatively skewed distribution. While basic financial concepts are reasonably understood, there is scope for raising awareness regarding digital aspects, complaint escalation mechanisms, and overall, comprehensive financial knowledge. This is evident in the relatively normally distributed BFL as compared to DFL. Empirical analysis using beta regression and linear models validates the demographic drivers of financial literacy and shows that the FLPs could benefit from targeting individuals with limited educational attainment and lower income levels, with a special focus on older age groups in rural areas. Going ahead, along with the horizontal expansion of including various demographic segments and financial aspects under the FLPs, vertical deepening in terms of enhancing detailed financial knowledge is also important to make financial literacy meaningful in leading to economic well-being.

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Annex I-a: Socio - Demographic Characteristics

(Per cent)

Education	Not literate	Literate and up to primary	Secondary / Matriculation (10th)	Higher Secondary	Graduate/ Postgraduate
	5.9	32.3	35.5	15.1	10.3
Gender	Female	Male			
	33.3	66.7			
Religion	Hindu	Prefer not to answer	Others		
	96.4	3.2	0.4		
Caste	SC	ST	OBC	General	
	26.9	16.4	14.1	41.6	

Annex I-b: Housing Conditions

(Per cent)

Number of bedrooms	One (35.8)	Two (44.4)	Three (12.3)	More than three (7.5)
Separate kitchen	Yes (38.4)	No (61.6)		
Separate living/dining room	Yes (21.0)	No (79.0)		

Annex I-c: Consumption Pattern

(Per cent)

	Less than ₹1,000/-	₹1,001/- to ₹2,000/-	₹2,001/- to Rs. 3,000/-	More than ₹3,001/-	
Monthly grocery expenditure	20.2	42.6	17.0	20.2	
Percentage of HHs with more than 4 members	32.4	39.1	39.5	42.2	
	Farmer	Homemaker	Casual labour	Salaried	
Occupation	37.4	22.2	13.3	5.9	
Percentage of households that consumed	Daily	Two to three times a week	Once a week	We do not eat it	Did not eat in the week prior to the survey
Fruits	4.2	23.0	12.9	5.0	55.5
Cake, sweets	2.8	17.6	15.6	5.9	58.0
Chicken	0.8	14.5	35.5	2.6	46.7
Mutton	0.2	1.4	5.2	13.9	79.4
Vegetables	91.3	8.7	-	-	-
Fish	11.7	46.9	29.5	1.0	10.9
Eggs	6.5	36.8	30.5	3.4	22.8
Milk	30.9	19.2	6.7	10.7	32.5

Annex II: Basic Financial Literacy

Questions	Per cent of Respondents that Replied Correctly
In case of an unfortunate event of death, who gets the money in your bank account? (nominee/ bank/RBI)	92.3
Why should you update the passbook regularly?	85
Have you heard about passbook?	85.2
Have you heard about Cheque?	67.3
Do you know what a savings account is?	51.0
Have you heard about interest rates?	40.8
Have you heard about current account?	17.2
Have you heard about overdraft?	10.1
Do you know from where banks get money to give you loan?	4.9
Do you know what a financial diary is?	2.6
Verification Questions	
Is it beneficial to have a higher interest rate on deposits?	38.0
Does a cheque have an expiry date?	26.5
What are financial diaries used for? (Recording income/expenses/both/banking transactions)	4.2
Can you withdraw an amount greater than the total deposit in your savings account?	0.8

Annex III: Digital Financial Literacy

Questions	Per cent of Respondents that Replied Correctly
Have you heard about ATM/debit cards?	84.6
Have you heard about Kisan Credit Card?	73.3
Have you heard about One-Time-Password (OTP)?	47.1
Do you know that using your smartphone, you can manage your banking transactions?	42.4
Have you heard about internet banking?	35.5
Have you heard about General Purpose Credit Card (Not KCC)?	28.7
Have you heard about UPI ID?	23.0
Do you know that by using your feature phone you can manage your banking transactions?	15.1
Verification Questions	
Can you withdraw coins from ATM?	63.0
Can you use YouTube to send money through UPI?	47.7
Where can you find/get One Time Password/OTP? (behind the debit card, passbook, SMS)	35.1
Which of the following do you need to withdraw money from your ATM? (debit card, passbook, PIN)	33.9
Which of these cards (KCC/GCC/Debit) does not allow you to borrow money?	10.9
Which of these are required for doing internet banking? (passbook, OTP, customer ID, password, Aadhar card)	9.3
Which of the following cannot be used to send money through UPI? (IFSC code, mobile number, QR code, UPI ID)	9.1

Annex IV: Literacy on Frauds and Complaint Escalation Mechanism

Questions	Per cent of Respondents that Replied Correctly
Are you supposed to hand over the passbook to anyone else for safe custody?	98.1
Are you supposed to hand over the chequebook to someone else?	97.7
Do you trust sharing OTP with anybody?	96.2
Do you trust anyone other than your family member, to share the debit card or PIN?	89.5
Have you ever clicked on a link that you receive via SMS, WhatsApp, email or social media platforms offering you big gifts/lottery/job offers?	83.0
Do you think that your bank can directly call you asking your bank account details?	58.8
Do you think that RBI can directly call you asking your bank account details?	58.6
In case, you lose money from your bank account what should you do immediately?	53.7
If the bank is not helping you promptly in case of loss of money from ATM/Bank Account, what is the next step?	23.5
In case you lose money from your bank account, what should you do immediately? (People with partial knowledge)	22.3
How can you contact Banking Ombudsman? (He/she is available at bank branch, telephone, Letter/email/online portal)	11.5

CURRENT STATISTICS

Contents

Notes: .. = Not available.
– = Nil/Negligible.
P = Preliminary/Provisional. PR = Partially Revised.

No. 1: Select Economic Indicators

Item	2022-23	2021-22		2022-23	
		Q2	Q3	Q2	Q3
	1	2	3	4	5
1 Real Sector (% Change)					
1.1 GVA at Basic Prices	6.6	9.3	4.7	5.5	4.6
1.1.1 Agriculture	3.3	4.8	2.3	2.4	3.7
1.1.2 Industry	1.7	7.3	2.2	-2.3	0.3
1.1.3 Services	9.3	11.0	6.5	9.0	6.5
1.1a Final Consumption Expenditure	6.4	13.9	10.2	7.0	1.7
1.1b Gross Fixed Capital Formation	11.2	12.4	1.2	9.7	8.3
	2022-23	**2022**		**2023**	
		Feb.	**Mar.**	**Feb.**	**Mar.**
	1	2	3	4	5
1.2 Index of Industrial Production	5.1	1.2	2.2	5.8	1.1
2 Money and Banking (% Change)					
2.1 Scheduled Commercial Banks					
2.1.1 Deposits	9.6	8.6	8.9	10.1	9.6
2.1.2 Credit #	15.0	9.1	9.6	15.5	15.0
2.1.2.1 Non-food Credit #	15.4	9.2	9.7	15.9	15.4
2.1.3 Investment in Govt. Securities	14.5	4.7	6.0	14.3	14.5
2.2 Money Stock Measures					
2.2.1 Reserve Money (M0)	6.0	13.9	13.0	10.5	6.0
2.2.2 Broad Money (M3)	9.0	8.7	8.8	9.5	9.0
3 Ratios (%)					
3.1 Cash Reserve Ratio	4.50	4.00	4.00	4.50	4.50
3.2 Statutory Liquidity Ratio	18.00	18.00	18.00	18.00	18.00
3.3 Cash-Deposit Ratio	5.0	4.6	4.7	5.0	5.0
3.4 Credit-Deposit Ratio	75.8	71.8	72.2	75.3	75.8
3.5 Incremental Credit-Deposit Ratio #	113.0	72.1	77.2	111.6	113.0
3.6 Investment-Deposit Ratio	30.0	28.8	28.7	29.9	30.0
3.7 Incremental Investment-Deposit Ratio	43.5	18.8	19.7	43.6	43.5
4 Interest Rates (%)					
4.1 Policy Repo Rate	6.50	4.00	4.00	6.50	6.50
4.2 Fixed Reverse Repo Rate	3.35	3.35	3.35	3.35	3.35
4.3 Standing Deposit Facility (SDF) Rate *	6.25	-	-	6.25	6.25
4.4 Marginal Standing Facility (MSF) Rate	6.75	4.25	4.25	6.75	6.75
4.5 Bank Rate	6.75	4.25	4.25	6.75	6.75
4.6 Base Rate	8.65/10.10	7.25/8.80	7.25/8.80	8.65/9.40	8.65/10.10
4.7 MCLR (Overnight)	7.50/8.50	6.45/7.00	6.45/7.00	7.50/8.40	7.50/8.50
4.8 Term Deposit Rate >1 Year	6.00/7.25	5.00/5.60	5.00/5.60	6.00/7.25	6.00/7.25
4.9 Savings Deposit Rate	2.70/3.00	2.70/3.00	2.70/3.00	2.70/3.00	2.70/3.00
4.10 Call Money Rate (Weighted Average)	6.78	3.30	3.34	6.62	6.78
4.11 91-Day Treasury Bill (Primary) Yield	-	3.70	3.84	6.82	-
4.12 182-Day Treasury Bill (Primary) Yield	7.28	4.19	4.27	7.18	7.28
4.13 364-Day Treasury Bill (Primary) Yield	7.31	4.52	4.58	7.26	7.31
4.14 10-Year G-Sec Par Yield (FBIL)	7.31	6.78	6.86	7.43	7.31
5 Reference Rate and Forward Premia					
5.1 INR-US$ Spot Rate (Rs. Per Foreign Currency)	82.22	75.28	76.18	82.74	82.22
5.2 INR-Euro Spot Rate (Rs. Per Foreign Currency)	89.61	84.38	84.01	87.70	89.61
5.3 Forward Premia of US$ 1-month (%)	2.41	4.30	5.67	2.10	2.41
3-month (%)	2.19	4.41	4.46	2.56	2.19
6-month (%)	2.31	4.20	4.10	2.30	2.31
6 Inflation (%)					
6.1 All India Consumer Price Index	6.7	6.1	7.0	6.4	5.7
6.2 Consumer Price Index for Industrial Workers	6.1	5.0	5.4	6.2	5.8
6.3 Wholesale Price Index	9.6	13.4	14.6	3.9	1.3
6.3.1 Primary Articles	10.3	13.9	15.9	3.6	2.4
6.3.2 Fuel and Power	29.4	30.8	31.8	14.0	9.0
6.3.3 Manufactured Products	5.7	10.2	11.3	1.9	-0.8
7 Foreign Trade (% Change)					
7.1 Imports	16.5	37.2	29.0	-4.9	-4.9
7.2 Exports	6.7	34.5	26.4	-0.4	-7.2

Note : Financial Benchmark India Pvt. Ltd. (FBIL) has commenced publication of the G-Sec benchmarks with effect from March 31, 2018 as per RBI circular FMRD.DIRD.7/14.03.025/2017-18 dated March 31, 2018. FBIL has started dissemination of reference rates w.e.f. July 10, 2018.

*: As per Press Release No. 2022-2023/41 dated April 08, 2022

#: Bank credit growth and related ratios for all fortnights from December 3, 2021 to November 18, 2022 are adjusted for past reporting errors by select scheduled commercial banks (SCBs)

Reserve Bank of India

No. 2: RBI - Liabilities and Assets *

(₹ Crore)

Item	As on the Last Friday/ Friday #						
	2022-23	2022	2023				
		Apr.	Mar. 24	Apr. 7	Apr. 14	Apr. 21	Apr. 28
	1	2	3	4	5	6	7
1 Issue Department							
1.1 Liabilities							
1.1.1 Notes in Circulation	3350412	3182321	3350412	3386555	3407973	3425118	3424801
1.1.2 Notes Held in Banking Department	13	13	13	13	13	12	15
1.1/1.2 Total Liabilities (Total Notes Issued) or Assets	**3350425**	**3182334**	**3350425**	**3386568**	**3407985**	**3425130**	**3424816**
1.2 Assets							
1.2.1 Gold	142136	123547	142136	144914	143223	143580	141580
1.2.2 Foreign Securities	3207988	3058380	3207988	3241401	3264343	3281176	3282897
1.2.3 Rupee Coin	300	407	300	254	419	374	339
1.2.4 Government of India Rupee Securities	–	–	–	–	–	–	–
2 Banking Department							
2.1 Liabilities							
2.1.1 Deposits	1340653	1654833	1340653	1349531	1288282	1165283	1219180
2.1.1.1 Central Government	100	100	100	101	101	101	100
2.1.1.2 Market Stabilisation Scheme							
2.1.1.3 State Governments	43	42	43	43	42	43	42
2.1.1.4 Scheduled Commercial Banks	809907	740234	809907	804493	842162	838212	890423
2.1.1.5 Scheduled State Co-operative Banks	7332	7650	7332	9089	7087	7273	7730
2.1.1.6 Non-Scheduled State Co-operative Banks	4615	4156	4615	4982	5081	4777	4687
2.1.1.7 Other Banks	45939	38403	45939	46406	47433	47317	48248
2.1.1.8 Others	379890	804385	379890	388818	293869	175307	200029
2.1.1.9 Financial Institutions Outside India	92826	59862	92826	95599	92507	92252	67920
2.1.2 Other Liabilities	1627193	1237355	1627193	1628168	1620781	1613011	1600038
2.1/2.2 Total Liabilities or Assets	**2967845**	**2892188**	**2967845**	**2977699**	**2909063**	**2778293**	**2819218**
2.2 Assets							
2.2.1 Notes and Coins	13	13	13	13	13	13	15
2.2.2 Balances Held Abroad	1023426	1040173	1023426	998865	991751	970129	995491
2.2.3 Loans and Advances							
2.2.3.1 Central Government	–	–	–	122394	114380	3145	4666
2.2.3.2 State Governments	7625	4380	7625	11506	10259	3146	4538
2.2.3.3 Scheduled Commercial Banks	165085	94306	165085	74997	31402	36550	73004
2.2.3.4 Scheduled State Co-op.Banks	–	–	–	–	–	–	–
2.2.3.5 Industrial Dev. Bank of India	–	–	–	–	–	–	–
2.2.3.6 NABARD	–	23010	–	–	–	–	–
2.2.3.7 EXIM Bank	–	–	–	–	–	–	–
2.2.3.8 Others	18368	6498	18368	18987	17830	19728	19937
2.2.3.9 Financial Institutions Outside India	93236	59307	93236	95475	92071	91343	67357
2.2.4 Bills Purchased and Discounted							
2.2.4.1 Internal	–	–	–	–	–	–	–
2.2.4.2 Government Treasury Bills	–	–	–	–	–	–	–
2.2.5 Investments	1407585	1464756	1407585	1414863	1413433	1415640	1418112
2.2.6 Other Assets	252508	199745	252508	240599	237925	238598	236098
2.2.6.1 Gold	232981	194425	232981	237533	234762	235347	232068

* Data are provisional.
# The figures for Friday, March 31, 2023 will be published as part of RBI's Balance Sheet in May 2023 in the Annual Report of the Bank.

No. 3: Liquidity Operations by RBI

(₹ Crore)

Date	Liquidity Adjustment Facility						Standing Liquidity Facilities	OMO (Outright)		Net Injection (+)/ Absorption (-) (1+3+5+7+9-2-4-6-8)
	Repo	Reverse Repo	Variable Rate Repo	Variable Rate Reverse Repo	MSF	SDF		Sale	Purchase	
	1	2	3	4	5	6	7	8	9	10
Mar. 1, 2023	-	-	-	-	3419	156869	-4897	-	-	-158347
Mar. 2, 2023	-	-	-	-	590	168206	-708	-	-	-168324
Mar. 3, 2023	-	-	-	-	597	147494	-	-	-	-146897
Mar. 4, 2023	-	-	-	-	5	44081	-	-	-	-44076
Mar. 5, 2023	-	-	-	-	20	8518	-	-	-	-8498
Mar. 6, 2023	-	-	-	-	632	139898	4150	-	-	-135116
Mar. 7, 2023	-	-	-	-	2933	23389	-	-	-	-20456
Mar. 8, 2023	-	-	-	-	1204	116209	-	-	-	-115005
Mar. 9, 2023	-	-	-	-	620	141408	165	-	-	-140623
Mar. 10, 2023	-	-	82650	-	1453	190802	-	-	-	-106699
Mar. 11, 2023	-	-	-	-	351	4712	-	-	-	-4361
Mar. 12, 2023	-	-	-	-	21	3574	-	-	-	-3553
Mar. 13, 2023	-	-	-	-	434	189447	-	-	-	-189013
Mar. 14, 2023	-	-	-	-	477	220883	–	-	-	-220406
Mar. 15, 2023	-	-	-	-	730	136008	245	-	-	-135033
Mar. 16, 2023	-	-	-	-	8664	83383	417	-	-	-74302
Mar. 17, 2023	-	-	-	-	3811	66641	1514	20	-	-61336
Mar. 18, 2023	-	-	-	-	799	24196	–	-	-	-23397
Mar. 19, 2023	-	-	-	-	47	6449	–	-	-	-6402
Mar. 20, 2023	-	-	-	-	505	108146	7	-	-	-107634
Mar. 21, 2023	-	-	-	-	5699	79416	-	-	-	-73717
Mar. 22, 2023	-	-	-	-	2634	39122	-	-	-	-36488
Mar. 23, 2023	-	-	-	-	519	142307	-14	-	-	-141802
Mar. 24, 2023	-	-	55885	-	28388	97952	-494	-	-	-14173
Mar. 25, 2023	-	-	-	-	527	9570	-	-	-	-9043
Mar. 26, 2023	-	-	-	-	146	3180	-	-	-	-3034
Mar. 27, 2023	-	-	-	-	900	103238	456	-	-	-101882
Mar. 28, 2023	-	-	-	-	623	162609	490	-	-	-161496
Mar. 29, 2023	-	-	-	-	23489	154737	1188	-	-	-130060
Mar. 30, 2023	-	-	-	-	9147	78265	-	-	-	-69118
Mar. 31, 2023	-	-	-	-	31995	233723	3900	-	-	-197828

SDF: Standing Deposit Facility; MSF: Marginal Standing Facility.

No. 4: Sale/ Purchase of U.S. Dollar by the RBI

i) Operations in onshore / offshore OTC segment

Item	2021-22	2022	2023	
		Mar.	Feb.	Mar.
	1	2	3	4
1 Net Purchase/ Sale of Foreign Currency (US $ Million) (1.1–1.2)	17312	-20101	254	750
1.1 Purchase (+)	113991	4315	4381	6906
1.2 Sale (–)	96679	24416	4127	6156
2 ₹ equivalent at contract rate (₹ Crore)	134629	-153010	1134	5883
3 Cumulative (over end-March) (US $ Million)	17312	17312	-26266	-25516
(₹ Crore)	134629	134629	-223142	-217259
4 Outstanding Net Forward Sales (–)/ Purchase (+) at the end of month (US $ Million)	65791	65791	20470	23600

ii) Operations in currency futures segment

Item	2021-22	2022	2023	
		Mar.	Feb.	Mar.
	1	2	3	4
1 Net Purchase/ Sale of Foreign Currency (US $ Million) (1.1–1.2)	0	0	0	0
1.1 Purchase (+)	2370	570	0	0
1.2 Sale (–)	2370	570	0	0
2 Outstanding Net Currency Futures Sales (–)/ Purchase (+) at the end of month (US $ Million)	0	0	0	0

No. 4 A : Maturity Breakdown (by Residual Maturity) of Outstanding Forwards of RBI (US $ Million)

Item	As on March 31, 2023		
	Long (+)	Short (-)	Net (1-2)
	1	2	3
1. Upto 1 month	4368	700	3668
2. More than 1 month and upto 3 months	3545	0	3545
3. More than 3 months and upto 1 year	17633	1246	16387
4. More than 1 year	0	0	0
Total (1+2+3+4)	**25546**	**1946**	**23600**

No. 5: RBI's Standing Facilities

(₹ Crore)

Item	As on the Last Reporting Friday							
	2022-23	2022			2023			
		Apr. 22	Nov. 18	Dec. 30	Jan. 27	Feb. 24	Mar. 24	Apr. 21
	1	2	3	4	5	6	7	8
1 MSF	28388	140	3250	33224	27370	15233	28388	16945
2 Export Credit Refinance for Scheduled Banks	-							
2.1 Limit	-	-	-	-	-	-	-	-
2.2 Outstanding	-	-	-	-	-	-	-	-
3 Liquidity Facility for PDs	-							
3.1 Limit	4900	4900	4900	4900	4900	4900	4900	4900
3.2 Outstanding	2442	0	1801	2376	1675	2107	2442	3719
4 Others	-							
4.1 Limit	76000	76000	76000	76000	76000	76000	76000	76000
4.2 Outstanding	15900	31021	10850	15400	7500	8350	15900	15900
5 Total Outstanding (1+2.2+3.2+4.2)	46730	31161	15901	51000	36545	25690	46730	36564

Note :1.Special refinance facility to Others, i.e. to the EXIM Bank, is reopened since May 22, 2020
2.Refinance facility to Others, i.e. to the NABARD/SIDBI/NHB U/S 17(4H) of RBI ACT,1934, since, April 17, 2020.

Money and Banking

No. 6: Money Stock Measures

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2021-22	2022	2023		
		Mar. 25	Feb. 24	Mar. 10	Mar. 24
	1	2	3	4	5
1 Currency with the Public (1.1 + 1.2 + 1.3 – 1.4)	3035689	3037622	3231824	3258093	3278334
1.1 Notes in Circulation	3105703	3107637	3301475	3343411	3350365
1.2 Circulation of Rupee Coin	27270	27270	29264	29264	29264
1.3 Circulation of Small Coins	743	743	743	743	743
1.4 Cash on Hand with Banks	98028	98028	99788	115461	102085
2 Deposit Money of the Public	2271436	2265371	2356710	2323113	2385928
2.1 Demand Deposits with Banks	2212992	2212992	2292581	2258851	2320598
2.2 'Other' Deposits with Reserve Bank	58444	52379	64129	64262	65330
3 M_1 (1 + 2)	**5307125**	**5302993**	**5588534**	**5581206**	**5664261**
4 Post Office Saving Bank Deposits	188433	188433	199087	200257	200257
5 M_2 (3 + 4)	**5495558**	**5491426**	**5787621**	**5781463**	**5864518**
6 Time Deposits with Banks	15186605	15186605	16513885	16642515	16668966
7 M_3 (3 + 6)	**20493729**	**20489597**	**22102418**	**22223721**	**22333227**
8 Total Post Office Deposits	1012241	1012241	1105137	1113230	1113230
9 M_4 (7 + 8)	**21505970**	**21501838**	**23207555**	**23336951**	**23446457**

No. 7: Sources of Money Stock (M_3)

(₹ Crore)

Sources	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2021-22	2022	2023		
		Mar. 25	Feb. 24	Mar. 10	Mar. 24
	1	2	3	4	5
1 Net Bank Credit to Government	**6477629**	**6204211**	**6854246**	**6979996**	**6916058**
1.1 RBI's net credit to Government (1.1.1–1.1.2)	1450596	1177178	1216525	1291301	1201651
1.1.1 Claims on Government	1490991	1490166	1407652	1396846	1413446
1.1.1.1 Central Government	1489324	1489496	1398137	1396111	1405821
1.1.1.2 State Governments	1667	670	9515	736	7625
1.1.2 Government deposits with RBI	40394	312988	191127	105546	211795
1.1.2.1 Central Government	40352	312946	191085	105503	211752
1.1.2.2 State Governments	42	42	43	43	43
1.2 Other Banks' Credit to Government	5027033	5027033	5637721	5688696	5714407
2 Bank Credit to Commercial Sector	**12616520**	**12610042**	**14188368**	**14293532**	**14423483**
2.1 RBI's credit to commercial sector	16571	10092	12529	18719	20396
2.2 Other banks' credit to commercial sector	12599950	12599950	14175838	14274813	14403087
2.2.1 Bank credit by commercial banks	11891314	11891314	13450269	13548593	13675235
2.2.2 Bank credit by co-operative banks	690201	690201	708230	708673	710187
2.2.3 Investments by commercial and co-operative banks in other securities	18435	18435	17340	17546	17665
3 Net Foreign Exchange Assets of Banking Sector (3.1 + 3.2)	**4854063**	**4963083**	**4731899**	**4685656**	**4862273**
3.1 RBI's net foreign exchange assets (3.1.1–3.1.2)	4442479	4551499	4476306	4430063	4606680
3.1.1 Gross foreign assets	4442720	4551740	4476568	4430325	4606942
3.1.2 Foreign liabilities	241	241	262	262	262
3.2 Other banks' net foreign exchange assets	411583	411583	255593	255593	255593
4 Government's Currency Liabilities to the Public	**28013**	**28013**	**30007**	**30007**	**30007**
5 Banking Sector's Net Non-monetary Liabilities	**3482496**	**3315752**	**3702101**	**3765470**	**3898594**
5.1 Net non-monetary liabilities of RBI	1308500	1346960	1496402	1450510	1612360
5.2 Net non-monetary liabilities of other banks (residual)	2173996	1968792	2205699	2314960	2286234
M_3 (1+2+3+4–5)	**20493729**	**20489597**	**22102418**	**22223721**	**22333227**

No. 8: Monetary Survey

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2021-22	2022	2023		
		Mar. 25	Feb. 24	Mar. 10	Mar. 24
	1	2	3	4	5
Monetary Aggregates					
NM_1 (1.1 + 1.2.1+1.3)	5307125	5302993	5588318	5581206	5664261
NM_2 (NM_1 + 1.2.2.1)	12081049	12076917	12947497	12998755	13092880
NM_3 (NM_2 + 1.2.2.2 + 1.4 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	20634885	20630753	22408995	22515989	22617633
1 Components					
1.1 Currency with the Public	3035689	3037622	3231607	3258093	3278334
1.2 Aggregate Deposits of Residents	17266157	17266157	18646314	18742295	18828640
1.2.1 Demand Deposits	2212992	2212992	2292581	2258851	2320598
1.2.2 Time Deposits of Residents	15053166	15053166	16353733	16483444	16508042
1.2.2.1 Short-term Time Deposits	6773925	6773925	7359180	7417550	7428619
1.2.2.1.1 Certificates of Deposit (CDs)	176718	176718	282944	288600	304088
1.2.2.2 Long-term Time Deposits	8279241	8279241	8994553	9065894	9079423
1.3 'Other' Deposits with RBI	58444	52379	64129	64262	65330
1.4 Call/Term Funding from Financial Institutions	274594	274594	466945	451340	445329
2 Sources					
2.1 Domestic Credit	20080599	19802620	22163277	22389278	22455037
2.1.1 Net Bank Credit to the Government	6477629	6204211	6854246	6979996	6916058
2.1.1.1 Net RBI credit to the Government	1450596	1177178	1216525	1291301	1201651
2.1.1.2 Credit to the Government by the Banking System	5027033	5027033	5637721	5688696	5714407
2.1.2 Bank Credit to the Commercial Sector	13602969	13598408	15309031	15409282	15538979
2.1.2.1 RBI Credit to the Commercial Sector	39581	35020	12529	18719	20396
2.1.2.2 Credit to the Commercial Sector by the Banking System	13563389	13563389	15296502	15390562	15518583
2.1.2.2.1 Other Investments (Non-SLR Securities)	952181	952181	1097846	1095365	1096267
2.2 Government's Currency Liabilities to the Public	28013	28013	29791	30007	30007
2.3 Net Foreign Exchange Assets of the Banking Sector	4705191	4814211	4607135	4554744	4721610
2.3.1 Net Foreign Exchange Assets of the RBI	4442479	4551499	4476306	4430063	4606680
2.3.2 Net Foreign Currency Assets of the Banking System	262711	262711	130829	124681	114930
2.4 Capital Account	3021858	3112135	3487014	3488851	3507224
2.5 Other items (net)	1157060	901956	904194	969188	1081797

No. 9: Liquidity Aggregates

(₹ Crore)

Aggregates	2022-23	2022	2023		
		Mar.	Jan.	Feb.	Mar.
	1	2	3	4	5
1 NM_3	**22617633**	**20630753**	**22199020**	**22408995**	**22617633**
2 Postal Deposits	651847	596588	651847	651847	651847
3 L_1 (1 + 2)	**23269480**	**21227341**	**22850867**	**23060842**	**23269480**
4 Liabilities of Financial Institutions	54724	49578	70232	49679	54724
4.1 Term Money Borrowings	1692	1824	1133	1229	1692
4.2 Certificates of Deposit	46407	39170	61870	41920	46407
4.3 Term Deposits	6625	8584	7229	6530	6625
5 L_2 (3 + 4)	**23324204**	**21276919**	**22921098**	**23110522**	**23324204**
6 Public Deposits with Non-Banking Financial Companies	78061	70564	..	..	78061
7 L_3 (5 + 6)	**23402265**	**21347483**	..	..	**23402265**

Note : 1. Figures in the columns might not add up to the total due to rounding off of numbers.

No. 10: Reserve Bank of India Survey

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2021-22	2022	2023		
		Mar. 25	Feb. 24	Mar. 10	Mar. 24
	1	2	3	4	5
1 Components					
1.1 Currency in Circulation	3133716	3135649	3331396	3373554	3380418
1.2 Bankers' Deposits with the RBI	876726	732270	854816	868195	867793
1.2.1 Scheduled Commercial Banks	823632	683437	797986	810703	809907
1.3 'Other' Deposits with the RBI	58444	52379	64129	64262	65330
Reserve Money (1.1 + 1.2 + 1.3 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	4068887	3920298	4250341	4306011	4313542
2 Sources					
2.1 RBI's Domestic Credit	906895	687746	1240647	1296451	1289215
2.1.1 Net RBI credit to the Government	1450596	1177178	1216525	1291301	1201651
2.1.1.1 Net RBI credit to the Central Government (2.1.1.1.1 + 2.1.1.1.2 + 2.1.1.1.3 + 2.1.1.1.4 – 2.1.1.1.5)	1448972	1176550	1207052	1290607	1194069
2.1.1.1.1 Loans and Advances to the Central Government	–	–	–	–	–
2.1.1.1.2 Investments in Treasury Bills	–	–	–	–	–
2.1.1.1.3 Investments in dated Government Securities	1488816	1488978	1397648	1395732	1405521
2.1.1.1.3.1 Central Government Securities	1488816	1488978	1397648	1395732	1405521
2.1.1.1.4 Rupee Coins	508	518	489	379	300
2.1.1.1.5 Deposits of the Central Government	40352	312946	191085	105503	211752
2.1.1.2 Net RBI credit to State Governments	1624	628	9472	693	7582
2.1.2 RBI's Claims on Banks	-583282	-524452	11593	-13569	67168
2.1.2.1 Loans and Advances to Scheduled Commercial Banks	-560272	-499524	11593	-13569	67168
2.1.3 RBI's Credit to Commercial Sector	39581	35020	12529	18719	20396
2.1.3.1 Loans and Advances to Primary Dealers	–	–	2107	767	2442
2.1.3.2 Loans and Advances to NABARD	23010	24927	–	–	–
2.2 Government's Currency Liabilities to the Public	28013	28013	29791	30007	30007
2.3 Net Foreign Exchange Assets of the RBI	4442479	4551499	4476306	4430063	4606680
2.3.1 Gold	322213	329562	345484	343961	375117
2.3.2 Foreign Currency Assets	4120283	4221955	4130840	4086120	4231580
2.4 Capital Account	1254092	1344369	1547974	1488064	1566088
2.5 Other Items (net)	54408	2592	-51572	-37554	46272

No. 11: Reserve Money - Components and Sources

(₹ Crore)

Item	2021-22	Outstanding as on March 31/ last Fridays of the month/ Fridays					
		2022	2023				
		Mar. 25	Feb. 24	Mar. 3	Mar. 10	Mar. 17	Mar. 24
	1	2	3	4	5	6	7
Reserve Money (1.1 + 1.2 + 1.3 = 2.1 + 2.2 + 2.3 + 2.4 + 2.5 – 2.6)	4068887	3920298	4250557	4305663	4306011	4331106	4313542
1 Components							
1.1 Currency in Circulation	3133716	3135649	3331612	3345755	3373554	3372295	3380418
1.2 Bankers' Deposits with RBI	876726	732270	854816	895594	868195	892921	867793
1.3 'Other' Deposits with RBI	58444	52379	64129	64314	64262	65890	65330
2 Sources							
2.1 Net Reserve Bank Credit to Government	1450596	1177178	1216525	1322880	1291301	1165442	1201651
2.2 Reserve Bank Credit to Banks	-560272	-499524	11593	-66072	-13569	112619	67168
2.3 Reserve Bank Credit to Commercial Sector	16571	10092	12529	14441	18719	20933	20396
2.4 Net Foreign Exchange Assets of RBI	4442479	4551499	4476306	4446769	4430063	4562255	4606680
2.5 Government's Currency Liabilities to the Public	28013	28013	30007	30007	30007	30007	30007
2.6 Net Non- Monetary Liabilities of RBI	1308500	1346960	1496402	1442362	1450510	1560149	1612360

No. 12: Commercial Bank Survey

(₹ Crore)

Item	Outstanding as on last reporting Fridays of the month/ reporting Fridays of the month				
	2022-23	2022	2023		
		Mar. 25	Feb. 24	Mar. 10	Mar. 24
	1	2	3	4	5
1 Components					
1.1 Aggregate Deposits of Residents	17882990	16331874	17701702	17799252	17882990
1.1.1 Demand Deposits	2180431	2072747	2150731	2119152	2180431
1.1.2 Time Deposits of Residents	15702560	14259128	15550972	15680099	15702560
1.1.2.1 Short-term Time Deposits	7066152	6416607	6997937	7056045	7066152
1.1.2.1.1 Certificates of Deposits (CDs)	304088	176718	282944	288600	304088
1.1.2.2 Long-term Time Deposits	8636408	7842520	8553034	8624055	8636408
1.2 Call/Term Funding from Financial Institutions	445329	274594	466945	451340	445329
2 Sources					
2.1 Domestic Credit	20197180	17575002	19899791	20042147	20197180
2.1.1 Credit to the Government	5414322	4728179	5336711	5385657	5414322
2.1.2 Credit to the Commercial Sector	14782858	12846823	14563080	14656490	14782858
2.1.2.1 Bank Credit	13675235	11891314	13450269	13548593	13675235
2.1.2.1.1 Non-food Credit	13655330	11836304	13414992	13520315	13655330
2.1.2.2 Net Credit to Primary Dealers	19491	11522	23081	20648	19491
2.1.2.3 Investments in Other Approved Securities	826	769	847	847	826
2.1.2.4 Other Investments (in non-SLR Securities)	1087305	943218	1088883	1086402	1087305
2.2 Net Foreign Currency Assets of Commercial Banks (2.2.1–2.2.2–2.2.3)	114930	262711	130829	124681	114930
2.2.1 Foreign Currency Assets	353850	465464	357705	357758	353850
2.2.2 Non-resident Foreign Currency Repatriable Fixed Deposits	160923	133439	160152	159072	160923
2.2.3 Overseas Foreign Currency Borrowings	77997	69314	66724	74005	77997
2.3 Net Bank Reserves (2.3.1+2.3.2–2.3.3)	833002	1268887	874539	927918	833002
2.3.1 Balances with the RBI	809907	683437	797986	810703	809907
2.3.2 Cash in Hand	90263	85926	88146	103646	90263
2.3.3 Loans and Advances from the RBI	67168	-499524	11593	-13569	67168
2.4 Capital Account	1916966	1743595	1914869	1976616	1916966
2.5 Other items (net) (2.1+2.2+2.3–2.4–1.1–1.2)	899827	756537	821643	867538	899827
2.5.1 Other Demand and Time Liabilities (net of 2.2.3)	711654	571535	696225	734097	711654
2.5.2 Net Inter-Bank Liabilities (other than to PDs)	44733	26533	44850	64765	44733

No. 13: Scheduled Commercial Banks' Investments

(₹ Crore)

Item	As on March 24, 2023	2022	2023		
		Mar. 25	Feb. 24	Mar. 10	Mar. 24
	1	2	3	4	5
1 SLR Securities	5415148	4728948	5337558	5386504	5415148
2 Other Government Securities (Non-SLR)	182265	-	182650	183012	182265
3 Commercial Paper	65058	55315	56361	60661	65058
4 Shares issued by					
4.1 PSUs	9736	7642	9827	9763	9736
4.2 Private Corporate Sector	71099	73814	70826	70857	71099
4.3 Others	4500	5152	4783	4782	4500
5 Bonds/Debentures issued by					
5.1 PSUs	92304	117860	90873	89398	92304
5.2 Private Corporate Sector	325040	326188	325654	324074	325040
5.3 Others	99409	148753	101399	101525	99409
6 Instruments issued by					
6.1 Mutual funds	48810	34404	56553	53458	48810
6.2 Financial institutions	189085	174090	189957	188871	189085

Note: '-' Data are not available.

No. 14: Business in India - All Scheduled Banks and All Scheduled Commercial Banks

(₹ Crore)

Item	As on the Last Reporting Friday (in case of March)/ Last Friday							
	All Scheduled Banks				All Scheduled Commercial Banks			
	2022-23	2022	2023		2022-23	2022	2023	
		Mar.	Feb.	Mar.		Mar.	Feb.	Mar.
	1	2	3	4	5	6	7	8
Number of Reporting Banks	212	212	212	212	137	136	137	137
1 Liabilities to the Banking System	**355252**	**262674**	**348005**	**355252**	**351843**	**258649**	**344778**	**351843**
1.1 Demand and Time Deposits from Banks	228517	194143	219565	228517	226119	190570	217311	226119
1.2 Borrowings from Banks	67566	38369	68709	67566	67199	38317	68361	67199
1.3 Other Demand and Time Liabilities	59170	30162	59731	59170	58524	29762	59106	58524
2 Liabilities to Others	**19730120**	**17832517**	**19536672**	**19730120**	**19278894**	**17380755**	**19091309**	**19278894**
2.1 Aggregate Deposits	18477283	16899634	18290021	18477283	18043914	16465313	17861854	18043914
2.1.1 Demand	2225373	2117513	2197095	2225373	2180431	2072747	2150731	2180431
2.1.2 Time	16251910	14782121	16092927	16251910	15863483	14392567	15711123	15863483
2.2 Borrowings	449945	278985	471322	449945	445329	274594	466506	445329
2.3 Other Demand and Time Liabilities	802891	653898	775329	802891	789651	640848	762949	789651
3 Borrowings from Reserve Bank	**165085**	**94299**	**109026**	**165085**	**165085**	**94299**	**109026**	**165085**
3.1 Against Usance Bills /Promissory Notes	–	–	–	–	–	–	–	–
3.2 Others	165085	94299	109026	165085	165085	94299	109026	165085
4 Cash in Hand and Balances with Reserve Bank	920953	788725	915676	920953	900170	769363	895219	900170
4.1 Cash in Hand	92788	88732	99578	92788	90263	85926	97233	90263
4.2 Balances with Reserve Bank	828165	699993	816098	828165	809907	683437	797986	809907
5 Assets with the Banking System	**397874**	**315282**	**388389**	**397874**	**326601**	**243637**	**323009**	**326601**
5.1 Balances with Other Banks	232028	199434	234472	232028	193422	164240	195668	193422
5.1.1 In Current Account	18589	19733	30231	18589	15528	16691	27045	15528
5.1.2 In Other Accounts	213440	179701	204241	213440	177894	147549	168623	177894
5.2 Money at Call and Short Notice	50013	36905	39007	50013	24864	6982	20448	24864
5.3 Advances to Banks	45330	39340	44408	45330	41184	35802	39919	41184
5.4 Other Assets	70503	39603	70501	70503	67130	36613	66974	67130
6 Investment	**5560674**	**4874070**	**5483663**	**5560674**	**5415148**	**4728948**	**5337558**	**5415148**
6.1 Government Securities	5553712	4867102	5477026	5553712	5414322	4728179	5336711	5414322
6.2 Other Approved Securities	6963	6968	6637	6963	826	769	847	826
7 Bank Credit	**14078360**	**12259048**	**13852868**	**14078360**	**13675235**	**11891314**	**13450269**	**13675235**
7a Food Credit	65622	90827	80994	65622	19906	55011	35276	19906
7.1 Loans, Cash-credits and Overdrafts	13824791	12016486	13611145	13824791	13424906	11651337	13212088	13424906
7.2 Inland Bills-Purchased	39446	36070	37032	39446	39435	36055	37020	39435
7.3 Inland Bills-Discounted	165428	155796	159300	165428	162910	154212	156351	162910
7.4 Foreign Bills-Purchased	19758	19537	17307	19758	19545	19157	17161	19545
7.5 Foreign Bills-Discounted	28936	31160	28085	28936	28439	30554	27649	28439

No. 15: Deployment of Gross Bank Credit by Major Sectors

(₹ Crore)

Sector	Outstanding as on				Growth (%)	
	Mar.25, 2022	2022	2023		Financial year so far	Y-o-Y
		Mar.25	Feb.24	Mar.24	2022-23	2023
	1	2	3	4	%	%
I. Bank Credit (II+III)	**11891314**	**11891314**	**13450269**	**13675228**	**15.0**	**15.0**
II. Food Credit	**55011**	**55011**	**35276**	**19906**	**-63.8**	**-63.8**
III. Non-food Credit	**11836304**	**11836304**	**13414993**	**13655322**	**15.4**	**15.4**
1. Agriculture & Allied Activities	**1461719**	**1461719**	**1655938**	**1687191**	**15.4**	**15.4**
2. Industry (Micro and Small, Medium and Large)	**3156067**	**3156067**	**3291205**	**3336722**	**5.7**	**5.7**
2.1 Micro and Small	532792	532792	587494	598390	12.3	12.3
2.2 Medium	213996	213996	234858	256023	19.6	19.6
2.3 Large	2409279	2409279	2468853	2482310	3.0	3.0
3. Services	**3011975**	**3011975**	**3523813**	**3608574**	**19.8**	**19.8**
3.1 Transport Operators	155352	155352	168735	176239	13.4	13.4
3.2 Computer Software	20899	20899	20621	21559	3.2	3.2
3.3 Tourism, Hotels & Restaurants	64378	64378	65234	66466	3.2	3.2
3.4 Shipping	8436	8436	6881	6677	-20.8	-20.8
3.5 Aviation	23979	23979	27819	28330	18.1	18.1
3.6 Professional Services	116742	116742	131443	134661	15.3	15.3
3.7 Trade	696301	696301	798032	819921	17.8	17.8
3.7.1 Wholesale Trade	351213	351213	389231	396631	12.9	12.9
3.7.2 Retail Trade	345088	345088	408801	423291	22.7	22.7
3.8 Commercial Real Estate	291168	291168	312809	314579	8.0	8.0
3.9 Non-Banking Financial Companies (NBFCs) [1]	1022399	1022399	1309521	1331097	30.2	30.2
of which,						
3.9.1 Housing Finance Companies (HFCs)	282048	282048	307870	314678	11.6	11.6
3.9.2 Public Financial Institutions (PFIs)	137084	137084	178651	175614	28.1	28.1
3.10 Other Services [2]	612320	612320	682720	709044	15.8	15.8
4. Personal Loans	**3386982**	**3386982**	**4013299**	**4085168**	**20.6**	**20.6**
4.1 Consumer Durables	27628	27628	37011	37323	35.1	35.1
4.2 Housing	1684424	1684424	1910531	1936428	15.0	15.0
4.3 Advances against Fixed Deposits	83379	83379	113457	121897	46.2	46.2
4.4 Advances to Individuals against share & bonds	6261	6261	6937	6778	8.3	8.3
4.5 Credit Card Outstanding	148416	148416	186856	194282	30.9	30.9
4.6 Education	82723	82723	96164	96847	17.1	17.1
4.7 Vehicle Loans	402689	402689	495922	502780	24.9	24.9
4.8 Loan against gold jewellery	73960	73960	87822	88428	19.6	19.6
4.9 Other Personal Loans	877503	877503	1078599	1100404	25.4	25.4
5. Priority Sector (Memo)						
(i) Agriculture & Allied Activities [3]	1484923	1484923	1686333	1708951	15.1	15.1
(ii) Micro & Small Enterprises [4]	1377848	1377848	1562145	1570295	14.0	14.0
(iii) Medium Enterprises [5]	351900	351900	390714	399008	13.4	13.4
(iv) Housing	616814	616814	619039	621376	0.7	0.7
(v) Education Loans	58118	58118	59362	58634	0.9	0.9
(vi) Renewable Energy	3842	3842	4642	4656	21.2	21.2
(vii) Social Infrastructure	2483	2483	2449	2464	-0.8	-0.8
(viii) Export Credit	24177	24177	14396	15696	-35.1	-35.1
(ix) Others	37159	37159	50056	59659	60.5	60.5
(x) Weaker Sections including net PSLC- SF/MF	1180928	1180928	1428627	1441513	22.1	22.1

Note 1: Data are provisional. Bank credit, Food credit and Non-food credit data are based on Section-42 return, which covers all scheduled commercial banks (SCBs), while sectoral non-food credit data are based on sector-wise and industry-wise bank credit (SIBC) return, which covers select banks accounting for about 93 per cent of total non-food credit extended by all SCBs .
Note 2: With effect from January 2019, sectoral credit data are based on revised format due to which values and growth rates of some of the existing components published earlier have undergone changes.
Note 3: Credit data are adjusted for past reporting errors by select SCBs from December 2021 onwards.

1 NBFCs include HFCs, PFIs, Microfinance Institutions (MFIs), NBFCs engaged in gold loan and others.

2 "Other Services" include Mutual Fund (MFs), Banking and Finance other than NBFCs and MFs and other services which are not indicated elsewhere under services.

3 "Agriculture and Allied Activities" under the priority sector also include priority sector lending certificates (PSLCs).

4 "Micro and Small Enterprises" under the priority sector include credit to micro and small enterprises in industry and services sectors and also include PSLCs.

5 "Medium Enterprises" under the priority sector include credit to medium enterprises in industry and services sectors.

No. 16: Industry-wise Deployment of Gross Bank Credit

(₹ Crore)

Industry	Outstanding as on				Growth (%)	
	Mar. 25, 2022	2022	2023		Financial year so far	Y-o-Y
		Mar. 25	Feb.24	Mar. 24	2022-23	2023
	1	2	3	4	%	%
2 Industries (2.1 to 2.19)	3156067	3156067	3291205	3336722	5.7	5.7
2.1 Mining & Quarrying (incl. Coal)	49135	49135	57348	58812	19.7	19.7
2.2 Food Processing	173246	173246	177739	182878	5.6	5.6
2.2.1 Sugar	26307	26307	21171	22867	–13.1	–13.1
2.2.2 Edible Oils & Vanaspati	18246	18246	19005	19737	8.2	8.2
2.2.3 Tea	5728	5728	5005	5162	–9.9	–9.9
2.2.4 Others	122965	122965	132558	135112	9.9	9.9
2.3 Beverage & Tobacco	18176	18176	22098	23362	28.5	28.5
2.4 Textiles	224026	224026	222372	227843	1.7	1.7
2.4.1 Cotton Textiles	90384	90384	88073	91095	0.8	0.8
2.4.2 Jute Textiles	3509	3509	4046	3867	10.2	10.2
2.4.3 Man-Made Textiles	38371	38371	39624	40354	5.2	5.2
2.4.4 Other Textiles	91761	91761	90628	92527	0.8	0.8
2.5 Leather & Leather Products	11573	11573	11480	11675	0.9	0.9
2.6 Wood & Wood Products	16294	16294	19204	19963	22.5	22.5
2.7 Paper & Paper Products	40565	40565	42608	43010	6.0	6.0
2.8 Petroleum, Coal Products & Nuclear Fuels	107333	107333	146052	149363	39.2	39.2
2.9 Chemicals & Chemical Products	196363	196363	213080	216481	10.2	10.2
2.9.1 Fertiliser	33160	33160	33656	33805	1.9	1.9
2.9.2 Drugs & Pharmaceuticals	61093	61093	66686	67130	9.9	9.9
2.9.3 Petro Chemicals	19622	19622	20467	20661	5.3	5.3
2.9.4 Others	82486	82486	92271	94885	15.0	15.0
2.10 Rubber, Plastic & their Products	72013	72013	77492	79037	9.8	9.8
2.11 Glass & Glassware	5952	5952	7934	8100	36.1	36.1
2.12 Cement & Cement Products	47910	47910	54884	56592	18.1	18.1
2.13 Basic Metal & Metal Product	288531	288531	336959	343507	19.1	19.1
2.13.1 Iron & Steel	187584	187584	228316	228860	22.0	22.0
2.13.2 Other Metal & Metal Product	100946	100946	108643	114646	13.6	13.6
2.14 All Engineering	167966	167966	173395	175260	4.3	4.3
2.14.1 Electronics	38179	38179	41136	41781	9.4	9.4
2.14.2 Others	129787	129787	132260	133479	2.8	2.8
2.15 Vehicles, Vehicle Parts & Transport Equipment	89896	89896	97942	96603	7.5	7.5
2.16 Gems & Jewellery	80512	80512	75547	77718	–3.5	–3.5
2.17 Construction	117724	117724	120428	122880	4.4	4.4
2.18 Infrastructure	1195027	1195027	1178969	1186248	–0.7	–0.7
2.18.1 Power	611410	611410	604072	604691	–1.1	–1.1
2.18.2 Telecommunications	130318	130318	111184	111334	–14.6	–14.6
2.18.3 Roads	270395	270395	280012	284793	5.3	5.3
2.18.4 Airports	6646	6646	9181	9492	42.8	42.8
2.18.5 Ports	8886	8886	8209	8175	–8.0	–8.0
2.18.6 Railways	10512	10512	10936	11169	6.3	6.3
2.18.7 Other Infrastructure	156860	156860	155376	156593	–0.2	–0.2
2.19 Other Industries	253823	253823	255674	257391	1.4	1.4

Note : With effect from January 2019, sectoral credit data are based on revised format due to which values and growth rates of some of the existing components published earlier have undergone some changes.

No. 17: State Co-operative Banks Maintaining Accounts with the Reserve Bank of India

(₹ Crore)

Item	Last Reporting Friday (in case of March)/Last Friday/ Reporting Friday								
	2021-22	2022				2023			
		Feb, 25	Dec, 02	Dec, 16	Dec, 30	Jan, 13	Jan, 27	Feb, 10	Feb, 24
	1	2	3	4	5	6	7	8	9
Number of Reporting Banks	32	33	33	33	33	33	33	33	33
1 Aggregate Deposits (2.1.1.2+2.2.1.2)	**126746.8**	**126531.5**	**127292.9**	**128339.4**	**130835.1**	**132887.9**	**133539.0**	**134672.6**	**135950.9**
2 Demand and Time Liabilities									
2.1 Demand Liabilities	**23533.1**	**24733.8**	**25574.4**	**26161.0**	**28819.3**	**27185.8**	**26514.9**	**26882.2**	**28527.7**
2.1.1 Deposits									
2.1.1.1 Inter-Bank	4281.2	5237.4	5822.7	5522.9	5201.5	6029.5	5760.8	5776.8	5720.7
2.1.1.2 Others	14,413.7	13918.4	14281.6	14807.4	15609.5	15866.7	15381.7	15061.6	17432.4
2.1.2 Borrowings from Banks	0.0	499.9	544.7	624.7	50.0	0.0	0.0	0.0	0.0
2.1.3 Other Demand Liabilities	4838.2	5078.1	4925.4	5206.1	7958.3	5289.6	5372.4	6043.8	5374.5
2.2 Time Liabilities	**181808.1**	**177613.0**	**171447.3**	**172012.1**	**174159.8**	**175067.2**	**176298.1**	**177254.6**	**175896.3**
2.2.1 Deposits									
2.2.1.1 Inter-Bank	66572.3	61880.2	54278.4	54295.2	55395.7	55338.6	55159.9	55278.0	54797.7
2.2.1.2 Others	112333.1	112613.1	113011.3	113532.1	115225.6	117021.2	118157.3	119611.0	118518.4
2.2.2 Borrowings from Banks	899.9	859.4	1715.3	1734.4	1074.3	1764.1	2032.1	1374.0	1604.0
2.2.3 Other Time Liabilities	2002.7	2260.3	2442.3	2450.5	2464.2	943.3	948.7	991.5	976.1
3 Borrowing from Reserve Bank	0.0	0.0	35.0	35.0	0.0	0.0	0.0	0.0	0.0
4 Borrowings from a notified bank / Government	58868.2	64466.5	74853.3	74975.2	79539.1	131532.1	78164.1	78883.6	77988.7
4.1 Demand	12625.5	12992.3	15914.2	15783.7	17875.0	17952.8	17966.9	16829.0	16530.5
4.2 Time	46242.7	51474.2	58939.1	59191.5	61664.2	113579.2	60197.2	62054.5	61458.3
5 Cash in Hand and Balances with Reserve Bank	**8371.5**	**9228.6**	**10547.0**	**10820.3**	**11342.1**	**11647.2**	**11360.2**	**10954.8**	**10769.8**
5.1 Cash in Hand	602.2	743.8	846.0	856.4	893.9	1224.4	732.3	862.4	797.2
5.2 Balance with Reserve Bank	7769.3	8484.8	9701.0	9963.9	10448.2	10422.8	10627.9	10092.4	9972.6
6 Balances with Other Banks in Current Account	**894.4**	**1310.3**	**1561.1**	**1555.0**	**1676.2**	**1641.3**	**1850.1**	**1788.9**	**2038.1**
7 Investments in Government Securities	**66350.1**	**71262.5**	**72326.1**	**72684.3**	**72306.1**	**72808.5**	**72775.3**	**72507.4**	**72892.1**
8 Money at Call and Short Notice	**25325.3**	**24875.8**	**17284.9**	**17449.4**	**23466.4**	**20920.3**	**21666.8**	**21894.1**	**21601.9**
9 Bank Credit (10.1+11)	**117228.4**	**111718.8**	**120965.0**	**121585.0**	**121588.2**	**122782.6**	**123897.1**	**123643.3**	**123225.6**
10 Advances									
10.1 Loans, Cash-Credits and Overdrafts	**117209.2**	**111698.2**	**120925.5**	**121543.5**	**121546.4**	**122742.4**	**123866.2**	**123616.7**	**123202.0**
10.2 Due from Banks	87632.4	106973.7	117687.7	118828.7	122854.5	124378.1	125739.6	128547.9	128522.2
11 Bills Purchased and Discounted	19.2	20.6	39.5	41.5	41.7	40.3	30.9	26.6	23.6

Prices and Production

No. 18: Consumer Price Index (Base: 2012=100)

Group/Sub group	2022-23			Rural			Urban			Combined		
	Rural	Urban	Combined	Apr.22	Mar.23	Apr.23(P)	Apr.22	Mar.23	Apr.23(P)	Apr.22	Mar.23	Apr.23(P)
	1	2	3	4	5	6	7	8	9	10	11	12
1 Food and beverages	**173.9**	**179.7**	**176.0**	**168.6**	**174.8**	**175.5**	**174.5**	**180.8**	**182.2**	**170.8**	**177.0**	**178.0**
1.1 Cereals and products	163.3	165.3	164.0	151.8	174.3	173.3	155.4	174.7	174.8	152.9	174.4	173.8
1.2 Meat and fish	208.7	215.2	211.0	209.7	205.2	206.8	215.8	212.2	213.7	211.8	207.7	209.2
1.3 Egg	174.7	177.1	175.6	164.5	173.9	167.9	164.6	177.2	172.4	164.5	175.2	169.6
1.4 Milk and products	170.1	170.7	170.3	163.8	177.0	178.2	164.2	177.9	178.7	163.9	177.3	178.4
1.5 Oils and fats	197.0	181.1	191.2	207.4	183.3	178.5	186.0	172.2	168.8	199.5	179.2	174.9
1.6 Fruits	164.1	169.6	166.7	169.7	167.2	173.6	175.9	172.1	179.2	172.6	169.5	176.2
1.7 Vegetables	160.8	198.7	173.6	153.6	140.9	142.7	190.7	175.9	180.1	166.2	152.8	155.4
1.8 Pulses and products	168.1	168.2	168.2	165.1	170.5	172.8	164.0	172.2	174.7	164.7	171.1	173.4
1.9 Sugar and confectionery	119.9	122.2	120.7	118.2	119.1	120.4	120.5	121.9	123.1	119.0	120.0	121.3
1.10 Spices	199.4	193.5	197.5	182.9	212.1	215.4	178.0	204.8	207.8	181.3	209.7	212.9
1.11 Non-alcoholic beverages	175.4	161.3	169.6	172.4	177.6	178.3	157.5	164.9	165.5	166.2	172.3	173.0
1.12 Prepared meals, snacks, sweets	185.1	190.4	187.6	178.9	189.9	190.5	183.3	196.6	197.0	180.9	193.0	193.5
2 Pan, tobacco and intoxicants	**195.0**	**199.9**	**196.3**	**192.8**	**198.4**	**199.5**	**197.1**	**202.7**	**203.5**	**193.9**	**199.5**	**200.6**
3 Clothing and footwear	**184.5**	**172.9**	**179.9**	**177.1**	**189.6**	**190.2**	**166.3**	**178.2**	**178.9**	**172.8**	**185.1**	**185.7**
3.1 Clothing	184.8	175.0	180.9	177.5	190.0	190.6	168.4	180.2	180.9	173.9	186.1	186.8
3.2 Footwear	182.7	161.4	173.9	175.1	187.0	187.4	154.5	167.0	167.7	166.5	178.7	179.2
4 Housing	**--**	**170.0**	**170.0**	**--**	**--**	**--**	**167.0**	**173.5**	**175.2**	**167.0**	**173.5**	**175.2**
5 Fuel and light	**179.7**	**178.4**	**179.2**	**173.3**	**181.4**	**181.5**	**170.5**	**182.6**	**181.9**	**172.2**	**181.9**	**181.7**
6 Miscellaneous	**173.8**	**166.5**	**170.3**	**170.2**	**177.9**	**178.9**	**163.1**	**170.0**	**170.9**	**166.8**	**174.1**	**175.0**
6.1 Household goods and services	173.7	165.1	169.6	167.7	178.6	179.1	159.8	169.2	169.6	164.0	174.2	174.6
6.2 Health	181.3	174.6	178.7	177.0	186.6	187.2	169.0	180.8	181.5	174.0	184.4	185.0
6.3 Transport and communication	167.3	158.8	162.8	166.2	169.0	169.4	159.3	159.8	160.1	162.6	164.2	164.5
6.4 Recreation and amusement	170.0	165.8	167.6	167.2	172.8	173.2	162.2	168.4	168.7	164.4	170.3	170.7
6.5 Education	175.6	169.7	172.2	170.9	178.5	179.5	164.0	172.5	174.2	166.9	175.0	176.4
6.6 Personal care and effects	173.2	173.4	173.3	169.0	180.7	183.8	168.4	181.5	184.4	168.8	181.0	184.0
General Index (All Groups)	**175.8**	**173.5**	**174.7**	**170.8**	**178.0**	**178.8**	**169.2**	**176.3**	**177.4**	**170.1**	**177.2**	**178.1**

Source: National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India.
P: Provisional.

No. 19: Other Consumer Price Indices

Item	Base Year	Linking Factor	2022-23	2022	2023	
				Mar.	Feb.	Mar.
	1	2	3	4	5	6
1 Consumer Price Index for Industrial Workers	2016	2.88	131.1	126	132.7	133.3
2 Consumer Price Index for Agricultural Labourers	1986-87	5.89	1148	1098	1171	1175
3 Consumer Price Index for Rural Labourers	1986-87	–	1160	1109	1182	1186

Source: Labour Bureau, Ministry of Labour and Employment, Government of India.

No. 20: Monthly Average Price of Gold and Silver in Mumbai

Item	2021-22	2022	2023	
		Mar.	Feb.	Mar.
	1	2	3	4
1 Standard Gold (₹ per 10 grams)	47999	51750	56646	57514
2 Silver (₹ per kilogram)	65426	68286	66402	66520

Source: India Bullion & Jewellers Association Ltd., Mumbai for Gold and Silver prices in Mumbai.

No. 21: Wholesale Price Index

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023			
			Apr.	Jan.	Feb.	Mar. (P)	Apr. (P)
	1	2	3	4	5	6	7
1 ALL COMMODITIES	**100.000**	**152.2**	**152.3**	**150.7**	**150.9**	**150.9**	**150.9**
1.1 PRIMARY ARTICLES	**22.618**	**176.9**	**174.5**	**174.3**	**173.6**	**175.0**	**177.3**
1.1.1 FOOD ARTICLES	**15.256**	**179.4**	**175.3**	**176.6**	**176.9**	**178.9**	**181.5**
1.1.1.1 Food Grains (Cereals+Pulses)	3.462	178.5	171.2	187.0	185.4	183.0	183.6
1.1.1.2 Fruits & Vegetables	3.475	200.9	198.0	171.2	173.0	180.9	192.0
1.1.1.3 Milk	4.440	167.3	163.3	172.9	174.1	175.3	174.9
1.1.1.4 Eggs,Meat & Fish	2.402	170.9	169.6	170.0	169.8	171.9	170.9
1.1.1.5 Condiments & Spices	0.529	187.2	173.8	195.7	191.8	192.9	197.7
1.1.1.6 Other Food Articles	0.948	178.1	178.4	180.8	182.3	183.3	184.3
1.1.2 NON-FOOD ARTICLES	**4.119**	**172.2**	**177.5**	**173.7**	**170.2**	**166.9**	**165.8**
1.1.2.1 Fibres	0.839	203.4	216.1	185.0	182.6	181.0	180.7
1.1.2.2 Oil Seeds	1.115	205.2	227.2	201.6	199.5	192.5	191.9
1.1.2.3 Other non-food Articles	1.960	131.3	127.3	137.6	135.0	134.3	135.5
1.1.2.4 Floriculture	0.204	257.6	230.8	321.8	297.7	281.7	252.1
1.1.3 MINERALS	**0.833**	**206.2**	**208.2**	**202.3**	**217.5**	**217.5**	**222.5**
1.1.3.1 Metallic Minerals	0.648	196.6	204.0	185.9	206.1	206.1	212.8
1.1.3.2 Other Minerals	0.185	240.1	222.9	259.7	257.2	257.3	256.7
1.1.4 CRUDE PETROLEUM & NATURAL GAS	**2.410**	**158.5**	**152.5**	**151.4**	**143.2**	**149.8**	**155.0**
1.2 FUEL & POWER	**13.152**	**157.2**	**151.2**	**155.6**	**157.6**	**156.8**	**152.6**
1.2.1 COAL	**2.138**	**132.8**	**130.9**	**134.3**	**135.6**	**135.4**	**135.1**
1.2.1.1 Coking Coal	0.647	143.4	143.4	143.4	143.4	143.4	143.4
1.2.1.2 Non-Coking Coal	1.401	119.8	119.8	119.8	119.8	119.8	119.8
1.2.1.3 Lignite	0.090	257.6	212.6	294.3	324.4	320.3	312.6
1.2.2 MINERAL OILS	**7.950**	**170.4**	**167.9**	**160.9**	**165.5**	**165.1**	**159.6**
1.2.3 ELECTRICITY	**3.064**	**139.9**	**122.2**	**156.7**	**152.4**	**149.9**	**146.6**
1.3 MANUFACTURED PRODUCTS	**64.231**	**142.5**	**144.7**	**141.4**	**141.6**	**141.2**	**141.2**
1.3.1 MANUFACTURE OF FOOD PRODUCTS	**9.122**	**165.3**	**169.9**	**163.1**	**161.9**	**160.8**	**160.3**
1.3.1.1 Processing and Preserving of meat	0.134	143.6	143.3	142.8	142.7	143.7	146.5
1.3.1.2 Processing and Preserving of fish, Crustaceans, Molluscs and products thereof	0.204	145.2	147.4	141.7	144.4	142.4	139.3
1.3.1.3 Processing and Preserving of fruit and Vegetables	0.138	125.6	123.6	126.9	126.8	125.7	127.4
1.3.1.4 Vegetable and Animal oils and Fats	2.643	182.8	210.7	166.1	162.9	159.3	156.1
1.3.1.5 Dairy products	1.165	166.2	159.4	171.9	174.7	174.9	175.9
1.3.1.6 Grain mill products	2.010	161.5	151.4	171.0	168.8	168.4	166.1
1.3.1.7 Starches and Starch products	0.110	158.3	156.6	159.2	157.3	157.8	156.1
1.3.1.8 Bakery products	0.215	162.5	155.0	166.0	166.3	166.4	165.0
1.3.1.9 Sugar, Molasses & honey	1.163	126.7	125.4	127.1	127.1	126.7	129.1
1.3.1.10 Cocoa, Chocolate and Sugar confectionery	0.175	136.1	134.5	137.4	138.0	137.3	137.2
1.3.1.11 Macaroni, Noodles, Couscous and Similar farinaceous products	0.026	156.5	160.6	154.6	153.7	154.4	150.6
1.3.1.12 Tea & Coffee products	0.371	177.7	178.7	166.7	165.2	169.0	181.0
1.3.1.13 Processed condiments & salt	0.163	176.1	168.8	181.1	178.1	180.2	180.1
1.3.1.14 Processed ready to eat food	0.024	140.9	142.6	141.2	141.3	141.1	141.9
1.3.1.15 Health supplements	0.225	179.1	173.8	181.0	181.1	178.7	179.2
1.3.1.16 Prepared animal feeds	0.356	209.2	213.7	209.6	207.8	207.2	207.3
1.3.2 MANUFACTURE OF BEVERAGES	**0.909**	**128.9**	**127.7**	**129.8**	**130.3**	**130.4**	**130.9**
1.3.2.1 Wines & spirits	0.408	129.4	126.2	130.9	132.0	132.0	132.5
1.3.2.2 Malt liquors and Malt	0.225	134.6	133.6	134.4	134.5	134.4	134.2
1.3.2.3 Soft drinks; Production of mineral waters and Other bottled waters	0.275	123.5	125.0	124.3	124.4	124.7	125.8
1.3.3 MANUFACTURE OF TOBACCO PRODUCTS	**0.514**	**164.9**	**164.6**	**165.9**	**166.5**	**166.7**	**168.7**
1.3.3.1 Tobacco products	0.514	164.9	164.6	165.9	166.5	166.7	168.7

No. 21: Wholesale Price Index (Contd.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023			
			Apr.	Jan.	Feb.	Mar. (P)	Apr. (P)
1.3.4 MANUFACTURE OF TEXTILES	**4.881**	**142.8**	**145.8**	**137.1**	**137.2**	**136.8**	**137.4**
1.3.4.1 Preparation and Spinning of textile fibres	2.582	133.3	140.6	123.8	123.8	123.0	123.4
1.3.4.2 Weaving & Finishing of textiles	1.509	159.0	155.8	158.7	159.3	159.5	160.5
1.3.4.3 Knitted and Crocheted fabrics	0.193	130.2	133.1	124.2	123.0	123.8	122.7
1.3.4.4 Made-up textile articles, Except apparel	0.299	153.3	149.2	152.4	152.9	153.4	153.3
1.3.4.5 Cordage, Rope, Twine and Netting	0.098	156.8	166.3	149.4	147.4	145.1	145.3
1.3.4.6 Other textiles	0.201	132.4	133.9	129.2	130.4	127.8	129.4
1.3.5 MANUFACTURE OF WEARING APPAREL	**0.814**	**148.6**	**146.5**	**149.1**	**149.7**	**150.0**	**149.8**
1.3.5.1 Manufacture of Wearing Apparel (woven), Except fur Apparel	0.593	147.1	145.3	147.9	148.4	148.4	148.9
1.3.5.2 Knitted and Crocheted apparel	0.221	152.4	149.7	152.3	153.2	154.2	152.4
1.3.6 MANUFACTURE OF LEATHER AND RELATED PRODUCTS	**0.535**	**122.4**	**121.0**	**121.2**	**122.2**	**123.1**	**122.3**
1.3.6.1 Tanning and Dressing of leather; Dressing and Dyeing of fur	0.142	106.1	106.7	102.2	106.4	107.9	104.2
1.3.6.2 Luggage, HandbAgs, Saddlery and Harness	0.075	141.4	142.5	140.4	140.1	140.7	141.7
1.3.6.3 Footwear	0.318	125.1	122.3	125.2	125.1	125.7	125.7
1.3.7 MANUFACTURE OF WOOD AND PRODUCTS OF WOOD AND CORK	**0.772**	**144.1**	**146.0**	**143.1**	**142.6**	**143.2**	**143.1**
1.3.7.1 Saw milling and Planing of wood	0.124	137.5	134.9	138.6	137.7	138.5	138.8
1.3.7.2 Veneer sheets; Manufacture of plywood, Laminboard, Particle board and Other panels and Boards	0.493	143.1	147.7	141.2	140.7	141.3	141.0
1.3.7.3 Builder's carpentry and Joinery	0.036	204.1	201.5	203.2	203.2	204.6	204.6
1.3.7.4 Wooden containers	0.119	137.4	134.1	137.6	137.6	137.9	138.0
1.3.8 MANUFACTURE OF PAPER AND PAPER PRODUCTS	**1.113**	**151.7**	**153.7**	**148.3**	**148.0**	**147.0**	**146.6**
1.3.8.1 Pulp, Paper and Paperboard	0.493	157.8	156.9	157.3	157.2	156.2	155.6
1.3.8.2 Corrugated paper and Paperboard and Containers of paper and Paperboard	0.314	147.9	150.0	145.1	143.1	143.1	141.4
1.3.8.3 Other articles of paper and Paperboard	0.306	145.8	152.5	137.1	138.2	136.5	137.3
1.3.9 PRINTING AND REPRODUCTION OF RECORDED MEDIA	**0.676**	**171.1**	**167.6**	**180.7**	**180.4**	**177.6**	**178.6**
1.3.9.1 Printing	0.676	171.1	167.6	180.7	180.4	177.6	178.6
1.3.10 MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS	**6.465**	**145.2**	**145.7**	**143.3**	**142.8**	**142.3**	**140.9**
1.3.10.1 Basic chemicals	1.433	159.2	162.7	152.5	150.7	150.1	148.3
1.3.10.2 Fertilizers and Nitrogen compounds	1.485	143.6	137.6	147.4	146.7	145.4	144.4
1.3.10.3 Plastic and Synthetic rubber in primary form	1.001	143.5	153.5	138.0	140.4	139.1	137.2
1.3.10.4 Pesticides and Other agrochemical products	0.454	143.2	142.3	141.6	140.7	141.0	137.6
1.3.10.5 Paints, Varnishes and Similar coatings, Printing ink and Mastics	0.491	144.8	141.6	146.3	145.5	146.1	145.0
1.3.10.6 Soap and Detergents, Cleaning and Polishing preparations, Perfumes and Toilet preparations	0.612	140.4	136.0	141.6	141.3	141.3	140.7
1.3.10.7 Other chemical products	0.692	142.2	142.9	139.8	138.3	138.9	137.6
1.3.10.8 Man-made fibres	0.296	110.8	115.8	105.4	106.3	106.2	107.1
1.3.11 MANUFACTURE OF PHARMACEUTICALS, MEDICINAL CHEMICAL AND BOTANICAL PRODUCTS	**1.993**	**140.8**	**139.6**	**142.2**	**142.4**	**141.8**	**142.5**
1.3.11.1 Pharmaceuticals, Medicinal chemical and Botanical products	1.993	140.8	139.6	142.2	142.4	141.8	142.5
1.3.12 MANUFACTURE OF RUBBER AND PLASTICS PRODUCTS	**2.299**	**129.6**	**131.7**	**128.6**	**128.7**	**128.2**	**128.4**
1.3.12.1 Rubber Tyres and Tubes; Retreading and Rebuilding of Rubber Tyres	0.609	111.7	107.2	113.8	113.7	113.1	114.2
1.3.12.2 Other Rubber Products	0.272	106.5	105.7	105.8	106.3	106.1	106.2
1.3.12.3 Plastics products	1.418	141.8	147.3	139.3	139.4	138.9	138.8
1.3.13 MANUFACTURE OF OTHER NON-METALLIC MINERAL PRODUCTS	**3.202**	**133.6**	**130.5**	**135.3**	**135.3**	**134.7**	**134.9**
1.3.13.1 Glass and Glass products	0.295	158.3	150.9	165.3	164.0	163.4	163.5
1.3.13.2 Refractory products	0.223	119.0	118.9	118.7	118.8	118.5	119.3
1.3.13.3 Clay Building Materials	0.121	135.3	135.5	132.9	130.0	129.2	133.4
1.3.13.4 Other Porcelain and Ceramic Products	0.222	118.0	116.2	118.7	119.2	119.4	120.1
1.3.13.5 Cement, Lime and Plaster	1.645	136.9	133.4	138.9	138.9	138.0	137.7

No. 21: Wholesale Price Index (Contd.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023			
			Apr.	Jan.	Feb.	Mar. (P)	Apr. (P)
1.3.13.6 Articles of Concrete, Cement and Plaster	0.292	134.4	132.7	134.3	135.6	135.6	137.4
1.3.13.7 Cutting, Shaping and Finishing of Stone	0.234	125.7	122.6	126.3	126.0	127.0	127.3
1.3.13.8 Other Non-Metallic Mineral Products	0.169	105.8	104.9	107.4	108.4	106.3	105.6
1.3.14 MANUFACTURE OF BASIC METALS	**9.646**	**148.7**	**161.2**	**145.5**	**146.9**	**146.3**	**145.4**
1.3.14.1 Inputs into steel making	1.411	159.9	181.9	150.9	154.6	153.1	151.7
1.3.14.2 Metallic Iron	0.653	164.1	178.4	158.9	160.8	158.0	157.6
1.3.14.3 Mild Steel - Semi Finished Steel	1.274	127.1	134.5	124.9	124.8	125.8	123.3
1.3.14.4 Mild Steel -Long Products	1.081	149.7	159.1	148.3	148.4	147.6	145.7
1.3.14.5 Mild Steel - Flat products	1.144	155.2	179.1	144.1	150.5	150.9	150.6
1.3.14.6 Alloy steel other than Stainless Steel- Shapes	0.067	147.4	156.8	145.8	144.8	144.9	144.4
1.3.14.7 Stainless Steel - Semi Finished	0.924	151.9	173.1	148.6	146.8	144.8	146.1
1.3.14.8 Pipes & tubes	0.205	174.2	183.1	175.3	175.2	174.3	172.5
1.3.14.9 Non-ferrous metals incl. precious metals	1.693	146.1	156.2	146.6	147.7	147.8	147.0
1.3.14.10 Castings	0.925	129.9	125.7	134.7	133.8	132.5	133.6
1.3.14.11 Forgings of steel	0.271	172.3	166.9	173.8	175.7	175.5	172.9
1.3.15 MANUFACTURE OF FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND EQUIPMENT	**3.155**	**139.0**	**138.8**	**137.9**	**139.1**	**139.3**	**138.7**
1.3.15.1 Structural Metal Products	1.031	132.6	131.1	131.8	131.5	131.8	131.4
1.3.15.2 Tanks, Reservoirs and Containers of Metal	0.660	161.3	168.5	155.4	159.7	160.6	160.9
1.3.15.3 Steam generators, Except Central Heating Hot Water Boilers	0.145	99.9	97.0	103.7	102.4	103.7	101.0
1.3.15.4 Forging, Pressing, Stamping and Roll-Forming of Metal; Powder Metallurgy	0.383	135.5	129.4	136.7	138.3	137.8	138.2
1.3.15.5 Cutlery, Hand Tools and General Hardware	0.208	112.1	112.2	110.8	110.6	110.6	110.7
1.3.15.6 Other Fabricated Metal Products	0.728	144.9	143.7	145.9	146.9	146.5	144.6
1.3.16 MANUFACTURE OF COMPUTER, ELECTRONIC AND OPTICAL PRODUCTS	**2.009**	**116.8**	**116.4**	**117.1**	**116.8**	**116.8**	**117.5**
1.3.16.1 Electronic Components	0.402	115.5	113.2	115.4	114.8	114.7	114.3
1.3.16.2 Computers and Peripheral Equipment	0.336	135.0	134.8	135.0	135.1	135.1	135.1
1.3.16.3 Communication Equipment	0.310	129.5	128.2	129.8	130.5	130.5	130.5
1.3.16.4 Consumer Electronics	0.641	99.9	101.0	100.6	99.5	99.9	102.4
1.3.16.5 Measuring, Testing, Navigating and Control equipment	0.181	112.8	112.3	113.0	113.0	113.0	113.0
1.3.16.6 Watches and Clocks	0.076	151.3	149.3	151.5	151.9	150.0	151.1
1.3.16.7 Irradiation, Electromedical and Electrotherapeutic equipment	0.055	109.2	109.9	108.9	109.1	108.9	106.8
1.3.16.8 Optical instruments and Photographic equipment	0.008	100.4	99.6	100.3	100.3	100.3	103.7
1.3.17 MANUFACTURE OF ELECTRICAL EQUIPMENT	**2.930**	**128.5**	**127.4**	**130.1**	**129.9**	**129.9**	**130.1**
1.3.17.1 Electric motors, Generators, Transformers and Electricity distribution and Control apparatus	1.298	126.0	123.3	129.0	127.3	127.2	127.6
1.3.17.2 Batteries and Accumulators	0.236	131.8	129.4	131.6	131.6	132.4	133.4
1.3.17.3 Fibre optic cables for data transmission or live transmission of images	0.133	115.6	105.3	119.9	122.9	119.6	119.7
1.3.17.4 Other electronic and Electric wires and Cables	0.428	146.2	153.3	146.4	149.0	148.3	148.8
1.3.17.5 Wiring devices, Electric lighting & display equipment	0.263	117.1	116.2	117.0	116.9	117.4	116.9
1.3.17.6 Domestic appliances	0.366	133.9	133.3	133.8	133.2	133.9	133.4
1.3.17.7 Other electrical equipment	0.206	117.4	114.3	118.9	120.0	120.8	121.2
1.3.18 MANUFACTURE OF MACHINERY AND EQUIPMENT	**4.789**	**126.0**	**124.3**	**127.0**	**127.7**	**127.7**	**128.4**
1.3.18.1 Engines and Turbines, Except aircraft, Vehicle and Two wheeler engines	0.638	126.5	125.4	126.4	128.0	127.3	128.0
1.3.18.2 Fluid power equipment	0.162	128.1	125.5	129.9	130.3	131.4	133.0
1.3.18.3 Other pumps, Compressors, Taps and Valves	0.552	117.4	117.4	117.6	117.5	117.7	117.9
1.3.18.4 Bearings, Gears, Gearing and Driving elements	0.340	123.7	121.1	125.7	126.6	127.1	128.1
1.3.18.5 Ovens, Furnaces and Furnace burners	0.008	79.7	78.5	82.3	81.5	80.9	80.2
1.3.18.6 Lifting and Handling equipment	0.285	126.2	125.4	127.2	128.0	128.2	127.9

No. 21: Wholesale Price Index (Concld.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023			
			Apr.	Jan.	Feb.	Mar. (P)	Apr. (P)
1.3.18.7 Office machinery and Equipment	0.006	130.2	130.2	130.2	130.2	130.2	130.2
1.3.18.8 Other general-purpose machinery	0.437	142.9	143.6	144.2	145.7	143.1	144.4
1.3.18.9 Agricultural and Forestry machinery	0.833	136.9	133.5	139.4	139.4	140.0	140.8
1.3.18.10 Metal-forming machinery and Machine tools	0.224	120.2	118.1	121.2	121.6	122.5	122.5
1.3.18.11 Machinery for mining, Quarrying and Construction	0.371	84.4	80.3	86.1	86.6	86.7	86.9
1.3.18.12 Machinery for food, Beverage and Tobacco processing	0.228	127.9	131.0	124.7	124.6	124.7	124.4
1.3.18.13 Machinery for textile, Apparel and Leather production	0.192	130.1	127.9	131.1	130.9	132.3	136.0
1.3.18.14 Other special-purpose machinery	0.468	140.3	136.6	142.1	143.6	143.7	144.0
1.3.18.15 Renewable electricity generating equipment	0.046	69.0	67.8	69.7	69.7	70.2	71.1
1.3.19 MANUFACTURE OF MOTOR VEHICLES, TRAILERS AND SEMI-TRAILERS	**4.969**	**127.6**	**126.1**	**127.1**	**127.1**	**127.6**	**127.9**
1.3.19.1 Motor vehicles	2.600	126.2	124.6	125.7	125.8	126.5	126.8
1.3.19.2 Parts and Accessories for motor vehicles	2.368	129.2	127.8	128.7	128.6	128.9	129.1
1.3.20 MANUFACTURE OF OTHER TRANSPORT EQUIPMENT	**1.648**	**137.1**	**134.5**	**138.8**	**139.6**	**140.2**	**142.0**
1.3.20.1 Building of ships and Floating structures	0.117	162.5	159.1	163.6	163.6	163.6	163.6
1.3.20.2 Railway locomotives and Rolling stock	0.110	105.4	103.7	108.4	106.5	106.5	104.6
1.3.20.3 Motor cycles	1.302	137.2	134.4	139.1	140.3	141.1	143.6
1.3.20.4 Bicycles and Invalid carriages	0.117	139.8	139.4	138.9	138.5	138.6	137.2
1.3.20.5 Other transport equipment	0.002	151.7	145.5	157.1	155.8	155.9	155.8
1.3.21 MANUFACTURE OF FURNITURE	**0.727**	**157.5**	**155.2**	**157.9**	**158.2**	**158.6**	**160.5**
1.3.21.1 Furniture	0.727	157.5	155.2	157.9	158.2	158.6	160.5
1.3.22 OTHER MANUFACTURING	**1.064**	**147.4**	**147.5**	**151.1**	**153.8**	**154.0**	**159.5**
1.3.22.1 Jewellery and Related articles	0.996	146.1	146.0	150.2	153.1	153.3	159.1
1.3.22.2 Musical instruments	0.001	186.6	184.4	185.6	200.4	201.4	193.9
1.3.22.3 Sports goods	0.012	150.2	146.6	153.0	152.4	152.7	154.7
1.3.22.4 Games and Toys	0.005	158.8	158.6	158.7	158.5	158.2	159.4
1.3.22.5 Medical and Dental instruments and Supplies	0.049	170.4	176.4	167.2	166.7	166.3	166.3
2 FOOD INDEX	**24.378**	**174.1**	**173.3**	**171.5**	**171.3**	**172.1**	**173.6**

Source: Office of the Economic Adviser, Ministry of Commerce and Industry, Government of India.

No. 22: Index of Industrial Production (Base:2011-12=100)

Industry	Weight	2020-21	2021-22	April-February		February	
				2021-22	2022-23	2022	2023
	1	2	3	4	5	6	7
General Index	100.00	118.1	131.6	130.0	137.1	131.4	138.7
1 Sectoral Classification							
1.1 Mining	14.37	101.0	113.3	110.4	116.7	123.3	129.0
1.2 Manufacturing	77.63	117.2	131.0	129.7	136.0	129.9	136.8
1.3 Electricity	7.99	157.6	170.1	168.2	185.0	160.8	174.0
2 Use-Based Classification							
2.1 Primary Goods	34.05	118.1	129.5	127.3	137.4	130.8	139.7
2.2 Capital Goods	8.22	75.9	88.7	86.6	98.2	94.5	104.4
2.3 Intermediate Goods	17.22	124.7	143.9	142.7	148.1	143.7	143.2
2.4 Infrastructure/ Construction Goods	12.34	124.7	148.2	146.3	158.1	152.0	164.0
2.5 Consumer Durables	12.84	101.2	113.8	112.4	114.1	112.9	108.4
2.6 Consumer Non-Durables	15.33	142.1	146.7	146.4	147.6	137.6	154.3

Source : Central Statistics Office, Ministry of Statistics and Programme Implementation, Government of India.

Government Accounts and Treasury Bills

No. 23: Union Government Accounts at a Glance

(₹ Crore)

Item	Financial Year	April - February			
	2022-23 (Revised Estimates)	2022-23 (Actuals)	2021-22 (Actuals)	Percentage to Revised Estimates	
				2022-23	2021-22
	1	2	3	4	5
1 Revenue Receipts	**2348413**	**1980828**	**1791017**	**84.3**	**86.2**
1.1 Tax Revenue (Net)	2086662	1732193	1480886	83.0	83.9
1.2 Non-Tax Revenue	261751	248635	310131	95.0	98.8
2 Non-Debt Capital Receipt	**83500**	**58900**	**36263**	**70.5**	**36.3**
2.1 Recovery of Loans	23500	20229	22749	86.1	103.5
2.2 Other Receipts	60000	38671	13514	64.5	17.3
3 Total Receipts (excluding borrowings) (1+2)	**2431913**	**2039728**	**1827280**	**83.9**	**83.9**
4 Revenue Expenditure	3458959	2903363	2658694	83.9	83.9
of which:					
4.1 Interest Payments	940651	798957	671951	84.9	82.6
5 Capital Expenditure	728274	590227	485181	81.0	80.5
6 Total Expenditure (4+5)	**4187232**	**3493590**	**3143875**	**83.4**	**83.4**
7 Revenue Deficit (4-1)	**1110546**	**922535**	**867677**	**83.1**	**79.7**
8 Fiscal Deficit (6-3)	**1755319**	**1453862**	**1316595**	**82.8**	**82.7**
9 Gross Primary Deficit (8-4.1)	**814668**	**654905**	**644644**	**80.4**	**82.9**

Source: Controller General of Accounts (CGA), Ministry of Finance, Government of India and Union Budget 2023-24.

No. 24: Treasury Bills – Ownership Pattern

(₹ Crore)

Item	2021-22	2022	2023					
		Apr. 1	Feb. 24	Mar. 3	Mar. 10	Mar. 17	Mar. 24	Mar. 31
	1	2	3	4	5	6	7	8
1 91-day								
1.1 Banks	5310	5384	16434	14936	14615	14376	12487	8724
1.2 Primary Dealers	16705	20191	22121	20225	23562	24607	20869	20071
1.3 State Governments	31320	47800	27121	27121	21921	12921	10738	8038
1.4 Others	72109	66123	87550	89626	86505	87018	89874	80452
2 182-day								
2.1 Banks	70130	76931	69416	69592	68385	72055	68739	67606
2.2 Primary Dealers	63669	67992	63459	68172	79963	89786	93275	97274
2.3 State Governments	15763	16763	7568	5587	5587	4587	3592	2592
2.4 Others	69259	72166	88604	92897	93799	95806	104230	109742
3 364-day								
3.1 Banks	112386	107791	96616	98836	99974	102400	99495	105646
3.2 Primary Dealers	160461	172480	158712	155411	144424	152898	143712	146080
3.3 State Governments	22836	22836	46233	44008	48172	48221	48221	48284
3.4 Others	118392	120479	151423	149681	157330	147088	158273	148827
4 14-day Intermediate								
4.1 Banks								
4.2 Primary Dealers								
4.3 State Governments	289362	207675	239122	206769	307118	317286	319035	212758
4.4 Others	659	194	1678	1153	1004	1075	426	926
Total Treasury Bills (Excluding 14 day Intermediate T Bills) #	758339	796938	835256	836094	844238	851764	853504	843335

14D intermediate T-Bills are non-marketable unlike 91D, 182D and 364D T-Bills. These bills are 'intermediate' by nature as these are liquidated to replenish shortfall in the daily minimum cash balances of State Governments

Note: Primary Dealers (PDs) include banks undertaking PD business.

No. 25: Auctions of Treasury Bills

(Amount in ₹ Crore)

Date of Auction	Notified Amount	Bids Received			Bids Accepted			Total Issue (6+7)	Cut-off Price	Implicit Yield at Cut-off Price (per cent)
		Number	Total Face Value		Number	Total Face Value				
			Competitive	Non-Competitive		Competitive	Non-Competitive			
	1	2	3	4	5	6	7	8	9	10
91-day Treasury Bills										
2022-23										
Mar. 1	9000	99	25388	1683	46	8817	1683	10500	98.30	6.9391
Mar. 8	9000	124	35578	1080	38	8920	1080	10000	98.29	6.9677
Mar. 15	9000	137	47238	2252	25	8948	2252	11200	98.32	6.8573
Mar. 23	9000	128	34801	1686	21	8831	1686	10517	98.35	6.7366
Mar. 29	9000	164	45950	881	0	0	0	0	–	–
182-day Treasury Bills										
2022-23										
Mar. 1	16000	250	45472	174	105	15954	174	16128	96.49	7.2999
Mar. 8	16000	179	40722	21	77	15979	21	16000	96.45	7.3787
Mar. 15	16000	166	40270	56	77	15944	56	16000	96.50	7.2695
Mar. 23	16000	186	58580	182	72	15963	182	16145	96.52	7.2282
Mar. 29	16000	162	50558	36	49	15964	36	16000	96.50	7.2820
364-day Treasury Bills										
2022-23										
Mar. 1	14000	188	33838	101	100	13975	101	14076	93.14	7.3901
Mar. 8	14000	243	35525	4183	126	13980	4183	18163	93.06	7.4800
Mar. 15	14000	273	60015	72	48	13977	72	14050	93.21	7.3067
Mar. 23	14000	202	53493	20	35	13980	20	14000	93.27	7.2382
Mar. 29	14000	144	35745	82	44	13980	82	14062	93.21	7.3064

Financial Markets

No. 26: Daily Call Money Rates

(Per cent per annum)

As on	Range of Rates	Weighted Average Rates
	Borrowings/ Lendings	Borrowings/ Lendings
	1	2
March 1, 2023	4.60-6.40	6.36
March 2, 2023	4.60-6.80	6.34
March 3, 2023	4.90-6.35	6.30
March 4, 2023	5.20-6.25	5.72
March 6, 2023	4.00-6.40	6.30
March 8, 2023	5.30-6.50	6.35
March 9, 2023	4.80-6.47	6.35
March 10, 2023	4.80-6.40	6.31
March 13, 2023	4.85-6.65	6.34
March 14, 2023	4.85-6.65	6.32
March 15, 2023	4.85-6.42	6.34
March 16, 2023	4.90-6.68	6.52
March 17, 2023	4.80-6.80	6.63
March 18, 2023	5.30-6.30	5.74
March 20, 2023	4.60-7.00	6.67
March 21, 2023	4.85-6.90	6.65
March 23, 2023	4.60-7.00	6.61
March 24, 2023	4.60-6.90	6.54
March 27, 2023	4.60-6.80	6.63
March 28, 2023	4.60-8.25	6.68
March 29, 2023	4.60-8.25	6.75
March 31, 2023	5.50-8.10	7.34
April 3, 2023	4.60-6.40	6.31
April 5, 2023	4.60-6.35	6.26
April 6, 2023	4.00-6.70	6.39
April 10, 2023	4.60-6.40	6.32
April 11, 2023	4.60-6.40	6.31
April 12, 2023	4.60-6.40	6.31
April 13, 2023	4.60-6.50	6.35
April 15, 2023	6.50-6.35	6.15

Note: Includes Notice Money.

No. 27: Certificates of Deposit

Item	2022	2023			
	Mar. 25	Feb. 10	Feb. 24	Mar. 10	Mar. 24
	1	2	3	4	5
1 Amount Outstanding (₹ Crore)	181171.43	269679.45	280336.78	290353.28	304521.02
1.1 Issued during the fortnight (₹ Crore)	34878.78	19835.23	32563.25	45368.65	40358.05
2 Rate of Interest (per cent)	3.82-5.49	7.07-7.35	7.09-8.04	7.28-8.05	7.07-7.80

No. 28: Commercial Paper

Item	2022	2023			
	Mar. 31	Feb. 15	Feb. 28	Mar. 15	Mar. 31
	1	2	3	4	5
1 Amount Outstanding (₹ Crore)	352292.55	368908.25	364530.10	371326.70	353688.25
1.1 Reported during the fortnight (₹ Crore)	71015.75	43347.15	58975.35	65488.90	61469.10
2 Rate of Interest (per cent)	3.79-12.17	6.70-16.31	6.77-12.51	6.92-10.78	6.88-12.67

No. 29: Average Daily Turnover in Select Financial Markets

(₹ Crore)

Item	2021-22	2022	2023					
		Apr. 1	Feb. 24	Mar. 3	Mar. 10	Mar. 17	Mar. 24	Mar. 31
	1	2	3	4	5	6	7	8
1 Call Money	14515	19325	29916	24643	19474	23249	23713	23318
2 Notice Money	2122	632	278	4980	921	5462	240	1044
3 Term Money	515	235	482	813	509	892	219	602
4 Triparty Repo	618526	703445	760332	697488	536485	664412	514966	673254
5 Market Repo	383844	456559	618929	607475	506628	671157	563292	740470
6 Repo in Corporate Bond	4373	57	1064	2140	3003	6049	2289	2854
7 Forex (US $ million)	67793	113833	80089	89330	87882	103027	99542	125368
8 Govt. of India Dated Securities	51300	41344	62050	56269	39473	86730	64094	79541
9 State Govt. Securities	5570	8567	6700	7118	9031	7106	13892	15014
10 Treasury Bills								
10.1 91-Day	4690	5923	2664	5061	5255	5462	4121	5710
10.2 182-Day	3440	6494	4854	3737	5977	8096	5365	6554
10.3 364-Day	3530	8515	1905	3970	3881	5512	1831	7835
10.4 Cash Management Bills								
11 Total Govt. Securities (8+9+10)	68530	70844	78173	76155	63617	112905	89303	114655
11.1 RBI	–	1300	46	131	921	386	585	7197

No. 30: New Capital Issues by Non-Government Public Limited Companies

(Amount in ₹ Crore)

Security & Type of Issue	2021-22		2021-22 (Apr.-Mar.)		2022-23 (Apr.-Mar.) *		Mar. 2022		Mar. 2023 *	
	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount
	1	2	3	4	5	6	7	8	9	10
1 Equity Shares	**164**	**138894**	**164**	**138894**	**237**	**45266**	**16**	**1054**	**37**	**3065**
1A Premium	154	136893	154	136893	218	42408	15	983	34	2825
1.1 Public	121	112567	121	112567	164	38515	10	175	23	996
1.1.1 Premium	119	111314	119	111314	161	37158	10	142	23	922
1.2 Rights	43	26327	43	26327	73	6751	6	879	14	2069
1.2.1 Premium	35	25580	35	25580	57	5250	5	841	11	1903
2 Preference Shares	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
2.1 Public	–	–	–	–	–	–	–	–	–	–
2.2 Rights	–	–	–	–	–	–	–	–	–	–
3 Bonds & Debentures	**28**	**11589**	**28**	**11589**	**34**	**9221**	**1**	**178**	**3**	**485**
3.1 Convertible	–	–	–	–	–	–	–	–	–	–
3.1.1 Public	–	–	–	–	–	–	–	–	–	–
3.1.2 Rights	–	–	–	–	–	–	–	–	–	–
3.2 Non-Convertible	28	11589	28	11589	34	9221	1	178	3	485
3.2.1 Public	28	11589	28	11589	34	9221	1	178	3	485
3.2.2 Rights	–	–	–	–	–	–	–	–	–	–
4 Total(1+2+3)	**192**	**150484**	**192**	**150484**	**271**	**54487**	**17**	**1231**	**40**	**3550**
4.1 Public	149	124157	149	124157	198	47736	11	353	26	1481
4.2 Rights	43	26327	43	26327	73	6751	6	879	14	2069

Note : 1. Since April 2020, monthly data on equity issues is compiled on the basis of their listing date.
2. Figures in the columns might not add up to the total due to rounding off numbers.

Source : Securities and Exchange Board of India.

* : Data is Provisional.

External Sector

No. 31: Foreign Trade

Item	Unit	2022-23	2022			2023		
			Mar.	Nov.	Dec.	Jan.	Feb.	Mar.
		1	2	3	4	5	6	7
1 Exports	₹ Crore	3616261	339850	285413	313927	293041	305610	340411
	US $ Million	450427	44574	34887	38068	35780	36995	41368
1.1 Oil	₹ Crore	781711	74769	66154	68779	63017	64688	68347
	US $ Million	97396	9806	8086	8341	7694	7831	8306
1.2 Non-oil	₹ Crore	2834550	265081	219259	245148	230024	240921	272064
	US $ Million	353031	34767	26801	29728	28086	29164	33062
2 Imports	₹ Crore	5733945	481031	465922	504831	427747	439144	493840
	US $ Million	714041	63091	56951	61218	52228	53160	60013
2.1 Oil	₹ Crore	1682475	161219	133505	159545	130040	139479	148300
	US $ Million	209418	21145	16319	19347	15878	16884	18022
2.2 Non-oil	₹ Crore	4051470	319812	332417	345287	297707	299665	345540
	US $ Million	504623	41946	40633	41871	36350	36275	41991
3 Trade Balance	₹ Crore	-2117684	-141181	-180509	-190904	-134706	-133534	-153429
	US $ Million	-263613	-18517	-22064	-23150	-16448	-16165	-18645
3.1 Oil	₹ Crore	-900764	-86450	-67351	-90765	-67023	-74791	-79953
	US $ Million	-112022	-11339	-8233	-11007	-8184	-9054	-9716
3.2 Non-oil	₹ Crore	-1216920	-54730	-113158	-100139	-67683	-58744	-73476
	US $ Million	-151592	-7178	-13832	-12143	-8264	-7111	-8929

Source: DGCI&S and Ministry of Commerce & Industry.

No. 32: Foreign Exchange Reserves

Item	Unit	2022	2023					
		Apr. 29	Mar. 24	Mar. 31	Apr. 7	Apr. 14	Apr. 21	Apr. 28
		1	2	3	4	5	6	7
1 Total Reserves	**₹ Crore**	**4568295**	**4773649**	**4754265**	**4789256**	**4800370**	**4797026**	**4818457**
	US $ Million	**597728**	**578778**	**578449**	**584755**	**586412**	**584248**	**588780**
1.1 Foreign Currency Assets	₹ Crore	4072243	4204245	4189132	4213256	4229121	4224244	4251387
	US $ Million	532823	509728	509691	514431	516635	514489	519485
1.2 Gold	₹ Crore	317972	375117	371500	382447	377986	378926	373648
	US $ Million	41604	45480	45200	46696	46175	46151	45657
	Volume (Metric Tonnes)	761.35	794.63	794.63	794.63	794.63	794.63	794.63
1.3 SDRs	SDRs Million	13657	13667	13667	13667	13667	13667	13667
	₹ Crore	139857	151923	151164	151107	150716	151329	151122
	US $ Million	18299	18419	18392	18450	18412	18431	18466
1.4 Reserve Tranche Position in IMF	₹ Crore	38222	42364	42468	42446	42546	42526	42300
	US $ Million	5001	5151	5165	5178	5190	5176	5172

* Difference, if any, is due to rounding off.

No. 33: Non-Resident Deposits

(US$ Million)

Scheme	Outstanding				Flows	
	2021-22	2022	2023		2021-22	2022-23
		Mar.	Feb.	Mar.	Apr.-Mar.	Apr.-Mar.
	1	2	3	4	5	6
1 NRI Deposits	**139022**	**139022**	**135542**	**137883**	**3234**	**7995**
1.1 FCNR(B)	16918	16918	18402	19343	-3555	2425
1.2 NR(E)RA	100801	100801	94135	95448	3332	2136
1.3 NRO	21303	21303	23005	23092	3456	3433

No. 34: Foreign Investment Inflows

(US$ Million)

Item	2021-22	2021-22	2022-23	2022	2023	
		Apr.-Mar.	Apr.-Mar.	Mar.	Feb.	Mar.
	1	2	3	4	5	6
1.1 Net Foreign Direct Investment (1.1.1–1.1.2)	**38587**	**38587**	**28014**	**3052**	**1838**	**366**
1.1.1 Direct Investment to India (1.1.1.1–1. 1.1.2)	**56231**	**56231**	**41622**	**5145**	**2975**	**1116**
1.1.1.1 Gross Inflows/Gross Investments	**84835**	**84835**	**70970**	**7155**	**4787**	**4534**
1.1.1.1.1 Equity	59684	59684	47424	4676	2932	2464
1.1.1.1.1.1 Government (SIA/FIPB)	1698	1698	692	60	1	9
1.1.1.1.1.2 RBI	42932	42932	37097	4226	2113	1901
1.1.1.1.1.3 Acquisition of shares	14143	14143	8245	307	736	471
1.1.1.1.1.4 Equity capital of unincorporated bodies	910	910	1390	82	82	82
1.1.1.1.2 Reinvested earnings	19347	19347	19354	1743	1743	1743
1.1.1.1.3 Other capital	5805	5805	4192	736	112	327
1.1.1.2 Repatriation/Disinvestment	**28605**	**28605**	**29348**	**2009**	**1812**	**3418**
1.1.1.2.1 Equity	27189	27189	27093	1726	1758	3251
1.1.1.2.2 Other capital	1416	1416	2255	284	53	166
1.1.2 Foreign Direct Investment by India (1.1.2.1+1.1.2.2+1.1.2.3–1.1.2.4)	**17644**	**17644**	**13608**	**2093**	**1138**	**751**
1.1.2.1 Equity capital	10061	10061	8709	1054	790	698
1.1.2.2 Reinvested Earnings	3379	3379	4082	282	282	282
1.1.2.3 Other Capital	7604	7604	4694	1130	374	431
1.1.2.4 Repatriation/Disinvestment	3400	3400	3877	372	308	660
1.2 Net Portfolio Investment (1.2.1+1.2.2+1.2.3–1.2.4)	**-16777**	**-16777**	**-5489**	**-4993**	**-426**	**1463**
1.2.1 GDRs/ADRs	–	–	–	–	–	–
1.2.2 FIIs	-14071	-14071	-5407	-4684	-681	1617
1.2.3 Offshore funds and others	–	–	–	–	–	–
1.2.4 Portfolio investment by India	2706	2706	82	309	-254	154
1 Foreign Investment Inflows	**21809**	**21809**	**22525**	**-1941**	**1411**	**1828**

No. 35: Outward Remittances under the Liberalised Remittance Scheme (LRS) for Resident Individuals

(US$ Million)

Item	2021-22	2022	2023		
		Mar.	Jan.	Feb.	Mar.
	1	2	3	4	5
1 Outward Remittances under the LRS	**19610.77**	**1968.77**	**2728.17**	**2101.38**	**2956.76**
1.1 Deposit	830.05	182.61	73.14	61.16	194.16
1.2 Purchase of immovable property	112.90	16.35	14.98	16.10	33.01
1.3 Investment in equity/debt	746.57	104.51	160.05	132.15	232.86
1.4 Gift	2336.29	276.19	223.22	245.31	452.95
1.5 Donations	16.55	0.65	0.66	0.80	1.08
1.6 Travel	6909.04	776.64	1493.17	1070.71	1149.85
1.7 Maintenance of close relatives	3302.37	391.02	342.47	323.43	630.10
1.8 Medical Treatment	37.79	4.21	6.27	3.93	5.15
1.9 Studies Abroad	5165.33	202.25	395.87	229.34	228.49
1.10 Others	153.88	14.33	18.34	18.45	29.11

No. 36: Indices of Nominal Effective Exchange Rate (NEER) and Real Effective Exchange Rate (REER) of the Indian Rupee

Item	2021-22	2022-23	2022	2023	
			April	March	April
	1	2	3	4	5
40-Currency Basket (Base: 2015-16=100)					
1 Trade-weighted					
1.1 NEER	93.13	91.27	93.12	89.54	89.17
1.2 REER	104.64	102.78	103.66	100.17	98.37
2 Export-weighted					
2.1 NEER	93.55	93.03	94.72	91.41	91.25
2.2 REER	103.46	101.04	102.32	98.21	96.45
6-Currency Basket (Trade-weighted)					
1 Base: 2015-16 = 100					
1.1 NEER	87.03	85.98	87.59	83.38	83.02
1.2 REER	102.27	102.02	103.22	98.86	98.77
2 Base: 2020-21 = 100					
2.1 NEER	98.39	97.20	99.03	94.27	93.86
2.2 REER	100.42	100.18	101.35	97.08	96.98

No. 37: External Commercial Borrowings (ECBs) – Registrations

(Amount in US$ Million)

Item	2021-22	2022	2023	
		Mar	Feb	Mar
	1	2	3	4
1 Automatic Route				
1.1 Number	1086	115	69	134
1.2 Amount	28851	3938	644	3466
2 Approval Route				
2.1 Number	18	2	0	1
2.2 Amount	11035	1104	0	374
3 Total (1+2)				
3.1 Number	1104	117	69	135
3.2 Amount	39886	5042	644	3840
4 Weighted Average Maturity (in years)	8.00	5.90	5.20	5.60
5 Interest Rate (per cent)				
5.1 Weighted Average Margin over 6-month LIBOR or reference rate for Floating Rate Loans	1.71	1.23	1.53	1.81
5.2 Interest rate range for Fixed Rate Loans	0.00-10.50	0.00-11.50	0.01-10.50	0.50-11.00
Borrower Category				
I. Corporate Manufacturing	12244	680	160	678
II. Corporate-Infrastructure	17023	2987	156	1985
a.) Transport	1597	36	37	174
b.) Energy	8215	1150	111	10
c.) Water and Sanitation	10	0	0	1
d.) Communication	1258	750	1	0
e.) Social and Commercial Infrastructure	0	0	0	0
f.) Exploration,Mining and Refinery	4691	1051	0	800
g.) Other Sub-Sectors	1252	0	7	1000
III. Corporate Service-Sector	1570	53	66	31
IV. Other Entities	609	9	0	0
a.) units in SEZ	9	9	0	0
b.) SIDBI	0	0	0	0
c.) Exim Bank	600	0	0	0
V. Banks	100	0	0	0
VI. Financial Institution (Other than NBFC)	4	0	0	0
VII. NBFCs	7995	1216	216	1125
a). NBFC- IFC/AFC	5621	1118	0	574
b). NBFC-MFI	93	27	0	74
c). NBFC-Others	2282	71	216	477
VIII. Non-Government Organization (NGO)	0	0	0	0
IX. Micro Finance Institution (MFI)	0	0	0	0
X. Others	341	97	46	21

No. 38: India's Overall Balance of Payments

(US$ Million)

Item	Oct-Dec 2021			Oct-Dec 2022 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance of Payments(1+2+3)	**427124**	**426659**	**465**	**404167**	**393098**	**11069**
1 CURRENT ACCOUNT (1.1+ 1.2)	**205567**	**227734**	**-22167**	**227491**	**245734**	**-18243**
1.1 MERCHANDISE	**108927**	**168677**	**-59750**	**105609**	**178328**	**-72720**
1.2 INVISIBLES (1.2.1+1.2.2+1.2.3)	**96640**	**59057**	**37583**	**121883**	**67406**	**54477**
1.2.1 Services	67016	39207	27809	83422	44702	38719
1.2.1.1 Travel	2599	4335	-1735	8123	6910	1213
1.2.1.2 Transportation	8948	10037	-1089	8758	9409	-651
1.2.1.3 Insurance	844	644	200	783	797	-13
1.2.1.4 G.n.i.e.	223	264	-41	185	282	-97
1.2.1.5 Miscellaneous	54402	23927	30475	65572	27304	38268
1.2.1.5.1 Software Services	31740	3384	28356	37599	4058	33541
1.2.1.5.2 Business Services	15312	13722	1590	21198	15125	6073
1.2.1.5.3 Financial Services	1354	1535	-181	1949	1292	657
1.2.1.5.4 Communication Services	801	276	524	842	329	514
1.2.2 Transfers	23528	2216	21312	30867	2400	28467
1.2.2.1 Official	132	267	-135	58	232	-174
1.2.2.2 Private	23396	1949	21447	30809	2168	28641
1.2.3 Income	6096	17634	-11538	7594	20304	-12710
1.2.3.1 Investment Income	4449	16839	-12391	5878	19437	-13559
1.2.3.2 Compensation of Employees	1647	794	853	1716	867	850
2 CAPITAL ACCOUNT (2.1+2.2+2.3+2.4+2.5)	**221424**	**198925**	**22500**	**176675**	**146497**	**30178**
2.1 Foreign Investment (2.1.1+2.1.2)	**147690**	**148973**	**-1283**	**95253**	**88553**	**6700**
2.1.1 Foreign Direct Investment	19608	15050	4559	17002	14913	2089
2.1.1.1 In India	19032	10192	8840	16107	8796	7311
2.1.1.1.1 Equity	12259	9936	2324	10246	7932	2315
2.1.1.1.2 Reinvested Earnings	5072		5072	5067		5067
2.1.1.1.3 Other Capital	1701	257	1444	794	865	-71
2.1.1.2 Abroad	576	4857	-4281	895	6117	-5222
2.1.1.2.1 Equity	576	2573	-1997	895	3563	-2668
2.1.1.2.2 Reinvested Earnings	0	845	-845	0	1079	-1079
2.1.1.2.3 Other Capital	0	1439	-1439	0	1475	-1475
2.1.2 Portfolio Investment	128082	133924	-5842	78251	73641	4611
2.1.2.1 In India	127509	132213	-4704	77433	72916	4517
2.1.2.1.1 FIIs	127509	132213	-4704	77433	72916	4517
2.1.2.1.1.1 Equity	115423	119516	-4093	71477	65940	5537
2.1.2.1.1.2 Debt	12086	12697	-611	5956	6976	-1020
2.1.2.1.2 ADR/GDRs	0		0	0	0	0
2.1.2.2 Abroad	573	1711	-1138	818	724	93
2.2 Loans (2.2.1+2.2.2+2.2.3)	**29433**	**19410**	**10023**	**25903**	**24110**	**1793**
2.2.1 External Assistance	2692	1399	1293	3088	1584	1504
2.2.1.1 By India	13	16	-3	8	22	-14
2.2.1.2 To India	2680	1383	1297	3080	1562	1518
2.2.2 Commercial Borrowings	6111	6365	-254	4629	7089	-2460
2.2.2.1 By India	352	241	111	439	316	123
2.2.2.2 To India	5759	6124	-365	4190	6773	-2583
2.2.3 Short Term to India	20629	11645	8984	18186	15437	2749
2.2.3.1 Buyers' credit & Suppliers' Credit >180 days	12003	11645	357	17744	15437	2307
2.2.3.2 Suppliers' Credit up to 180 days	8626	0	8626	442	0	442
2.3 Banking Capital (2.3.1+2.3.2)	**25913**	**17707**	**8206**	**36230**	**21795**	**14435**
2.3.1 Commercial Banks	25913	17501	8412	36230	21649	14580
2.3.1.1 Assets	11213	6154	5058	18145	6135	12009
2.3.1.2 Liabilities	14700	11346	3353	18085	15514	2571
2.3.1.2.1 Non-Resident Deposits	12141	10809	1332	16928	14359	2569
2.3.2 Others	0	206	-206	0	145	-145
2.4 Rupee Debt Service	0	0	0	0	1	-1
2.5 Other Capital	18389	12835	5554	19289	12038	7251
3 Errors and Omissions	**132**	0	**132**	0	**866**	**-866**
4 Monetary Movements (4.1+ 4.2)	0	**465**	**-465**	0	**11069**	**-11069**
4.1 I.M.F.	0	0	0	0	0	0
4.2 Foreign Exchange Reserves (Increase - / Decrease +)		465	-465	0	11069	-11069

Note: P: Preliminary.

No. 39: India's Overall Balance of Payments

(₹ Crore)

Item	Oct-Dec 2021			Oct-Dec 2022 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance of Payments(1+2+3)	**3200360**	**3196873**	**3487**	**3322449**	**3231457**	**90992**
1 CURRENT ACCOUNT (1.1+ 1.2)	**1540277**	**1706367**	**-166090**	**1870090**	**2020055**	**-149965**
1.1 MERCHANDISE	**816171**	**1263865**	**-447694**	**868155**	**1465946**	**-597791**
1.2 INVISIBLES (1.2.1+1.2.2+1.2.3)	**724106**	**442502**	**281604**	**1001935**	**554109**	**447826**
1.2.1 Services	502141	293771	208370	685767	367473	318293
1.2.1.1 Travel	19476	32478	-13002	66776	56807	9970
1.2.1.2 Transportation	67048	75208	-8160	71994	77348	-5354
1.2.1.3 Insurance	6327	4826	1501	6438	6548	-110
1.2.1.4 G.n.i.e.	1668	1976	-309	1520	2317	-797
1.2.1.5 Miscellaneous	407623	179283	228340	539038	224454	314584
1.2.1.5.1 Software Services	237819	25352	212467	309080	33356	275723
1.2.1.5.2 Business Services	114730	102817	11913	174257	124338	49919
1.2.1.5.3 Financial Services	10149	11503	-1354	16021	10624	5397
1.2.1.5.4 Communication Services	6000	2071	3929	6924	2701	4223
1.2.2 Transfers	176292	16607	159685	253741	19726	234014
1.2.2.1 Official	991	2002	-1011	478	1907	-1429
1.2.2.2 Private	175301	14605	160696	253262	17819	235443
1.2.3 Income	45673	132125	-86452	62427	166910	-104482
1.2.3.1 Investment Income	33333	126174	-92841	48318	159784	-111466
1.2.3.2 Compensation of Employees	12340	5951	6389	14109	7126	6984
2 CAPITAL ACCOUNT (2.1+2.2+2.3+2.4+2.5)	**1659091**	**1490505**	**168586**	**1452359**	**1204279**	**248080**
2.1 Foreign Investment (2.1.1+2.1.2)	**1106614**	**1116227**	**-9613**	**783028**	**727953**	**55075**
2.1.1 Foreign Direct Investment	146921	112764	34157	139765	122591	17174
2.1.1.1 In India	142606	76370	66235	132411	72310	60101
2.1.1.1.1 Equity	91856	74446	17411	84230	65203	19027
2.1.1.1.2 Reinvested Earnings	38004	0	38004	41657	0	41657
2.1.1.1.3 Other Capital	12745	1925	10821	6524	7107	-583
2.1.1.2 Abroad	4315	36393	-32078	7353	50281	-42928
2.1.1.2.1 Equity	4315	19279	-14964	7353	29287	-21934
2.1.1.2.2 Reinvested Earnings	0	6329	-6329	0	8871	-8871
2.1.1.2.3 Other Capital	0	10786	-10786	0	12123	-12123
2.1.2 Portfolio Investment	959694	1003463	-43770	643263	605362	37901
2.1.2.1 In India	955401	990645	-35244	636539	599406	37133
2.1.2.1.1 FIIs	955401	990645	-35244	636539	599406	37133
2.1.2.1.1.1 Equity	864845	895510	-30665	587580	542060	45520
2.1.2.1.1.2 Debt	90555	95135	-4580	48959	57346	-8387
2.1.2.1.2 ADR/GDRs	0	0	0	0	0	0
2.1.2.2 Abroad	4293	12818	-8525	6723	5955	768
2.2 Loans (2.2.1+2.2.2+2.2.3)	**220533**	**145432**	**75101**	**212938**	**198199**	**14739**
2.2.1 External Assistance	20174	10483	9690	25384	13021	12363
2.2.1.1 By India	95	120	-26	63	180	-117
2.2.1.2 To India	20079	10363	9716	25321	12841	12480
2.2.2 Commercial Borrowings	45789	47692	-1902	38055	58276	-20221
2.2.2.1 By India	2638	1806	833	3608	2599	1010
2.2.2.2 To India	43151	45886	-2735	34447	55677	-21231
2.2.3 Short Term to India	154570	87257	67313	149499	126902	22597
2.2.3.1 Buyers' credit & Suppliers' Credit >180 days	89934	87257	2677	145866	126902	18964
2.2.3.2 Suppliers' Credit up to 180 days	64636	0	64636	3633	0	3633
2.3 Banking Capital (2.3.1+2.3.2)	**194158**	**132675**	**61483**	**297825**	**179162**	**118663**
2.3.1 Commercial Banks	194158	131130	63028	297825	177967	119858
2.3.1.1 Assets	84016	46113	37902	149160	50436	98724
2.3.1.2 Liabilities	110142	85016	25126	148665	127531	21135
2.3.1.2.1 Non-Resident Deposits	90969	80991	9978	139159	118040	21119
2.3.2 Others	0	1546	-1546	0	1195	-1195
2.4 Rupee Debt Service	0	0	0	0	4	-4
2.5 Other Capital	137786	96171	41615	158568	98961	59607
3 Errors and Omissions	**992**	0	**992**	0	**7123**	**-7123**
4 Monetary Movements (4.1+ 4.2)	0	**3487**	**-3487**	0	**90992**	**-90992**
4.1 I.M.F.	0	0	0	0	0	0
4.2 Foreign Exchange Reserves (Increase - / Decrease +)	0	3487	-3487	0	90992	-90992

Note: P: Preliminary.

No. 40: Standard Presentation of BoP in India as per BPM6

(US$ Million)

Item	Oct-Dec 2021			Oct-Dec 2022 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account (1.A+1.B+1.C)	**205556**	**227712**	**-22156**	**227486**	**245714**	**-18227**
1.A Goods and Services (1.A.a+1.A.b)	**175944**	**207884**	**-31940**	**189030**	**223030**	**-34000**
1.A.a Goods (1.A.a.1 to 1.A.a.3)	**108927**	**168677**	**-59750**	**105609**	**178328**	**-72720**
1.A.a.1 General merchandise on a BOP basis	108811	154622	-45811	105247	170206	-64959
1.A.a.2 Net exports of goods under merchanting	116	0	116	362	0	362
1.A.a.3 Nonmonetary gold		14055	-14055		8123	-8123
1.A.b Services (1.A.b.1 to 1.A.b.13)	**67016**	**39207**	**27809**	**83422**	**44702**	**38719**
1.A.b.1 Manufacturing services on physical inputs owned by others	129	17	112	553	108	446
1.A.b.2 Maintenance and repair services n.i.e.	68	394	-326	55	255	-200
1.A.b.3 Transport	8948	10037	-1089	8758	9409	-651
1.A.b.4 Travel	2599	4335	-1735	8123	6910	1213
1.A.b.5 Construction	750	592	158	1129	573	556
1.A.b.6 Insurance and pension services	844	644	200	783	797	-13
1.A.b.7 Financial services	1354	1535	-181	1949	1292	657
1.A.b.8 Charges for the use of intellectual property n.i.e.	238	2363	-2125	318	3435	-3116
1.A.b.9 Telecommunications, computer, and information services	32638	3813	28825	38538	4590	33947
1.A.b.10 Other business services	15312	13722	1590	21198	15125	6073
1.A.b.11 Personal, cultural, and recreational services	834	1205	-371	997	1155	-158
1.A.b.12 Government goods and services n.i.e.	223	264	-41	185	282	-97
1.A.b.13 Others n.i.e.	3079	286	2793	835	770	65
1.B Primary Income (1.B.1 to 1.B.3)	**6096**	**17634**	**-11538**	**7594**	**20304**	**-12710**
1.B.1 Compensation of employees	1647	794	853	1716	867	850
1.B.2 Investment income	3067	16552	-13485	3746	18994	-15249
1.B.2.1 Direct investment	1750	11634	-9884	1784	11461	-9677
1.B.2.2 Portfolio investment	88	1941	-1853	69	2853	-2784
1.B.2.3 Other investment	82	2975	-2892	146	4579	-4433
1.B.2.4 Reserve assets	1147	2	1144	1746	101	1645
1.B.3 Other primary income	1382	287	1094	2132	443	1689
1.C Secondary Income (1.C.1+1.C.2)	**23516**	**2194**	**21322**	**30862**	**2379**	**28483**
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	23396	1949	21447	30809	2168	28641
1.C.1.1 Personal transfers (Current transfers between resident and/ non-resident households)	22443	1359	21084	29973	1548	28425
1.C.1.2 Other current transfers	953	590	363	836	619	216
1.C.2 General government	121	245	-125	53	212	-158
2 Capital Account (2.1+2.2)	**227**	**430**	**-202**	**127**	**188**	**-62**
2.1 Gross acquisitions (DR.)/disposals (CR.) of non-produced nonfinancial assets	94	166	-71	23	37	-14
2.2 Capital transfers	133	264	-131	104	151	-47
3 Financial Account (3.1 to 3.5)	**221209**	**198982**	**22226**	**176553**	**157398**	**19155**
3.1 Direct Investment (3.1A+3.1B)	**19608**	**15050**	**4559**	**17002**	**14913**	**2089**
3.1.A Direct Investment in India	19032	10192	8840	16107	8796	7311
3.1.A.1 Equity and investment fund shares	17331	9936	7396	15314	7932	7382
3.1.A.1.1 Equity other than reinvestment of earnings	12259	9936	2324	10246	7932	2315
3.1.A.1.2 Reinvestment of earnings	5072		5072	5067		5067
3.1.A.2 Debt instruments	1701	257	1444	794	865	-71
3.1.A.2.1 Direct investor in direct investment enterprises	1701	257	1444	794	865	-71
3.1.B Direct Investment by India	576	4857	-4281	895	6117	-5222
3.1.B.1 Equity and investment fund shares	576	3418	-2842	895	4642	-3747
3.1.B.1.1 Equity other than reinvestment of earnings	576	2573	-1997	895	3563	-2668
3.1.B.1.2 Reinvestment of earnings		845	-845		1079	-1079
3.1.B.2 Debt instruments	0	1439	-1439	0	1475	-1475
3.1.B.2.1 Direct investor in direct investment enterprises		1439	-1439		1475	-1475
3.2 Portfolio Investment	**128082**	**133924**	**-5842**	**78251**	**73641**	**4611**
3.2.A Portfolio Investment in India	127509	132213	-4704	77433	72916	4517
3.2.1 Equity and investment fund shares	115423	119516	-4093	71477	65940	5537
3.2.2 Debt securities	12086	12697	-611	5956	6976	-1020
3.2.B Portfolio Investment by India	573	1711	-1138	818	724	93
3.3 Financial derivatives (other than reserves) and employee stock options	**4851**	**6752**	**-1902**	**5509**	**5955**	**-446**
3.4 Other investment	**68668**	**42792**	**25876**	**75792**	**51821**	**23971**
3.4.1 Other equity (ADRs/GDRs)	0	0	0	0	0	0
3.4.2 Currency and deposits	12141	11015	1125	16928	14505	2424
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	0	206	-206	0	145	-145
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	12141	10809	1332	16928	14359	2569
3.4.2.3 General government			0			0
3.4.2.4 Other sectors			0			0
3.4.3 Loans (External Assistance, ECBs and Banking Capital)	22575	14456	8120	27018	15963	11055
3.4.3.A Loans to India	22211	14199	8012	26572	15625	10947
3.4.3.B Loans by India	365	257	108	447	338	109
3.4.4 Insurance, pension, and standardized guarantee schemes	70	89	-19	30	38	-8
3.4.5 Trade credit and advances	20629	11645	8984	18186	15437	2749
3.4.6 Other accounts receivable/payable - other	13253	5586	7667	13628	5878	7751
3.4.7 Special drawing rights			0			0
3.5 Reserve assets	0	**465**	**-465**	0	**11069**	**-11069**
3.5.1 Monetary gold			0			0
3.5.2 Special drawing rights n.a.			0			0
3.5.3 Reserve position in the IMF n.a.			0			0
3.5.4 Other reserve assets (Foreign Currency Assets)	0	465	-465	0	11069	-11069
4 Total assets/liabilities	**221209**	**198982**	**22226**	**176553**	**157398**	**19155**
4.1 Equity and investment fund shares	138824	141421	-2597	94043	85231	8811
4.2 Debt instruments	69132	51510	17622	68882	55220	13662
4.3 Other financial assets and liabilities	13253	6051	7202	13628	16947	-3318
5 Net errors and omissions	**132**		**132**		**866**	**-866**

Note: P: Preliminary.

No. 41: Standard Presentation of BoP in India as per BPM6

(₹ Crore)

Item	Oct-Dec 2021			Oct-Dec 2022 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account (1.A+1.B+1.C)	**1540189**	**1706202**	**-166013**	**1870049**	**2019887**	**-149838**
1.A Goods and Services (1.A.a+1.A.b)	**1318312**	**1557635**	**-239324**	**1553922**	**1833419**	**-279497**
1.A.a Goods (1.A.a.1 to 1.A.a.3)	**816171**	**1263865**	**-447694**	**868155**	**1465946**	**-597791**
1.A.a.1 General merchandise on a BOP basis	815302	1158554	-343253	865182	1399175	-533992
1.A.a.2 Net exports of goods under merchanting	869	0	869	2973	0	2973
1.A.a.3 Nonmonetary gold	0	105311	-105311	0	66771	-66771
1.A.b Services (1.A.b.1 to 1.A.b.13)	**502141**	**293771**	**208370**	**685767**	**367473**	**318293**
1.A.b.1 Manufacturing services on physical inputs owned by others	967	127	839	4547	885	3663
1.A.b.2 Maintenance and repair services n.i.e.	506	2950	-2444	451	2097	-1646
1.A.b.3 Transport	67048	75208	-8160	71994	77348	-5354
1.A.b.4 Travel	19476	32478	-13002	66776	56807	9970
1.A.b.5 Construction	5621	4437	1183	9284	4710	4575
1.A.b.6 Insurance and pension services	6327	4826	1501	6438	6548	-110
1.A.b.7 Financial services	10149	11503	-1354	16021	10624	5397
1.A.b.8 Charges for the use of intellectual property n.i.e.	1784	17709	-15926	2616	28234	-25618
1.A.b.9 Telecommunications, computer, and information services	244549	28566	215983	316797	37734	279063
1.A.b.10 Other business services	114730	102817	11913	174257	124338	49919
1.A.b.11 Personal, cultural, and recreational services	6250	9030	-2780	8199	9498	-1299
1.A.b.12 Government goods and services n.i.e.	1668	1976	-309	1520	2317	-797
1.A.b.13 Others n.i.e.	23068	2142	20925	6865	6334	531
1.B Primary Income (1.B.1 to 1.B.3)	**45673**	**132125**	**-86452**	**62427**	**166910**	**-104482**
1.B.1 Compensation of employees	12340	5951	6389	14109	7126	6984
1.B.2 Investment income	22980	124021	-101040	30791	156142	-125352
1.B.2.1 Direct investment	13111	87172	-74062	14664	94217	-79553
1.B.2.2 Portfolio investment	661	14541	-13881	569	23452	-22883
1.B.2.3 Other investment	617	22289	-21672	1203	37645	-36442
1.B.2.4 Reserve assets	8592	18	8574	14355	829	13527
1.B.3 Other primary income	10353	2153	8199	17527	3641	13886
1.C Secondary Income (1.C.1+1.C.2)	**176205**	**16442**	**159763**	**253700**	**19559**	**234141**
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	175301	14605	160696	253262	17819	235443
1.C.1.1 Personal transfers (Current transfers between resident and/ non-resident households)	168163	10186	157977	246394	12727	233667
1.C.1.2 Other current transfers	7138	4419	2719	6868	5092	1776
1.C.2 General government	903	1837	-933	438	1740	-1302
2 Capital Account (2.1+2.2)	**1704**	**3220**	**-1516**	**1043**	**1549**	**-506**
2.1 Gross acquisitions (DR.)/disposals (CR.) of non-produced nonfinancial assets	707	1241	-535	190	307	-117
2.2 Capital transfers	998	1979	-981	852	1242	-390
3 Financial Account (3.1 to 3.5)	**1657474**	**1490938**	**166537**	**1451356**	**1293890**	**157467**
3.1 Direct Investment (3.1A+3.1B)	**146921**	**112764**	**34157**	**139765**	**122591**	**17174**
3.1.A Direct Investment in India	142606	76370	66235	132411	72310	60101
3.1.A.1 Equity and investment fund shares	129860	74446	55415	125887	65203	60684
3.1.A.1.1 Equity other than reinvestment of earnings	91856	74446	17411	84230	65203	19027
3.1.A.1.2 Reinvestment of earnings	38004	0	38004	41657	0	41657
3.1.A.2 Debt instruments	12745	1925	10821	6524	7107	-583
3.1.A.2.1 Direct investor in direct investment enterprises	12745	1925	10821	6524	7107	-583
3.1.B Direct Investment by India	4315	36393	-32078	7353	50281	-42928
3.1.B.1 Equity and investment fund shares	4315	25608	-21293	7353	38158	-30805
3.1.B.1.1 Equity other than reinvestment of earnings	4315	19279	-14964	7353	29287	-21934
3.1.B.1.2 Reinvestment of earnings	0	6329	-6329	0	8871	-8871
3.1.B.2 Debt instruments	0	10786	-10786	0	12123	-12123
3.1.B.2.1 Direct investor in direct investment enterprises	0	10786	-10786	0	12123	-12123
3.2 Portfolio Investment	**959694**	**1003463**	**-43770**	**643263**	**605362**	**37901**
3.2.A Portfolio Investment in India	955401	990645	-35244	636539	599406	37133
3.2.1 Equity and investment fund shares	864845	895510	-30665	587580	542060	45520
3.2.2 Debt securities	90555	95135	-4580	48959	57346	-8387
3.2.B Portfolio Investment by India	4293	12818	-8525	6723	5955	768
3.3 Financial derivatives (other than reserves) and employee stock options	**36345**	**50593**	**-14248**	**45283**	**48951**	**-3668**
3.4 Other investment	**514515**	**320631**	**193885**	**623046**	**425994**	**197052**
3.4.1 Other equity (ADRs/GDRs)	0	0	0	0	0	0
3.4.2 Currency and deposits	90969	82537	8432	139159	119235	19924
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	0	1546	-1546	0	1195	-1195
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	90969	80991	9978	139159	118040	21119
3.4.2.3 General government	0	0	0	0	0	0
3.4.2.4 Other sectors	0	0	0	0	0	0
3.4.3 Loans (External Assistance, ECBs and Banking Capital)	169152	108314	60838	222105	131224	90881
3.4.3.A Loans to India	166419	106388	60031	218433	128445	89988
3.4.3.B Loans by India	2733	1926	807	3671	2779	893
3.4.4 Insurance, pension, and standardized guarantee schemes	522	668	-146	250	315	-65
3.4.5 Trade credit and advances	154570	87257	67313	149499	126902	22597
3.4.6 Other accounts receivable/payable - other	99302	41855	57447	112033	48318	63715
3.4.7 Special drawing rights	0	0	0	0	0	0
3.5 Reserve assets	**0**	**3487**	**-3487**	**0**	**90992**	**-90992**
3.5.1 Monetary gold	0	0	0	0	0	0
3.5.2 Special drawing rights n.a.	0	0	0	0	0	0
3.5.3 Reserve position in the IMF n.a.	0	0	0	0	0	0
3.5.4 Other reserve assets (Foreign Currency Assets)	0	3487	-3487	0	90992	-90992
4 Total assets/liabilities	**1657474**	**1490938**	**166537**	**1451356**	**1293890**	**157467**
4.1 Equity and investment fund shares	1040181	1059643	-19462	773077	700643	72434
4.2 Debt instruments	517992	385953	132039	566247	453937	112310
4.3 Other financial assets and liabilities	99302	45342	53960	112033	139310	-27277
5 Net errors and omissions	**992**	**0**	**992**	**0**	**7123**	**-7123**

Note: P: Preliminary.

No. 42: India's International Investment Position

(US$ Million)

Item	As on Financial Year /Quarter End							
	2021-22		2021		2022			
			Dec.		Sep.		Dec.	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
	1	2	3	4	5	6	7	8
1. Direct investment Abroad/in India	211573	521632	208096	514112	217335	510150	222557	510719
1.1 Equity Capital *	132765	493987	130904	487895	136255	481972	140002	482118
1.2 Other Capital	78807	27645	77192	26217	81080	28178	82554	28601
2. Portfolio investment	10642	270484	9716	284708	10983	245793	10890	245679
2.1 Equity	1110	156381	6113	172794	6312	137013	8624	140469
2.2 Debt	9533	114103	3603	111914	4671	108779	2266	105209
3. Other investment	90974	486635	76447	481692	85917	477453	79570	493790
3.1 Trade credit	18561	118147	12849	113439	24675	123520	26125	126252
3.2 Loan	10474	195290	8856	194917	8084	188463	8628	194842
3.3 Currency and Deposits	42081	140994	34796	143502	33528	135621	27093	136132
3.4 Other Assets/Liabilities	19858	32203	19946	29833	19630	29850	17723	36564
4. Reserves	607309		633614		532664		562721	
5. Total Assets/Liabilities	920498	1278751	927873	1280511	846899	1233395	875737	1250187
6. Net IIP (Assets - Liabilities)	-358253		-352638		-386496		-374451	

Note: * Equity capital includes share of investment funds and reinvested earnings.

Payment and Settlement Systems

No.43: Payment System Indicators

PART I - Payment System Indicators - Payment & Settlement System Statistics

System	Volume (Lakh)				Value (₹ Crore)			
	FY 2022-23	2022	2023		FY 2021-22	2022	2023	
		Mar.	Feb.	Mar.		Mar.	Feb.	Mar.
	1	2	3	4	5	6	7	8
A. Settlement Systems								
Financial Market Infrastructures (FMIs)								
1 CCIL Operated Systems (1.1 to 1.3)	41.44	3.25	3.51	3.66	258797336	20588727	22281370	22458408
1.1 Govt. Securities Clearing (1.1.1 to 1.1.3)	15.00	1.04	1.27	1.25	172251292	13682354	14888685	14269424
1.1.1 Outright	7.99	0.46	0.68	0.65	10090700	660443	895740	952079
1.1.2 Repo	4.07	0.30	0.38	0.40	68032487	5341282	6436404	6682508
1.1.3 Tri-party Repo	2.94	0.27	0.21	0.20	94128105	7680629	7556541	6634836
1.2 Forex Clearing	25.16	2.11	2.11	2.28	78932050	6232193	6602897	7329087
1.3 Rupee Derivatives @	1.27	0.11	0.13	0.13	7613994	674180	789788	859897
B. Payment Systems								
I Financial Market Infrastructures (FMIs)	–	–	–	–	–	–	–	–
1 Credit Transfers - RTGS (1.1 to 1.2)	2425.62	230.04	200.50	248.01	149946286	14458955	12053579	16122902
1.1 Customer Transactions	2411.19	228.68	199.35	246.66	131667176	13069669	10566198	14416322
1.2 Interbank Transactions	14.43	1.36	1.14	1.35	18279111	1389286	1487381	1706580
II Retail								
2 Credit Transfers - Retail (2.1 to 2.6)	983694.78	66517.82	88613.03	100851.12	55012192	5062466	4650034	5906936
2.1 AePS (Fund Transfers) @	5.90	0.56	0.31	0.36	356	35	22	24
2.2 APBS $	17898.09	1400.66	2584.03	1932.07	247580	15565	35514	26400
2.3 IMPS	56532.64	4920.01	4478.13	4970.56	5585441	462279	468647	546235
2.4 NACH Cr $	19267.00	1825.88	1527.38	1962.73	1544342	131428	134032	178757
2.5 NEFT	52847.43	4314.20	4675.61	5469.06	33719541	3492578	2775972	3750569
2.6 UPI @	837143.73	54056.51	75347.57	86516.34	13914932	960582	1235847	1404951
2.6.1 of which USSD @	17.21	0.91	1.51	1.50	197	12	17	18
3 Debit Transfers and Direct Debits (3.1 to 3.3)	15343.22	1136.67	1360.85	1403.39	1289393	98645	115315	126113
3.1 BHIM Aadhaar Pay @	214.22	19.47	11.50	12.92	6791	640	454	492
3.2 NACH Dr $	13502.69	979.27	1210.19	1246.53	1280001	97801	114630	125376
3.3 NETC (linked to bank account) @	1626.31	137.93	139.16	143.94	2601	204	231	246
4 Card Payments (4.1 to 4.2)	63331.67	5512.70	4588.51	5003.95	2152016	171159	168378	190626
4.1 Credit Cards (4.1.1 to 4.1.2)	29145.25	2237.51	2323.20	2634.29	1432255	107107	118684	137311
4.1.1 PoS based $	15598.70	1134.33	1255.88	1404.60	541944	38777	44611	50920
4.1.2 Others $	13546.54	1103.18	1067.32	1229.69	890311	68330	74073	86391
4.2 Debit Cards (4.2.1 to 4.2.1)	34186.42	3275.19	2265.31	2369.66	719760	64052	49693	53315
4.2.1 PoS based $	22893.88	2078.45	1581.95	1628.85	476161	40770	33432	34691
4.2.2 Others $	11292.54	1196.73	683.36	740.82	243599	23282	16261	18624
5 Prepaid Payment Instruments (5.1 to 5.2)	74667.44	6469.96	6050.89	6225.98	287111	25615	22399	22988
5.1 Wallets	59112.76	5016.86	4929.04	5036.24	221896	20054	18356	18801
5.2 Cards (5.2.1 to 5.2.2)	15554.69	1453.10	1121.85	1189.74	65215	5561	4043	4188
5.2.1 PoS based $	1013.09	164.77	63.07	64.17	14777	2860	792	825
5.2.2 Others $	14541.60	1288.34	1058.78	1125.57	50438	2701	3251	3363
6 Paper-based Instruments (6.1 to 6.2)	7087.81	702.93	538.79	642.40	7162537	694335	554113	701109
6.1 CTS (NPCI Managed)	7087.81	702.93	538.79	642.40	7162537	694335	554113	701109
6.2 Others	0.00	–	–	–	–	–	–	–
Total - Retail Payments (2+3+4+5+6)	1144124.92	80340.08	101152.07	114126.84	65903249	6052221	5510239	6947772
Total Payments (1+2+3+4+5+6)	1146550.54	80570.12	101352.56	114374.85	215849535	20511176	17563818	23070674
Total Digital Payments (1+2+3+4+5)	1139462.73	79867.19	100813.78	113732.45	208686998	19816841	17009704	22369565

PART II - Payment Modes and Channels

System	Volume (Lakh)				Value (₹ Crore)			
	FY 2022-23	2022	2023		FY 2022-23	2022	2023	
		Mar.	Feb.	Mar.		Mar.	Feb.	Mar.
	1	2	3	4	5	6	7	8
A. Other Payment Channels								
1 Mobile Payments (mobile app based) (1.1 to 1.2)	904589.17	57121.32	82667.18	92896.30	23341498	1648626	2068090	2401075
1.1 Intra-bank $	62306.62	4218.03	5107.77	5868.83	4191430	298559	353815	436885
1.2 Inter-bank $	842282.55	52903.29	77559.40	87027.47	19150068	1350067	1714274	1964190
2 Internet Payments (Netbanking / Internet Browser Based) @ (2.1 to 2.2)	42630.64	3924.86	3319.04	3879.51	91539296	8850603	7380904	8981727
2.1 Intra-bank @	10703.78	962.84	834.55	987.21	53506133	5341587	4172937	4769894
2.2 Inter-bank @	31926.86	2962.02	2484.49	2892.30	38033163	3509016	3207966	4211833
B. ATMs								
3 Cash Withdrawal at ATMs $ (3.1 to 3.3)	69456.67	5966.82	5471.86	5914.54	3304574	287373	263673	286347
3.1 Using Credit Cards $	88.28	6.80	7.39	8.18	4291	344	358	396
3.2 Using Debit Cards $	68963.07	5927.87	5433.00	5871.80	3286320	285893	262090	284540
3.3 Using Pre-paid Cards $	405.32	32.15	31.47	34.56	13963	1137	1225	1411
4 Cash Withdrawal at PoS $ (4.1 to 4.2)	27.80	2.30	2.18	2.33	284	22	22	24
4.1 Using Debit Cards $	27.47	2.21	2.17	2.32	282	21	22	23
4.2 Using Pre-paid Cards $	0.33	0.09	0.01	0.02	2	0	0	0
5 Cash Withrawal at Micro ATMs @	12375.16	1032.68	918.44	1083.61	333966	28479	25483	30015
5.1 AePS @	12375.16	1032.68	918.44	1083.61	333966	28479	25483	30015

PART III - Payment Infrastructures (Lakh)

System	As on March 2023	2022	2023	
		Mar.	Feb.	Mar.
	1	2	3	4
Payment System Infrastructures				
1 Number of Cards (1.1 to 1.2)	10465.62	9912.93	10374.87	10465.62
1.1 Credit Cards	853.03	736.27	833.66	853.03
1.2 Debit Cards	9612.59	9176.66	9541.22	9612.59
2 Number of PPIs @ (2.1 to 2.2)	16185.26	15553.69	16109.65	16185.26
2.1 Wallets @	13384.68	12787.93	13335.10	13384.68
2.2 Cards @	2800.58	2765.76	2774.55	2800.58
3 Number of ATMs (3.1 to 3.2)	2.59	2.52	2.57	2.59
3.1 Bank owned ATMs $	2.23	2.20	2.21	2.23
3.2 White Label ATMs $	0.36	0.31	0.36	0.36
4 Number of Micro ATMs @	16.11	9.16	15.59	16.11
5 Number of PoS Terminals	77.90	60.70	77.58	77.90
6 Bharat QR @	61.42	49.72	52.22	61.42
7 UPI QR *	2563.77	1727.34	2500.89	2563.77

@: New inclusion w.e.f. November 2019
#: Data reported by Co-operative Banks, LABs and RRBs included with effect from December 2021.
$: Inclusion separately initiated from November 2019 - would have been part of other items hitherto.
*: New inclusion w.e.f. September 2020; Includes only static UPI QR Code

Note : 1. Data is provisional.
2. ECS (Debit and Credit) has been merged with NACH with effect from January 31, 2020.
3. The data from November 2019 onwards for card payments (Debit/Credit cards) and Prepaid Payment Instruments (PPIs) may not be comparable with earlier months/ periods, as more granular data is being published along with revision in data definitions.
4. Only domestic financial transactions are considered. The new format captures e-commerce transactions; transactions using FASTags, digital bill payments and card-to-card transfer through ATMs, etc.. Also, failed transactions, chargebacks, reversals, expired cards/ wallets, are excluded.

Occasional Series

No. 44: Small Savings

(₹ Crore)

Scheme		2021-22	2021	2022		
			Jun.	Apr.	May	Jun.
		1	2	3	4	5
1 Small Savings	**Receipts**	**203175**	**18523**	**13348**	**13031**	**15622**
	Outstanding	**1463777**	**1299066**	**1477127**	**1490164**	**1505765**
1.1 Total Deposits	**Receipts**	**144749**	**13852**	**10328**	**9612**	**12260**
	Outstanding	**1012241**	**897008**	**1022569**	**1032182**	**1044441**
1.1.1 Post Office Saving Bank Deposits	Receipts	17581	1943	1924	81	2808
	Outstanding	188433	172973	190357	190438	193247
1.1.2 Sukanya Samriddhi Yojna	Receipts	23748	1365	2125	1642	1611
	Outstanding	58783	38569	60907	62550	64161
1.1.3 National Saving Scheme, 1987	Receipts	-1524	-29	-39	-39	-29
	Outstanding	1894	3360	1856	1817	1787
1.1.4 National Saving Scheme, 1992	Receipts	-352	-4	-4	-3	-2
	Outstanding	-177	167	-181	-184	-186
1.1.5 Monthly Income Scheme	Receipts	14441	1389	478	747	810
	Outstanding	235820	224414	236298	237045	237855
1.1.6 Senior Citizen Scheme 2004	Receipts	22281	2298	1361	1522	1727
	Outstanding	119333	102008	120694	122216	123943
1.1.7 Post Office Time Deposits	Receipts	43725	4546	3117	3713	3199
	Outstanding	251282	217390	254399	258112	261310
1.1.7.1 1 year Time Deposits	Outstanding	118282	110643	119088	120377	121273
1.1.7.2 2 year Time Deposits	Outstanding	8008	7616	8092	8185	8242
1.1.7.3 3 year Time Deposits	Outstanding	6918	7164	6889	6869	6858
1.1.7.4 5 year Time Deposits	Outstanding	118074	91967	120330	122681	124937
1.1.8 Post Office Recurring Deposits	Receipts	24840	2344	1272	1948	2136
	Outstanding	156869	138131	158141	160089	162225
1.1.9 Post Office Cumulative Time Deposits	Receipts	7	0	0	0	0
	Outstanding	-19	-25	-19	-19	-19
1.1.10 Other Deposits	Receipts	2	0	0	0	0
	Outstanding	23	21	23	23	23
1.1.11 PM Care for children	Receipts	..	..	94	1	0
	Outstanding	..	..	94	95	95
1.2 Saving Certificates	**Receipts**	**45307**	**4408**	**2615**	**3111**	**3145**
	Outstanding	**333189**	**296108**	**335806**	**338922**	**342047**
1.2.1 National Savings Certificate VIII issue	Receipts	19696	2057	812	1028	1057
	Outstanding	155043	139709	155856	156884	157941
1.2.2 Indira Vikas Patras	Receipts	-16	0	0	0	0
	Outstanding	143	159	142	142	142
1.2.3 Kisan Vikas Patras	Receipts	-1115	-208	-178	-190	-308
	Outstanding	-7891	-7314	-8069	-8258	-8566
1.2.4 Kisan Vikas Patras - 2014	Receipts	26619	2559	1981	2273	2396
	Outstanding	174560	153387	176541	178814	181210
1.2.5 National Saving Certificate VI issue	Receipts	92	0	0	0	0
	Outstanding	-22	-114	-22	-22	-22
1.2.6 National Saving Certificate VII issue	Receipts	31	0	0	0	0
	Outstanding	-44	-74	-44	-44	-44
1.2.7 Other Certificates	Outstanding	11400	10355	11402	11406	11386
1.3 Public Provident Fund	**Receipts**	**13119**	**263**	**405**	**308**	**217**
	Outstanding	**118347**	**105950**	**118752**	**119060**	**119277**

Note : Data on receipts from April 2017 are net receipts, *i.e.,* gross receipt minus gross payment.

Source: Accountant General, Post and Telegraphs.

No. 45 : Ownership Pattern of Central and State Governments Securities

(Per cent)

Central Government Dated Securities					
Category	2021	2022			
	Dec.	Mar.	Jun.	Sep.	Dec.
	1	2	3	4	5
(A) Total (in ₹. Crore)	**8439811**	**8529036**	**8784931**	**9098788**	**9373372**
1 Commercial Banks	35.40	35.93	36.16	36.44	36.13
2 Non-Bank PDs	0.27	0.29	0.33	0.38	0.44
3 Insurance Companies	25.74	25.89	26.34	25.94	26.14
4 Mutual Funds	3.08	2.91	2.32	2.58	2.87
5 Co-operative Banks	1.82	1.81	1.84	1.80	1.70
6 Financial Institutions	1.69	0.94	1.09	0.98	1.07
7 Corporates	1.37	1.47	1.52	1.58	1.57
8 Foreign Portfolio Investors	1.66	1.56	1.43	1.38	1.31
9 Provident Funds	4.33	4.60	4.77	4.66	4.67
10 RBI	16.92	16.62	16.06	15.28	14.73
11. Others	7.73	7.97	8.18	8.98	9.37
11.1 State Governments	1.69	1.82	1.84	1.83	1.88

State Governments Securities					
Category	2021	2022			
	Dec.	Mar.	Jun.	Sep.	Dec.
	1	2	3	4	5
(B) Total (in ₹. Crore)	**4257578**	**4410250**	**4472011**	**4589128**	**4712902**
1 Commercial Banks	34.41	34.39	34.22	34.37	34.34
2 Non-Bank PDs	0.40	0.38	0.41	0.36	0.44
3 Insurance Companies	28.85	28.42	28.39	27.71	27.42
4 Mutual Funds	1.91	1.82	1.89	2.08	2.02
5 Co-operative Banks	4.07	4.04	4.06	3.89	3.80
6 Financial Institutions	1.73	1.72	1.73	1.71	1.77
7 Corporates	1.70	1.82	1.98	1.85	1.94
8 Foreign Portfolio Investors	0.02	0.02	0.02	0.02	0.02
9 Provident Funds	20.66	20.79	20.52	20.18	20.31
10 RBI	0.83	0.80	0.79	0.79	0.75
11. Others	5.40	5.81	5.99	7.05	7.19
11.1 State Governments	0.19	0.20	0.21	0.21	0.24

Treasury Bills					
Category	2021	2022			
	Dec.	Mar.	Jun.	Sep.	Dec.
	1	2	3	4	5
(C) Total (in ₹. Crore)	**692869**	**757198**	**1022053**	**920205**	**839931**
1 Commercial Banks	47.01	49.04	51.37	50.91	49.15
2 Non-Bank PDs	1.53	4.20	2.49	2.12	2.17
3 Insurance Companies	6.29	6.58	5.34	5.46	5.81
4 Mutual Funds	13.72	14.01	14.86	11.98	14.23
5 Co-operative Banks	1.49	1.79	1.34	1.48	1.27
6 Financial Institutions	2.36	3.53	3.73	4.17	4.52
7 Corporates	3.13	3.47	4.27	3.86	3.59
8 Foreign Portfolio Investors	0.72	0.49	0.40	0.53	0.50
9 Provident Funds	0.85	0.21	1.70	3.21	1.37
10 RBI	0.00	0.00	0.00	0.00	0.00
11. Others	22.89	16.69	14.50	16.27	17.39
11.1 State Governments	18.92	11.54	10.99	12.27	13.38

No. 46: Combined Receipts and Disbursements of the Central and State Governments

(₹ Crore)

Item	2017-18	2018-19	2019-20	2020-21	2021-22 RE	2022-23 BE
	1	2	3	4	5	6
1 Total Disbursements	**4515946**	**5040747**	**5410887**	**6353359**	**7453320**	**8008684**
1.1 Developmental	2635110	2882758	3074492	3823423	4489442	4761567
1.1.1 Revenue	2029044	2224367	2446605	3150221	3444624	3536719
1.1.2 Capital	519356	596774	588233	550358	963856	1144725
1.1.3 Loans	86710	61617	39654	122844	80962	80123
1.2 Non-Developmental	1812455	2078276	2253027	2442941	2864084	3140466
1.2.1 Revenue	1741432	1965907	2109629	2271637	2653832	2928102
1.2.1.1 Interest Payments	814757	894520	955801	1060602	1244104	1408929
1.2.2 Capital	69370	111029	141457	169155	178038	209892
1.2.3 Loans	1654	1340	1941	2148	32214	2472
1.3 Others	68381	79713	83368	86995	99794	106652
2 Total Receipts	**4528422**	**5023352**	**5734166**	**6397162**	**7193029**	**7944834**
2.1 Revenue Receipts	3376416	3797731	3851563	3688030	4894050	5497245
2.1.1 Tax Receipts	2978134	3278947	3231582	3193390	4026487	4551271
2.1.1.1 Taxes on commodities and services	1853859	2030050	2012578	2076013	2608666	2904479
2.1.1.2 Taxes on Income and Property	1121189	1246083	1216203	1114805	1414088	1642678
2.1.1.3 Taxes of Union Territories (Without Legislature)	3086	2814	2800	2572	3732	4115
2.1.2 Non-Tax Receipts	398282	518783	619981	494640	867564	945974
2.1.2.1 Interest Receipts	34224	36273	31137	33448	40481	46552
2.2 Non-debt Capital Receipts	142433	140287	110094	64994	117937	90824
2.2.1 Recovery of Loans & Advances	42213	44667	59515	16951	33188	19835
2.2.2 Disinvestment proceeds	100219	95621	50578	48044	84748	70989
3 Gross Fiscal Deficit [1 - (2.1 + 2.2)]	**997097**	**1102729**	**1449230**	**2600335**	**2441333**	**2420614**
3A Sources of Financing: Institution-wise						
3A.1 Domestic Financing	989167	1097210	1440548	2530155	2421587	2401363
3A.1.1 Net Bank Credit to Government	144792	387091	571872	890012	627255	-----
3A.1.1.1 Net RBI Credit to Government	-144847	325987	190241	107493	350911	-----
3A.1.2 Non-Bank Credit to Government	844375	710119	868676	1640143	1794332	2401363
3A.2 External Financing	7931	5519	8682	70180	19746	19251
3B Sources of Financing: Instrument-wise						
3B.1 Domestic Financing	989167	1097210	1440548	2530155	2421587	2401363
3B.1.1 Market Borrowings (net)	794856	795845	971378	1696012	1377060	1808401
3B.1.2 Small Savings (net)	71222	88961	209232	458801	565522	398870
3B.1.3 State Provident Funds (net)	42351	51004	38280	41273	45133	44731
3B.1.4 Reserve Funds	18423	-18298	10411	4545	-1675	5824
3B.1.5 Deposits and Advances	25138	66289	-14227	25682	32945	34029
3B.1.6 Cash Balances	-12476	17395	-323279	-43802	260291	63850
3B.1.7 Others	49653	96014	548753	347643	142310	45659
3B.2 External Financing	7931	5519	8682	70180	19746	19251
4 Total Disbursements as per cent of GDP	*26.4*	*26.7*	*27.0*	*32.1*	*31.5*	*31.0*
5 Total Receipts as per cent of GDP	*26.5*	*26.6*	*28.6*	*32.3*	*30.4*	*30.8*
6 Revenue Receipts as per cent of GDP	*19.8*	*20.1*	*19.2*	*18.6*	*20.7*	*21.3*
7 Tax Receipts as per cent of GDP	*17.4*	*17.3*	*16.1*	*16.1*	*17.0*	*17.6*
8 Gross Fiscal Deficit as per cent of GDP	*5.8*	*5.8*	*7.2*	*13.1*	*10.3*	*9.4*

…: Not available. RE: Revised Estimates; BE: Budget Estimates

Source : Budget Documents of Central and State Governments.

No. 47: Financial Accommodation Availed by State Governments under various Facilities

(₹ Crore)

Sr. No	State/Union Territory	During March-2023					
		Special Drawing Facility (SDF)		Ways and Means Advances (WMA)		Overdraft (OD)	
		Average amount availed	Number of days availed	Average amount availed	Number of days availed	Average amount availed	Number of days availed
	1	2	3	4	5	6	7
1	Andhra Pradesh	393.39	20	1711.47	16	1301.75	8
2	Arunachal Pradesh	-	-	-	-	-	-
3	Assam	-	-	-	-	-	-
4	Bihar	-	-	-	-	-	-
5	Chhattisgarh	1936.70	4	-	-	-	-
6	Goa	-	-	-	-	-	-
7	Gujarat	-	-	-	-	-	-
8	Haryana	332.52	9	248.19	4	-	-
9	Himachal Pradesh	-	-	-	-	-	-
10	Jammu & Kashmir UT	-	-	814.47	17	178.58	6
11	Jharkhand	-	-	-	-	-	-
12	Karnataka	-	-	-	-	-	-
13	Kerala	70.62	4	1182.93	4	-	-
14	Madhya Pradesh	-	-	-	-	-	-
15	Maharashtra	-	-	-	-	-	-
16	Manipur	-	-	204.97	26	88.80	18
17	Meghalaya	-	-	-	-	-	-
18	Mizoram	-	-	59.81	8	-	-
19	Nagaland	-	-	119.99	4	-	-
20	Odisha	-	-	-	-	-	-
21	Puducherry	-	-	-	-	-	-
22	Punjab	861.39	17	-	-	-	-
23	Rajasthan	5530.23	27	516.87	6	-	-
24	Tamil Nadu	-	-	-	-	-	-
25	Telangana	581.17	24	1422.24	21	895.23	12
26	Tripura	-	-	-	-	-	-
27	Uttar Pradesh	-	-	-	-	-	-
28	Uttarakhand	217.32	5	166.28	4	-	-
29	West Bengal	-	-	-	-	-	-

Notes: 1. SDF is availed by State Governments against the collateral of Consolidated Sinking Fund (CSF), Guarantee Redemption Fund (GRF) & Auction Treasury Bills (ATBs) balances and other investments in government securities.
2. WMA is advance by Reserve Bank of India to State Governments for meeting temporary cash mismatches.
3. OD is advanced to State Governments beyond their WMA limits.
4. Average amount availed is the total accommodation (SDF/WMA/OD) availed divided by number of days for which accommodation was extended during the month.
5. - : Nil.

Source: Reserve Bank of India.

No. 48: Investments by State Governments

(₹ Crore)

Sr. No	State/Union Territory	As on end of March 2023			
		Consolidated Sinking Fund (CSF)	Guarantee Redemption Fund (GRF)	Government Securities	Auction Treasury Bills (ATBs)
	1	2	3	4	5
1	Andhra Pradesh	10143	996	0	0
2	Arunachal Pradesh	2260	4	0	100
3	Assam	5150	78	0	0
4	Bihar	8164	-	0	0
5	Chhattisgarh	6447	-	1	4008
6	Goa	833	401	0	0
7	Gujarat	9790	585	0	0
8	Haryana	1787	1486	0	0
9	Himachal Pradesh	-	-	0	0
10	Jammu & Kashmir UT	-	-	0	0
11	Jharkhand	1053	-	0	0
12	Karnataka	14217	313	0	24491
13	Kerala	2613	-	0	0
14	Madhya Pradesh	-	1119	0	0
15	Maharashtra	58404	1230	0	2000
16	Manipur	61	123	0	0
17	Meghalaya	1032	82	8	0
18	Mizoram	372	66	0	0
19	Nagaland	1562	41	0	0
20	Odisha	15914	1789	103	16493
21	Puducherry	473	-	0	1100
22	Punjab	6437	0	0	0
23	Rajasthan	-	-	129	7900
24	Tamil Nadu	8173	-	18	2396
25	Telangana	6915	1512	0	0
26	Tripura	982	21	0	425
27	Uttarakhand	4305	177	0	0
28	Uttar Pradesh	5756	-	116	0
29	West Bengal	11186	816	239	0
	Total	**184029**	**10839**	**613**	**58913**

Notes: 1. CSF and GRF are reserve funds maintained by some State Governments with the Reserve Bank of India.
2. ATBs include Treasury bills of 91 days, 182 days and 364 days invested by State Governments in the primary market.
3. - : Not Applicable (not a member of the scheme).

No. 49: Market Borrowings of State Governments

(₹ Crore)

Sr. No.	State	2020-21		2021-22		2022-23						Total amount raised, so far in 2022-23	
						January		February		March			
		Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross	Net
	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Andhra Pradesh	50896	40498	46443	36103	3000	1834	3557	1807	5618	4452	57478	45814
2	Arunachal Pradesh	767	767	563	530	-	-	-	-	-	-100	559	389
3	Assam	15030	14230	12753	10753	800	800	2400	2400	1000	305	17100	16105
4	Bihar	27285	24685	28489	24334	-	-1300	6000	5500	5800	2345	36800	27467
5	Chhattisgarh	13000	10500	4000	913	-	-2000	-	-	2000	-287	2000	-2287
6	Goa	3354	3054	2000	1450	300	150	-	-	-	-200	1350	500
7	Gujarat	44780	33280	31054	13554	2500	1000	5000	4000	9500	9500	43000	28300
8	Haryana	30000	25550	30500	20683	2500	1360	6000	4660	8658	4198	45158	28638
9	Himachal Pradesh	6000	3755	4000	1875	1500	1500	1300	1011	3200	2990	14000	11941
10	Jammu & Kashmir UT	9328	6020	8562	5373	700	200	500	500	1728	964	8473	5969
11	Jharkhand	9400	8900	5000	3191	-	-	1000	-	-	-1655	4000	-155
12	Karnataka	69000	61900	59000	49000	4000	4000	-	-1000	-	-1000	36000	26000
13	Kerala	28566	23066	27000	18120	4103	1603	2000	1000	7800	5567	30839	15620
14	Madhya Pradesh	45573	38773	22000	13900	-	-2000	13000	11000	15158	8349	40158	26849
15	Maharashtra	69000	50022	68750	40790	5000	4063	-	-3375	22000	18375	72000	42815
16	Manipur	1302	1044	1476	1326	150	150	200	200	200	200	1422	1147
17	Meghalaya	1777	1587	1608	1298	-	-80	-	-	-	-68	1753	1356
18	Mizoram	944	677	747	447	100	100	100	100	125	54	1315	1129
19	Nagaland	1721	1366	1727	1222	193	193	248	248	91	-114	1854	1199
20	Odisha	3000	500	0	-6473	-	-500	-	-1500	-	-1000	-	-7500
21	Puducherry	1390	790	1374	841	-	-302	500	500	-	-	1200	698
22	Punjab	32995	23467	25814	12428	500	-	4200	3700	8900	7414	45500	33660
23	Rajasthan	57359	44273	51149	38243	1500	500	4000	3826	11306	6615	46057	30110
24	Sikkim	1292	1292	1511	1471	-	-	437	437	100	76	1414	1320
25	Tamil Nadu	87977	76796	87000	72500	10000	8000	9000	6600	19000	17119	87000	65722
26	Telangana	43784	38782	45716	39256	3500	2666	3500	2250	5150	3424	40150	30922
27	Tripura	1916	1631	300	0	-	-	-	-	-	-330	-	-645
28	Uttar Pradesh	75500	59185	62500	42355	7000	7000	12500	12500	22112	20084	55612	41797
29	Uttarakhand	6200	5208	3200	1800	500	500	750	-350	1450	1450	3200	1450
30	West Bengal	59680	50180	67390	45199	4000	3200	1000	500	21000	18300	63000	42500
	Grand Total	798816	651777	701626	492483	51846	32637	77192	56514	171896	127026	758392	518829

- : Nil.

Note: The State of J&K has ceased to exist constitutionally from October 31, 2019 and the liabilities of the State continue to remain as liabilities of the new UT of Jammu and Kashmir.

Source: Reserve Bank of India.

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise

(Amount in ₹ Crore)

Item	2019-20				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	**238613.6**	**476724.8**	**386450.4**	**530769.8**	**1632558.5**
Per cent of GDP	*4.8*	*9.8*	*7.5*	*10.3*	*8.1*
I. Financial Assets	**398076.7**	**567753.2**	**517351.0**	**924069.3**	**2407250.2**
Per cent of GDP	*8.1*	*11.7*	*10.1*	*18.0*	*12.0*
of which:					
1.Total Deposits (a+b)	12239.0	296625.6	124015.7	451698.3	884578.5
(a) Bank Deposits	-10550.9	278124.4	116211.9	444044.6	827830.0
i. Commercial Banks	-13293.8	269475.4	66666.7	446006.7	768855.0
ii. Co-operative Banks	2742.9	8649.0	49545.2	-1962.1	58975.0
(b) Non-Bank Deposits	22789.9	18501.2	7803.7	7653.7	56748.5
2. Life Insurance Funds	117873.1	108209.1	110373.8	37714.2	374170.2
3. Provident and Pension Funds (including PPF)	104681.1	98426.3	103356.1	193739.0	500202.5
4. Currency	61244.1	-26104.8	86832.6	160690.2	282662.1
5. Investments	43936.8	43018.8	22655.1	-11953.8	97656.9
of which:					
(a) Mutual Funds	23303.5	38382.2	19191.1	-19191.1	61685.7
(b) Equity	18648.2	2172.4	936.2	4981.0	26737.8
6. Small Savings (excluding PPF)	57038.5	46514.1	69053.6	91117.2	263723.4
II. Financial Liabilities	**159463.1**	**91028.5**	**130900.6**	**393299.5**	**774691.7**
Per cent of GDP	*3.2*	*1.9*	*2.6*	*7.7*	*3.9*
Loans (Borrowings) from					
1. Financial Corporations (a+b)	159429.6	90994.9	130867.1	393266.0	774557.6
(a) Banking Sector	140261.4	58074.4	114905.9	196581.1	509822.8
of which:					
Commercial Banks	135754.1	57135.0	87377.4	202214.2	482480.6
(b) Other Financial Institutions	19168.2	32920.5	15961.2	196684.8	264734.8
i. Non-Banking Financial Companies	-519.7	22976.7	29930.7	198264.3	250652.0
ii. Housing Finance Companies	17033.0	8093.1	-15710.4	-3093.1	6322.6
iii. Insurance Companies	2655.0	1850.8	1740.9	1513.6	7760.2
2. Non-Financial Corporations (Private Corporate Business)	33.8	33.8	33.8	33.8	135.1
3. General Government	-0.3	-0.3	-0.3	-0.3	-1.0

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise (Contd.)

(Amount in ₹ Crore)

Item	2020-21				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	**600422.5**	**573643.2**	**481433.5**	**719844.5**	**2375343.7**
Per cent of GDP	*15.5*	*12.1*	*8.8*	*12.5*	*12.0*
I. Financial Assets	**805869.5**	**612224.3**	**651241.3**	**1092617.4**	**3161952.5**
Per cent of GDP	*20.8*	*13.0*	*12.0*	*19.0*	*16.0*
of which:					
1.Total Deposits (a+b)	297412.4	278631.7	158172.2	525550.7	1259767.1
(a) Bank Deposits	281191.3	264565.3	147096.0	527056.7	1219909.2
i. Commercial Banks	279010.5	262033.7	143558.6	471730.9	1156333.7
ii. Co-operative Banks	2180.8	2531.6	3537.3	55325.8	63575.6
(b) Non-Bank Deposits	16221.1	14066.4	11076.3	-1506.0	39857.9
2. Life Insurance Funds	123291.4	142365.7	156438.6	141120.0	563215.8
3. Provident and Pension Funds (including PPF)	119666.9	110916.6	108512.2	207604.5	546700.1
4. Currency	202432.7	21286.9	91456.0	66800.5	381976.1
5. Investments	6249.8	-12956.4	67659.3	63624.0	124576.7
of which:					
(a) Mutual Funds	-16021.0	-28837.7	57675.4	51267.0	64083.8
(b) Equity	18599.4	8291.5	5307.1	6333.3	38531.2
6. Small Savings (excluding PPF)	55760.7	70924.2	67947.4	86862.2	281494.6
II. Financial Liabilities	**205447.0**	**38581.1**	**169807.8**	**372772.9**	**786608.8**
Per cent of GDP	*5.3*	*0.8*	*3.1*	*6.5*	*4.0*
Loans (Borrowings) from					
1. Financial Corporations (a+b)	205490.3	38624.3	169851.0	372816.9	786782.5
(a) Banking Sector	211058.8	13213.0	139622.0	284732.6	648626.4
of which:					
Commercial Banks	211259.3	13213.8	140514.3	242476.0	607463.5
(b) Other Financial Institutions	-5568.6	25411.3	30229.0	88084.4	138156.1
i. Non-Banking Financial Companies	-15450.4	21627.1	15921.2	61326.1	83424.0
ii. Housing Finance Companies	10516.6	2875.1	13048.5	25336.1	51776.2
iii. Insurance Companies	-634.8	909.2	1259.3	1422.2	2955.9
2. Non-Financial Corporations (Private Corporate Business)	33.8	33.8	33.8	33.0	134.4
3. General Government	-77.0	-77.0	-77.0	-77.0	-308.0

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise (Concld.)

(Amount in ₹ Crore)

Item	2021-22				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	**519781.2**	**358325.2**	**453302.7**	**636259.8**	**1967668.9**
Per cent of GDP	*10.1*	*6.4*	*7.2*	*9.6*	*8.3*
I. Financial Assets	**382780.7**	**547346.2**	**834009.6**	**796341.7**	**2560478.2**
Per cent of GDP	*7.5*	*9.7*	*13.2*	*12.0*	*10.8*
of which:					
1.Total Deposits (a+b)	-84377.1	202652.1	425821.4	151374.9	695471.4
(a) Bank Deposits	-106507.3	197301.2	422819.5	140297.2	653910.7
i. Commercial Banks	-108037.7	195617.4	418642.9	145510.5	651733.1
ii. Co-operative Banks	1530.4	1683.8	4176.7	-5213.3	2177.6
(b) Non-Bank Deposits	22130.2	5350.9	3001.9	11077.7	41560.7
2. Life Insurance Funds	114617.8	127356.0	103154.9	95681.7	440810.4
3. Provident and Pension Funds (including PPF)	126469.7	108777.0	91543.9	254877.2	581667.9
4. Currency	128660.2	-68631.2	62793.3	146845.0	269667.4
5. Investments	24929.6	82305.4	69760.9	50980.8	227976.7
of which:					
(a) Mutual Funds	14573.0	63151.3	37912.2	44963.7	160600.1
(b) Equity	4502.5	13218.5	27808.2	3084.1	48613.3
6. Small Savings (excluding PPF)	71423.1	93829.6	79877.9	95524.7	340655.3
II. Financial Liabilities	**-137000.5**	**189021.0**	**380706.9**	**160081.8**	**592809.2**
Per cent of GDP	*-2.7*	*3.4*	*6.0*	*2.4*	*2.5*
Loans (Borrowings) from					
1. Financial Corporations (a+b)	-137021.8	188999.7	380685.6	160060.6	592724.1
(a) Banking Sector	-113662.5	134166.1	320160.2	153323.3	493987.0
of which:					
Commercial Banks	-108061.2	135728.8	317452.5	152364.2	497484.4
(b) Other Financial Institutions	-23359.3	54833.7	60525.5	6737.3	98737.1
i. Non-Banking Financial Companies	-31118.4	28880.1	29479.8	-31016.3	-3774.8
ii. Housing Finance Companies	7132.0	24403.8	29494.8	37436.2	98466.8
iii. Insurance Companies	627.1	1549.8	1550.9	317.4	4045.2
2. Non-Financial Corporations (Private Corporate Business)	33.8	33.8	33.8	33.8	135.1
3. General Government	-12.5	-12.5	-12.5	-12.5	-50.0

Notes: 1. Net Financial Savings of households refer to the flow of net financial assets, which represents change in financial assets held by households minus change in their financial liabilities.
2. Revisions in small savings and PPF are mainly on account of quarterly figures being derived from monthly receipts data sourced from Controller General of Accounts, Government of India.
3. Revisions in bank deposits for 2021-22 are attributed to the lower share of households in total deposits as per BSR-2.
4. Data as ratios to GDP have been calculated based on the Provisional Estimates of National Income 2021-22 released on May 31, 2022.
5. Figures in the columns may not add up to the total due to rounding off.

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators

(Amount in ₹ Crore)

Item	Jun-2019	Sep-2019	Dec-2019	Mar-2020
Financial Assets (a+b+c+d)	**16315506.3**	**16632816.5**	**17010694.5**	**17180616.2**
Per cent of GDP	*84.7*	*85.4*	*86.2*	*85.6*
(a) Bank Deposits (i+ii)	8858293.4	9136417.9	9252629.8	9696674.3
i. Commercial Banks	8131543.2	8401018.6	8467685.3	8913692.0
ii. Co-operative Banks	726750.2	735399.2	784944.4	782982.3
(b) Life Insurance Funds	3883609.7	3930727.6	4049902.5	3884771.5
(c) Currency	2010842.9	1984738.1	2071570.7	2232261.0
(d) Mutual Funds	1404631.5	1412654.1	1468727.6	1197092.9
Financial Liabilities (a+b)	**6370092.6**	**6461087.5**	**6591954.6**	**6985220.6**
Per cent of GDP	*33.1*	*33.2*	*33.4*	*34.8*
Loans (Borrowings) from				
(a) Banking Sector	5148115.0	5206189.4	5321095.3	5517676.4
of which:				
i. Commercial Banks	4668496.4	4725631.3	4813008.7	5015222.9
ii. Co-operative Banks	478956.2	479656.9	506946.6	501074.8
(b) Other Financial Institutions	1221977.5	1254898.1	1270859.3	1467544.1
of which:				
i. Non-Banking Financial Companies	451922.3	474899.0	504829.7	703094.0
ii. Housing Finance Companies	673312.1	681405.2	665694.8	662601.7

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators (Contd.)

(Amount in ₹ Crore)

Item	Jun-2020	Sep-2020	Dec-2020	Mar-2021
Financial Assets (a+b+c+d)	**18039169.4**	**18606364.4**	**19333484.1**	**20168953.3**
Per cent of GDP	*94.9*	*98.6*	*100.8*	*101.9*
(a) Bank Deposits (i+ii)	9977865.6	10242430.9	10389526.9	10916583.6
i. Commercial Banks	9192702.5	9454736.2	9598294.8	10070025.7
ii. Co-operative Banks	785163.1	787694.7	791232.1	846557.9
(b) Life Insurance Funds	4102000.7	4274424.9	4551882.0	4718718.2
(c) Currency	2434693.7	2455980.6	2547436.6	2614237.0
(d) Mutual Funds	1343752.0	1443784.4	1648999.0	1730461.0
Financial Liabilities (a+b)	**7190710.8**	**7229335.1**	**7399186.1**	**7772003.0**
Per cent of GDP	*37.8*	*38.3*	*38.6*	*39.3*
Loans (Borrowings) from				
(a) Banking Sector	5728735.3	5741948.3	5881570.2	6166302.8
of which:				
i. Commercial Banks	5226482.2	5239696.0	5380210.4	5622686.4
ii. Co-operative Banks	500870.2	500865.3	499968.8	542221.2
(b) Other Financial Institutions	1461975.5	1487386.9	1517615.9	1605700.3
of which:				
i. Non-Banking Financial Companies	687643.6	709270.7	725191.9	786518.0
ii. Housing Finance Companies	673118.3	675993.4	689041.8	714377.9

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators (Concld.)

(Amount in ₹ Crore)

Item	Jun-2021	Sep-2021	Dec-2021	Mar-2022
Financial Assets (a+b+c+d)	**20508115.7**	**21057343.4**	**21673261.7**	**22104312.7**
Per cent of GDP	*97.4*	*95.9*	*95.0*	*93.4*
(a) Bank Deposits (i+ii)	10810076.3	11007377.6	11430197.1	11570494.3
i. Commercial Banks	9961988.0	10157605.4	10576248.3	10721758.8
ii. Co-operative Banks	848088.3	849772.1	853948.8	848735.5
(b) Life Insurance Funds	4894238.5	5105262.1	5175997.5	5287980.3
(c) Currency	2742897.3	2674266.1	2737059.4	2883904.4
(d) Mutual Funds	1855000.1	2064363.5	2126112.0	2152140.5
Financial Liabilities (a+b)	**7634981.2**	**7823980.9**	**8204666.6**	**8364727.1**
Per cent of GDP	*36.3*	*35.6*	*36.0*	*35.3*
Loans (Borrowings) from				
(a) Banking Sector	6052640.2	6186806.3	6506966.5	6660289.7
of which:				
i. Commercial Banks	5514625.2	5650354.1	5967806.6	6120170.8
ii. Co-operative Banks	536604.9	535027.3	537720.1	538664.3
(b) Other Financial Institutions	1582341.0	1637174.6	1697700.1	1704437.4
of which:				
i. Non-Banking Financial Companies	755399.6	784279.7	813759.5	782743.2
ii. Housing Finance Companies	721510.0	745913.7	775408.5	812844.7

Notes: 1. Data have been compiled for select financial instruments only (loans from Banking Sector, NBFCs and HFCs) for which data are available.
2. Data as ratios to GDP have been calculated based on the Provisional Estimates of National Income 2021-22 released on May 31, 2022.
3. Figures in the columns may not add up to the total due to rounding off.

Explanatory Notes to the Current Statistics

Table No. 1

1.2& 6: Annual data are average of months.
3.5 & 3.7: Relate to ratios of increments over financial year so far.
4.1 to 4.4, 4.8,4.9 &5: Relate to the last friday of the month/financial year.
4.5, 4.6 & 4.7: Relate to five major banks on the last Friday of the month/financial year.
4.10 to 4.12: Relate to the last auction day of the month/financial year.
4.13: Relate to last day of the month/ financial year
7.1&7.2: Relate to Foreign trade in US Dollar.

Table No. 2

2.1.2: Include paid-up capital, reserve fund and Long-Term Operations Funds.
2.2.2: Include cash, fixed deposits and short-term securities/bonds, e.g., issued by IIFC (UK).

Table No. 4

Maturity-wise position of outstanding forward contracts is available at http://nsdp.rbi.org.in under ''Reserves Template''.

Table No. 5

Special refinance facility to Others, i.e. to the EXIM Bank, is closed since March 31, 2013.

Table No. 6

For scheduled banks, March-end data pertain to the last reporting Friday.
2.2: Exclude balances held in IMF Account No.1, RBI employees' provident fund, pension fund, gratuity and superannuation fund.

Table Nos. 7 & 11

3.1 in Table 7 and 2.4 in Table 11: Include foreign currency denominated bonds issued by IIFC (UK).

Table No. 8

NM_2 and NM_3 do not include FCNR (B) deposits.
2.4: Consist of paid-up capital and reserves.
2.5: includes other demand and time liabilities of the banking system.

Table No. 9

Financial institutions comprise EXIM Bank, SIDBI, NABARD and NHB.
L_1 and L_2 are compiled monthly and L_3 quarterly.
Wherever data are not available, the last available data have been repeated.

Table No. 13

Data against column Nos. (1), (2) & (3) are Final and for column Nos. (4) & (5) data are Provisional.

Table No. 14

Data in column Nos. (4) & (8) are Provisional.

Table No. 17

2.1.1: Exclude reserve fund maintained by co-operative societies with State Co-operative Banks

2.1.2: Exclude borrowings from RBI, SBI, IDBI, NABARD, notified banks and State Governments.

4: Include borrowings from IDBI and NABARD.

Table No. 24

Primary Dealers (PDs) include banks undertaking PD business.

Table No. 30

Exclude private placement and offer for sale.

1: Exclude bonus shares.

2: Include cumulative convertible preference shares and equi-preference shares.

Table No. 32

Exclude investment in foreign currency denominated bonds issued by IIFC (UK), SDRs transferred by Government of India to RBI and foreign currency received under SAARC SWAP arrangement. Foreign currency assets in US dollar take into account appreciation/depreciation of non-US currencies (such as Euro, Sterling, Yen and Australian Dollar) held in reserves. Foreign exchange holdings are converted into rupees at rupee-US dollar RBI holding rates.

Table No. 34

1.1.1.1.2 & 1.1.1.1.1.4: Estimates.

1.1.1.2: Estimates for latest months.

'Other capital' pertains to debt transactions between parent and subsidiaries/branches of FDI enterprises.

Data may not tally with the BoP data due to lag in reporting.

Table No. 35

1.10: Include items such as subscription to journals, maintenance of investment abroad, student loan repayments and credit card payments.

Table No. 36

Increase in indices indicates appreciation of rupee and vice versa. For 6-Currency index, base year 2020-21 is a moving one, which gets updated every year. REER figures are based on Consumer Price Index (combined). The details on methodology used for compilation of NEER/REER indices are available in December 2005, April 2014 and January 2021 issues of the RBI Bulletin.

Table No. 37

Based on applications for ECB/Foreign Currency Convertible Bonds (FCCBs) which have been allotted loan registration number during the period.

Table Nos. 38, 39, 40 & 41

Explanatory notes on these tables are available in December issue of RBI Bulletin, 2012.

Table No. 43

Part I-A. Settlement systems

1.1.3: Tri- party Repo under the securities segment has been operationalised from November 05, 2018.

Part I-B. Payments systems

4.1.2: 'Others' includes e-commerce transactions and digital bill payments through ATMs, etc.

4.2.2: 'Others' includes e-commerce transactions, card to card transfers and digital bill payments through ATMs, etc.

5: Available from December 2010.

5.1: includes purchase of goods and services and fund transfer through wallets.

5.2.2: includes usage of PPI Cards for online transactions and other transactions.

6.1: Pertain to three grids – Mumbai, New Delhi and Chennai.

6.2: 'Others' comprises of Non-MICR transactions which pertains to clearing houses managed by 21 banks.

Part II-A. Other payment channels

1: Mobile Payments –
- Include transactions done through mobile apps of banks and UPI apps.
- The data from July 2017 includes only individual payments and corporate payments initiated, processed, and authorised using mobile device. Other corporate payments which are not initiated, processed, and authorised using mobile device are excluded.

2: Internet Payments – includes only e-commerce transactions through 'netbanking' and any financial transaction using internet banking website of the bank.

Part II-B. ATMs

3.3 and 4.2: only relates to transactions using bank issued PPIs.

Part III. Payment systems infrastructure

3: Includes ATMs deployed by Scheduled Commercial Banks (SCBs) and White Label ATM Operators (WLAOs). WLAs are included from April 2014 onwards.

Table No. 45

(-): represents nil or negligible

The revised table format since June 2016, incorporates the ownership pattern of State Governments Securities and Treasury Bills along with the Central Government Securities.

State Government Securities include special bonds issued under Ujwal DISCOM Assurance Yojana (UDAY) scheme.

Bank PDs are clubbed under Commercial Banks. However, they form very small fraction of total outstanding securities.

The category 'Others' comprises State Governments, Pension Funds, PSUs, Trusts, HUF/Individuals *etc.*

Table No. 46

GDP data is based on 2011-12 base. GDP for 2022-23 is from Union Budget 2022-23.

Data pertains to all States and Union Territories.

1 & 2: Data are net of repayments of the Central Government (including repayments to the NSSF) and State Governments.

1.3: Represents compensation and assignments by States to local bodies and Panchayati Raj institutions.

2: Data are net of variation in cash balances of the Central and State Governments and includes borrowing receipts of the Central and State Governments.

3A.1.1: Data as per RBI records.

3B.1.1: Borrowings through dated securities.

3B.1.2: Represent net investment in Central and State Governments' special securities by the National Small Savings Fund (NSSF).

This data may vary from previous publications due to adjustments across components with availability of new data.

3B.1.6: Include Ways and Means Advances by the Centre to the State Governments.

3B.1.7: Include Treasury Bills, loans from financial institutions, insurance and pension funds, remittances, cash balance investment account.

Table No. 47

SDF is availed by State Governments against the collateral of Consolidated Sinking Fund (CSF), Guarantee Redemption Fund (GRF) & Auction Treasury Bills (ATBs) balances and other investments in government securities.

WMA is advance by Reserve Bank of India to State Governments for meeting temporary cash mismatches.

OD is advanced to State Governments beyond their WMA limits.

Average amount Availed is the total accommodation (SDF/WMA/OD) availed divided by number of days for which accommodation was extended during the month.

- : Nil.

Table No. 48

CSF and GRF are reserve funds maintained by some State Governments with the Reserve Bank of India.

ATBs include Treasury bills of 91 days, 182 days and 364 days invested by State Governments in the primary market.

--: Not Applicable (not a member of the scheme).

The concepts and methodologies for Current Statistics are available in Comprehensive Guide for Current Statistics of the RBI Monthly Bulletin **(https://rbi.org.in/Scripts/PublicationsView.aspx?id=17618)**

Time series data of 'Current Statistics' is available at https://dbie.rbi.org.in.

Detailed explanatory notes are available in the relevant press releases issued by RBI and other publications/releases of the Bank such as **Handbook of Statistics on the Indian Economy**.

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11. Reserve Bank of India Occasional Papers Vol. 42, No. 2, 2021	₹200 per copy (over the counter) ₹250 per copy (inclusive of postal charges)	US$ 18 per copy (inclusive of air mail courier charges)
12. Perspectives on Central Banking Governors Speak (1935-2010) Platinum Jubilee	₹1400 per copy (over the counter)	US$ 50 per copy (inclusive of air mail courier charges)
13. Report on Municipal Finances	₹300 per copy (over the counter) ₹350 per copy (inclusive of postal charges)	US$ 16 per copy (inclusive of air mail courier charges)

Notes

1. Many of the above publications are available at the RBI website (www.rbi.org.in).
2. Time Series data are available at the Database on Indian Economy (http://dbie.rbi.org.in).
3. The Reserve Bank of India History 1935-1997 (4 Volumes), Challenges to Central Banking in the Context of Financial Crisis and the Regional Economy of India: Growth and Finance are available at leading book stores in India.

* Concession is available for students, teachers/lecturers, academic/education institutions, public libraries and Booksellers in India provided the proof of eligibility is submitted.

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