NITI Aayog

arthNITI

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SPECIAL FEATURE | INDIAN AGRICULTURE

Team ArthNITI

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FROM THE VICE CHAIRMAN'S DESK

Global economic revival continues to be uncertain. The magnitude of contraction in 2020 is still debatable and current estimates put it at 4%–5%. However, with restrictions on economic activity being gradually relaxed all across the globe, segments like retail and consumer durables are beginning to see strong growth.

High-frequency indicators for recent months reflect ongoing y/y recovery in major parts of the global economy. PMI, for all economies, now reflects expansion in economic activity going forward. Other indicators like prices of key industrial inputs like aluminium, copper and crude oil have begun to rise, signalling a revival in industrial demand.

Markets across the world are reflecting positive investor sentiment. Volatility for equity markets has lowered considerably since the lockdown months (March and April) and investors are putting their money back into equities and bonds. Positive investor sentiment was also reflected in global investment flows as India attracted gross FDI of more than USD22 billion during March and July, but still significantly lower than the total FDI inflows to India during same period in 2019.

In India, we had seen increasing divergence between WPI and CPI inflation, during the lockdown period, which now seems to be easing out due to lower restrictions on movement and increasing economic activity. Wholesale prices have now started to rise (0.2% y/y growth in August), while growth in consumer prices remained unchanged between July and August at 6.7%. Industrial activity in India is also seeing recovery, albeit at a slower pace. Overall core industries' growth in August continues to be negative and recovery appears to be slowing down. Growth in cement and steel production was still in the negative territory in August. The construction sector is a major consumer of these two commodities, and its growth will be key to a faster economic recovery.

However, with more than USD8 trillion of fiscal stimulus given by G20 economies between March and August, the global debt pile is expected to be worse going forward. This can pose a serious risk to the stability of global economies. Adding to it, analysts expect recovery to be tepid going forward, as a second wave of infections is hitting several economies, compelling governments to consider another round of restrictions on activity. Slower the recovery, weaker the ability of these economies to service the increasing amount of debt.

While, uncertainty still looms large, there are segments of the economy that have maintained strength. One sector that has been particularly resilient in India is the farm sector. Rural economy has shown positive growth throughout this tumultuous phase, and the government has taken major steps to accelerate farm-sector growth further. The three farm bills, i) Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020, ii) Farmers (Empowerment and Protection) Agreement of Price Assurance and Farm Services Bill, 2020 and iii) Essential Commodities (Amendment) Bill 2020, were given assent by the President recently. These reforms will allow greater freedom to farmers for selling their produce outside the designated mandis, deregulate the agri-markets tremendously and will lead to greater price discovery resulting in benefits to both the farmers and the consumers.

This edition of *ArthNITI* focuses on the agriculture sector in India, particularly in the context of these reforms. The need for these reforms is unquestionable and has been widely appreciated. Given our focus on leveraging size and scale in India, it is important to re-think the agriculture sector and increase productivity of our farms, reduce costs and work towards raising farmers' income.

I look forward to your feedback on this edition.

RKumar

Dr Rajiv Kumar,
September 2020,
New Delhi

G20: The Macro Scene

Real Sector

	% Share of World GDP, 2019	GDP Per Capita ($), 2019	Latest GDP Growth (%)*	Inflation (y/y, %)*	Industrial Output Growth (y/y,%)*	Manufacturing (%) of GDP^, 2019	Manufacturing PMI
United States	24.4	65,280.7	-9.1 Q2	1.0 Aug	-8.3 Jul	11.3	50.9 Aug
China	16.3	10,261.7	3.2 Q2	2.4 Aug	4.8 Jul	27.2	53.1 Aug
Japan	5.8	40,246.9	-9.9 Q2	0.3 Aug	-16.1 Jul	20.7	47.2 Aug
Germany	4.4	46,258.9	-11.3 Q2	0.0 Aug	-9.9 Jul	19.4	51.0 Aug
India	3.3	2,104.1	-23.9 Q2	6.9 Aug	-16.6 Jul	13.7	52.0 Aug
United Kingdom	3.2	42,300.3	-21.7 Q2	1.0 Aug	-7.0 Jul	8.6	55.2 Aug
France	3.1	40,493.9	-19.2 Q2	0.2 Aug	-10.4 Jul	9.8	52.4 Aug
Italy	2.3	33,189.6	-18.0 Q2	-0.5 Aug	-8.0 Jul	14.9	51.9 Aug
Brazil	2.1	8,717.2	-11.4 Q2	2.4 Aug	-3.1 Jul	9.4	64.7 Aug
Canada	2.0	46,194.7	-12.0 Q2	0.4 Aug	-2.3 Mar	10.6	52.9 Aug
Russia	1.9	11,585.0	-8.0 Q2	3.6 Aug	-8.0 Jul	13.1	51.1 Aug
Korea, Rep.	1.9	31,762.0	-2.7 Q2	0.6 Aug	-2.5 Jul	25.4	48.5 Aug
Australia	1.6	54,907.1	-6.4 Q2	-0.5 Jun	-2.1 Jun	5.6	54.0 Aug
Mexico	1.4	9,863.1	-18.7 Q2	4.1 Aug	-16.7 Jun	17.3	41.3 Aug
Indonesia	1.3	4,135.6	-5.3 Q1	1.3 Aug	2.0 Feb	19.7	50.8 Aug
Saudi Arabia	0.9	23,139.8	-1.0 Q2	6.1 Aug	-22.4 Jun	12.5	50.0 Aug
Turkey	0.9	9,042.5	-9.9 Q2	11.2 Aug	-0.9 Jul	19.0	54.3 Aug
Argentina	0.5	10,006.1	-5.4 Q1	40.7 Aug	-6.9 Jul	12.8	-
South Africa	0.4	6,001.4	-17.1 Q2	3.2 Jul	-10.6 Jul	11.8	45.3 Aug
European Union	17.8	34,843.3	-14.0 Q2	0.8 Aug	-4.4 Jul	14.9	51.6 Aug

*Source: CEIC, World Bank, * Calendar Year 2020. ^Japan (2017) & US (2018) values. PMI below 50: contraction; above 50: expansion. For KSA & RSA, PMI reported for whole economy. No new industrial production releases from Indonesia since Feb 2020.*

Financial and External Sectors

	Interest Rates		External Sector^ (% of GDP, 2019)					
	10Y Bond	Bank Lending Rate	LCU/$* (%,y/y)	Current Account	Trade	Exports	Imports	Inward Revenue ($ Bn)
USA	0.71	3.3 Aug	1	-2.3	27.5	12.2	15.3	3,640
China	3.05	4.4 Aug	6.9 (1.9)	1.0	35.7	18.4	17.3	2,895
Japan	0.05	1.5 Aug	106.0 (-0.1)	3.6	36.8	18.5	18.3	1,232
Germany	-0.40	1.4 Jul	0.9 (-5.8)	7.1	88.1	47.0	41.1	2,081
India	6.08	9.0 Aug	74.6 (-4.9)	-0.9	40.0	18.7	21.4	643
UK	0.31	1.1 Aug	0.8 (-7.4)	-3.8	64.3	31.5	32.7	1,171
France	-0.09	1.2 Jul	0.9 (-5.8)	-0.7	64.5	31.8	32.8	1,103
Italy	1.16	1.2 Jul	0.9 (-5.8)	2.9	60.1	31.6	28.5	723
Brazil	6.92	39.8 Jul	5.5 (36.0)	-2.7	29.0	14.3	14.7	293
Canada	0.62	2.5 Aug	1.3 (0.3)	-2.0	65.0	31.6	33.3	664
Russia	6.09	6.3 Jul	75.7 (16.4)	3.8	49.1	28.3	20.8	546
Korea, Rep.	1.51	2.6 Aug	1,187.1 (-1.9)	3.7	76.7	39.8	36.9	703
Australia	0.99	6.5 Aug	1.4 (-5.9)	0.5	45.7	24.1	21.6	387
Mexico	5.81	6.2 Jul	22.2 (12.9)	-0.2	78.2	39.1	39.1	543
Indonesia	6.86	9.4 Jul	14,724.5 (-3.4)	-2.7	37.3	18.4	18.9	225
Saudi Arabia`	0.68	0.91 Aug	3.8 (0.0)	6.3	62.2	36.0	26.1	307
Turkey	13.56	15.2 Aug	7.5 (31.4)	1.2	61.4	31.6	29.8	246
Argentina#	44.1	32.2 Aug	75.0 (42.3)	-0.8	32.4	17.3	15.1	85
South Africa	9.3	7.0 Aug	17.3 (14.0)	-3.0	59.2	29.9	29.4	114
EU	-0.37	1.7 Jul	0.9 (-5.8)	-2.3	90.7	47.1	43.6	9,415

*As of 31.08.2020, unless otherwise stated. Source: CEIC, World Bank, Investing.com & Trading Economics. # 4Y bond. * - sign indicates appreciation. Inward revenue = export of goods & services+ primary income+ remittances. ^ US & Japan 2018 values. `52-week bond yield & 3 month interbank rate.*

Commodities and Markets

Data as of 31 August 2020		
Commodity	**Price ($)**	**Price (₹)**
Copper (MT)	6,498.9	5,24,350
Iron Ore - 62% Fe (dmtu)	121.1	2,467
Aluminium (MT)	1,737.3	1,49,100
Steel (Rebar, MT)	440.1	48,539
Brent Crude Oil (bbl)	43.4	3,146
Coal 6,000 GCV (MT)	50.3	2,737
Natural Gas US (MMBtu)	2.3	192.7

Source: $ Prices from World Bank Commodity Prices Pink Sheet. London Metal Exchange. Rs. Prices from MCX, CEIC. ^CIL Price (excl taxes etc).

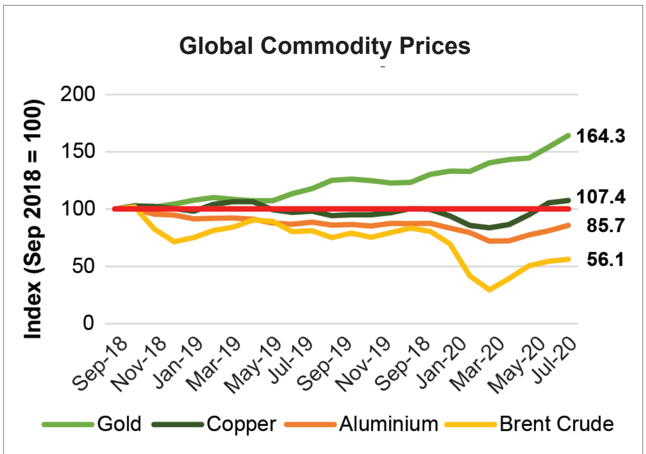
	31 August 2020	31 August 2019
DJIA	28,430.1 (7.7)	26,403.3
NASDAQ 100	12,110.7 (57.5)	7,691.0
SSE Composite	3,395.7 (17.7)	2,886.2
Nikkei 225	23,139.8 (11.8)	20,704.4
FTSE 100	5,963.6 (-17.8)	7,207.2
Hang Seng	25,177.1 (-2.1)	25,724.7
STI	2,532.5 (-18.5)	3,106.5
BSE Sensex	38,628.3 (3.5)	37,332.8

Source: Yahoo Finance. % change from last year in brackets.

Global Economic Uncertainty Continues with Infections on the Rise

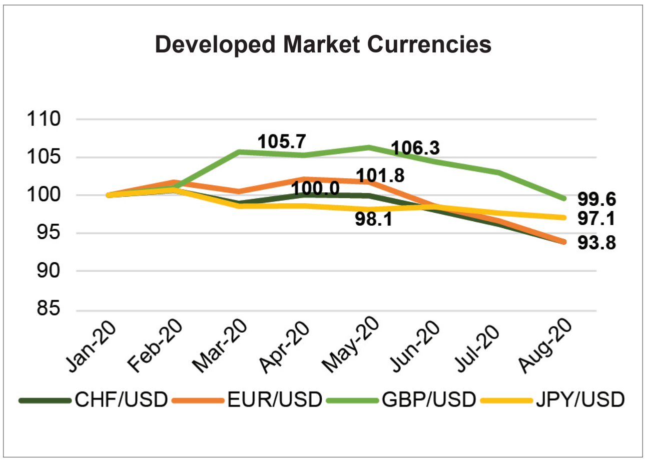
Major countries around the world are seeing a recovery in economic activity, pushed by pent-up consumption demand. The onset of another wave of infections in some countries, and the continued rise of infections in others, indicate that the risk of economic disruption is not yet over.

Retail sales in China for the month of Aug-20 outgrew sales in Aug-19. US GDP was 14.5% below its Jan-20 levels in Apr-20, but by June this shortfall had been reduced to 5.5%. In Canada, the April shortfall of 18.0% had been reduced to 8.5% by June, while for the UK, a 25.6% shortfall had been cut to 17.4% by June. Trade has also started to improve for all major economies, with strong recovery in the months of June, July and August 2020; however, it is still below pre-Covid levels for all countries with the exception of China. China's merchandise trade in July and August 2020 was almost 10% higher than the 2019 average, while imports were marginally higher in August. Countries like South Korea, Japan, US, Canada still have merchandise trade below pre-Covid levels, but there is a strong pick up from the lows in April and May 2020. Services trade also improved for major economies in the months of Jun-20 and Jul-20. The UK saw strong m/m growth in both services exports (23.2% and 4.8%, respectively) and imports (32.3% and 13.0%, respectively) in the two months. For China, while services exports (7.0%) saw sharp recovery in the month of Jul-20, imports (0.5%) remained sluggish. Overall, recovery of services trade for South Korea, US and Canada was slow.



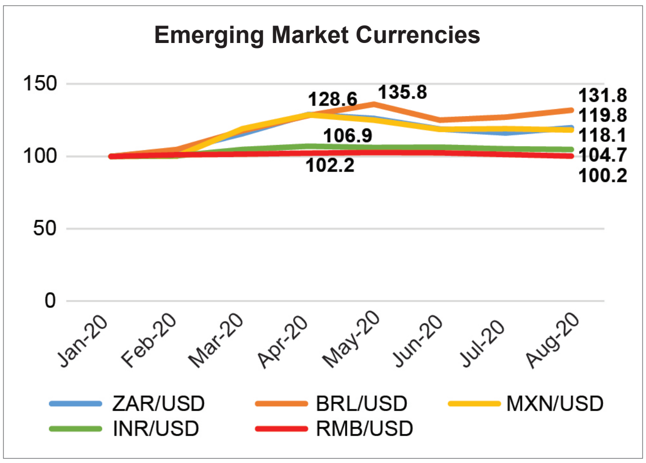
Source: World Bank Pink Sheet

Aside from the early signs of economic recovery, global commodity prices still reflect flight to safety. Gold continues to inch up, but industrial demand also appears to be rising, with prices of oil, aluminium and copper having recovered. There are signs of normalcy in the currency markets as well. Currencies such as Swiss Franc, Pound Sterling and Euro had depreciated sharply from the beginning of this year to Apr-20/May-20, but have now recovered dramatically.



Source: CEIC

Emerging market currencies like South African Rand, Brazilian Lira and Mexican Peso had also seen sharp depreciation YTD until May-20, but have recovered.



Source: CEIC

[1] Global Economic Outlook–September 2020: Recovery Underway, Fitch Ratings

[2] Ibid.

Daily mobility data reflects that retail and recreational visits have not declined over the past months or so, when there is a resurgence in daily cases in major parts of the world. This is in contrast to the initial months (Mar-20 and Apr-20) when the infections were spreading rapidly in countries like the United States, South Korea, France, Spain, Japan, etc. This partly reflects more targeted health policy responses with greater reliance on testing and tracing around localized outbreaks and the imposition of renewed social distancing restrictions that are much narrower in scope, both geographically and by type of activity. Whether these interventions will be able to curb the infection rate at a lower economic cost is hard to say, but nationwide lockdowns such as those implemented earlier are most likely going to be avoided.

Major economies are further contemplating a fiscal stimulus, which will increase the sovereign debt burden. Until Aug-20, the total fiscal stimulus given by the G20 economies was USD8.3 trillion. Easy monetary policy has also increased liquidity in the market tremendously, which has contributed to the deviation between economic fundamentals and equity markets across the world. As we move ahead, the rate at which infections rise will determine the policy responses and therefore the course of the economy. The wait and watch approach that economies have adopted is going to keep both the fiscal and monetary policies expansionary. This is expected to keep liquidity high in these economies.

Despite the signs of recovery, many economists and analysts don't expect a V-shaped recovery for the global economy. Nomura Holdings, in its Sep-20 review, mentions that Asian economies are seeing recovery but fragilities remain in terms of labour market weakness and worsening bank asset quality. Countries in Europe are contemplating another round of lockdown, making the recovery more gradual. Even in the United States, recovery in the recent months has become slower. The acceleration in economic activity driven in most part by consumption demand might not be enough for a sustained recovery. With geopolitical tensions looming large, global trade might be hampered even further. In such a scenario, only a massive investment push will be able to provide a sound basis for a sustained economic recovery.

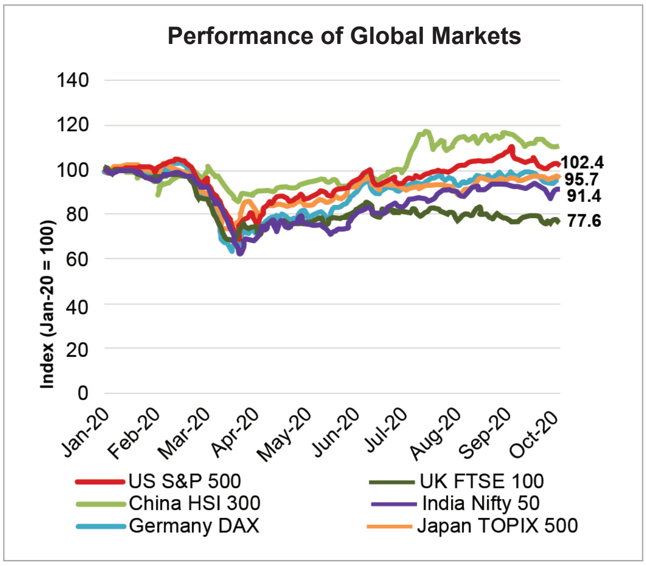
3 https://www.nomuraconnects.com/focused-thinking-posts/the-economy-next-week/

Markets

The Covid-19 pandemic had a visible impact on investor sentiment, resulting in downward pressures on markets around the world. However, equity markets have been on a continuous rise from their Mar-20 lows and the volatility (measured by VIX) has come down considerably, but levels reached at the beginning of CY20 have not been surpassed.

Global markets

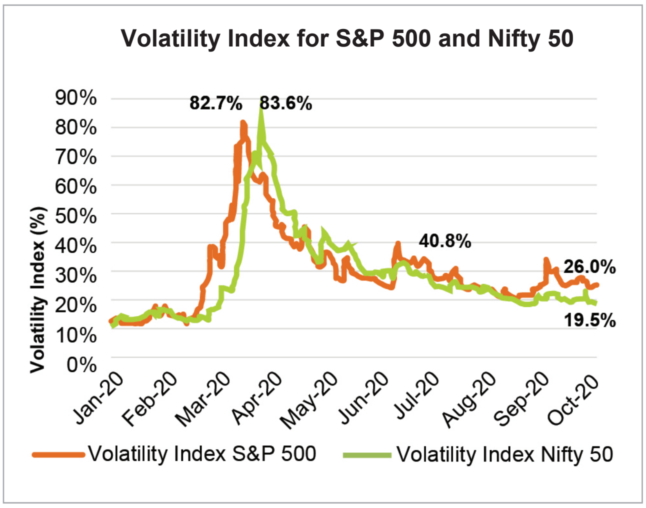
US S&P 500	**102.4**	**UK FTSE 100**	**77.6**	**China HIS**	**110.5**
India Nifty 50	**91.4**	**Japan TPX**	**95.7**	**German DAX**	**95.8**



(Source: CEIC)

Equity markets in the developed economies continue to be on the rise on the back of data from major economies indicating a bounce back in economic activity. Chinese PMI registered 53.0 for the month of Sep-20 and 53.1 for Aug-20, indicating expansion for the second largest economy. Retail sales for China in Aug-20 outgrew the number for Aug-19, while for United States and Canada, there was recovery in real GDP by Jul-20 from levels reached in Apr-20. PMI for India also saw a sharp jump in Aug-20, with PMI manufacturing even indicating expansion. Passenger vehicle sales in China also experienced 8.0% y/y growth in Jul-20 and 9.0% y/y growth in Aug-20, while in India passenger vehicle sales grew by 13.6% y/y growth in Aug-20, first month of a positive y/y growth since the economy started re-opening.

Market sentiment has been turning positive, and investors are venturing back into equities and bonds, reflected in both equity valuations and lower bond yields. During Mar-20 and Apr-20, the markets experienced a sell-off across all categories i.e. bonds, equity and for a brief period, even gold. Recovery from the lows during those months was on the back of prompt policy response from governments and central banks globally. The two months were also a period of increased volatility for markets. S&P 500 Volatility Index (VIX) of the Chicago Board of Exchange (CBOE) and Nifty50 VIX of the National Stock Exchange (NSE) measure the 30-day forward volatility in the market using options on the respective indices. Volatility, as reflected by the VIX, has come down tremendously over the past few months, indicating greater investor confidence in equities.

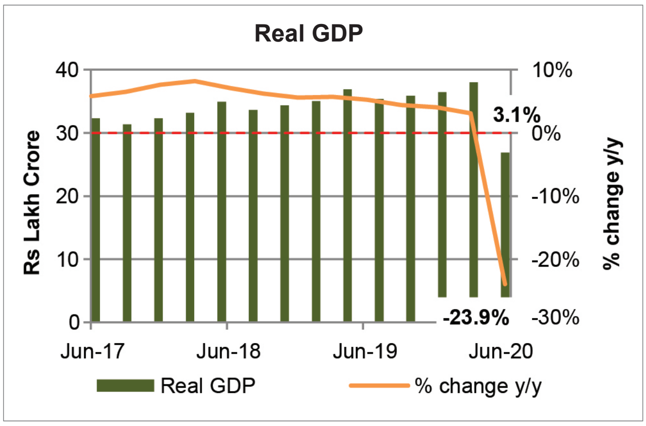


(Source: CBOE & NSE)

The movement in the market in the initial months (Apr-20 and May-20) of the global lockdown was perhaps on the back of policy responses by almost every government and central bank globally, however still reflecting uncertainty about the economy. With the calibrated opening up, news on progress of vaccine development, and early signs of recovery in demand across important segments, the recent movement in the market reflects greater confidence and a positive sentiment about the economy and markets going forward. This is expected to continue as restrictions on activity are further relaxed and governments gather momentum in curbing the infection rate.

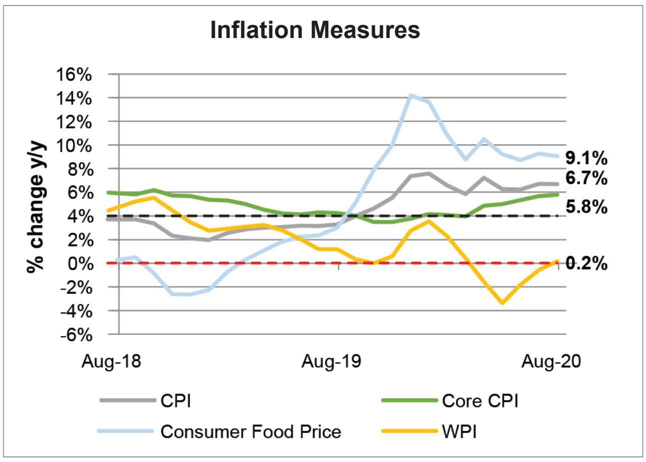
Indian Macro

The economic impact of the Covid-19 lockdown was felt severely as the Indian economy contracted 23.9% y/y, on a real basis, in the quarter ending Jun-20. Private Final Consumption Expenditure fell 26.7% y/y, Gross Fixed Capital Formation fell 47.1% y/y and Government Final Consumption Expenditure grew 16.4% y/y.



Source: MoSPI

Consumer Price Index (CPI) grew at 6.7% y/y in Aug-20, same as in Jul-20 and up from a print of 3.3% y/y in Aug-19. The rise in price of meat and fish, egg, oils and fats, vegetables, pulses, and spices has been a major contributor in keeping the overall inflation above RBI's upper bound. The Wholesale Price Index (WPI) growth also moderated to 0.2% y/y in Aug-20, following a print of 0.6% y/y in Jul-20 and a print of 1.2% y/y in Aug-19.



Source: MoSPI

1 THE BIG PICTURE

Decline in Index of Industrial Production (IIP), continued to moderate. The index declined by 10.4% in Jul-20, following a print of -15.7% y/y in Jun-20, and a print of 4.9% y/y in Jun-19. India's Purchasing Managers Index (PMI), which is considered a three to six months leading indicator, continued its uptrend. PMI Services rose to 41.8 in Aug-20 from 34.2 in Jul-20, while PMI Manufacturing rose to 52.0 in Aug-20 from 46.0 in Jul-20. PMI Manufacturing is now above pre-Covid-19 Mar-20 level of 51.8. PMI value above 50 indicates expansion. Over the same period, Global PMI Manufacturing rose to 51.8 from 50.6 and Global PMI Services rose to 51.9 from 50.6.

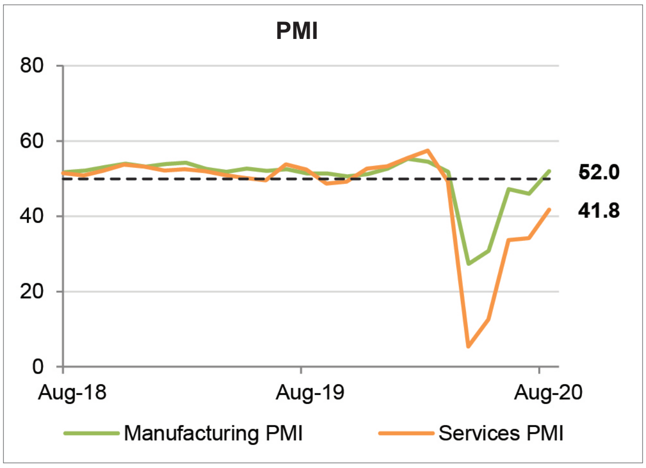
There are segments of the economy that are seeing quicker recovery than others. Agriculture (farm) sector has been relatively unscathed by the economic lockdown. Demand for tractors and fertilizer is growing even on a year-over-year basis. Passenger vehicle and two-wheeler sales are also growing at a healthy positive rate year-over-year, registering 13.6% and 3.2% growth respectively for the month of Aug-20.

However, growth in production of key industrial inputs like steel and cement has been tepid. Majority of steel and cement is consumed by the construction sector. Construction activity has been particularly impacted due to the extended monsoon and labour shortages in urban areas because of reverse migration from urban to rural areas during the lockdown.

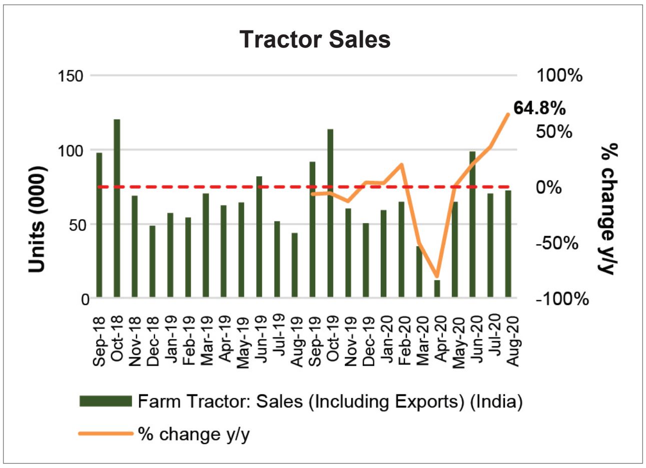
With immense backward and forward linkages to industries, steel and cement are also important from employment perspective. Recovery in construction activity and a boost to infrastructure will give the much-needed push to the industries all across the board, and help revive demand faster.

The next few months will be critical from a demand revival perspective. The recovery might vary from sector to sector as some may see uptick in activity faster than others. From a long-term perspective, focus on mass employment generating sectors like construction and infrastructure is required to lay the foundations of strong and sustainable economic growth.

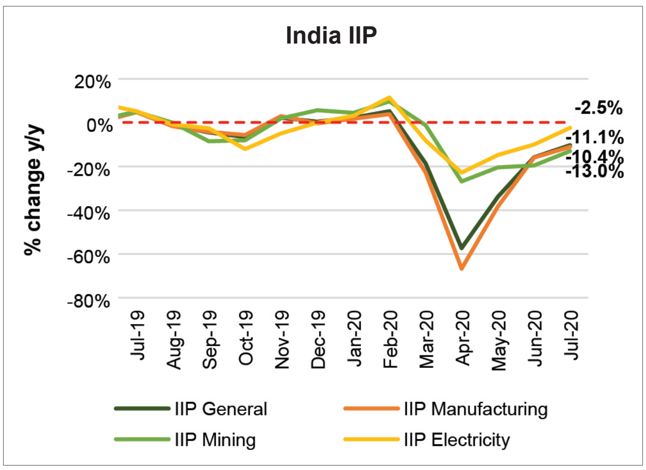
High Frequency Indicators



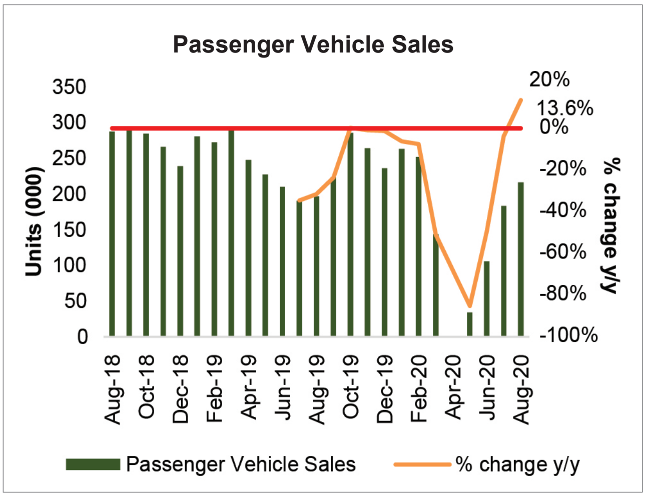
Source: IHS Markit



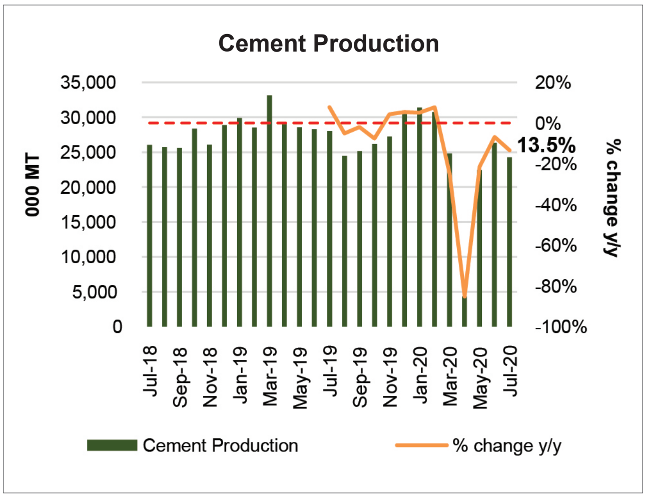
Source: CEIC



Source: MoSPI



Source: IHS Markit



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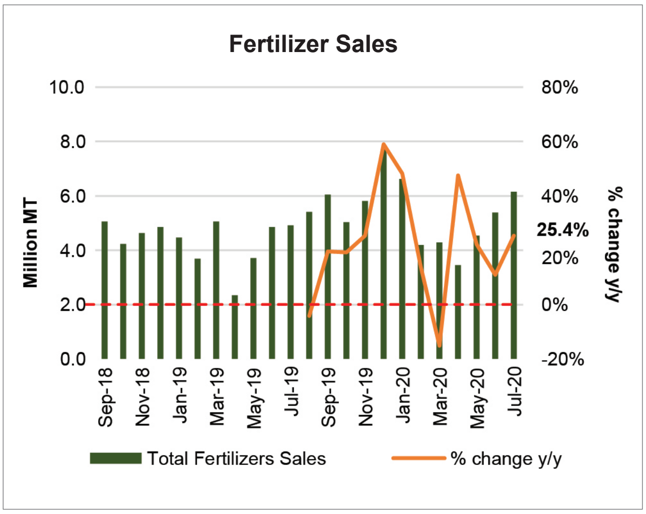

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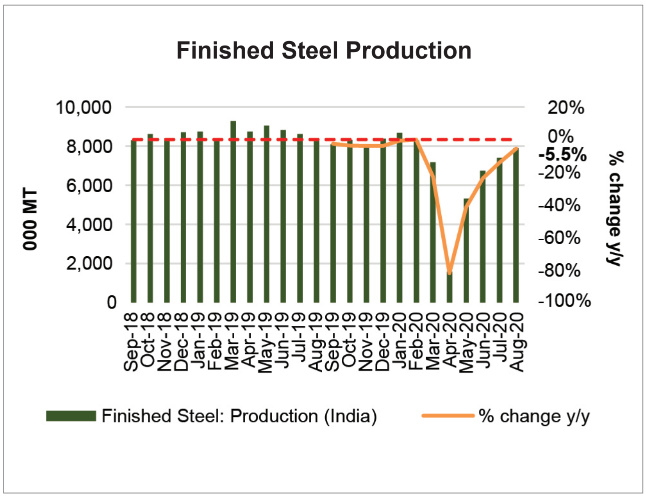

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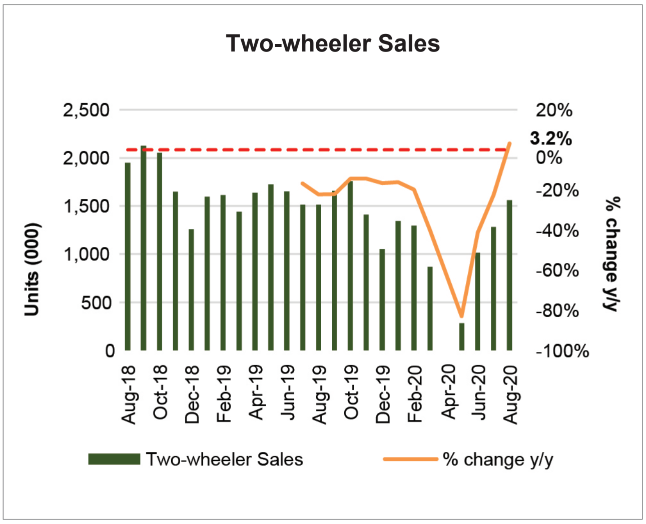
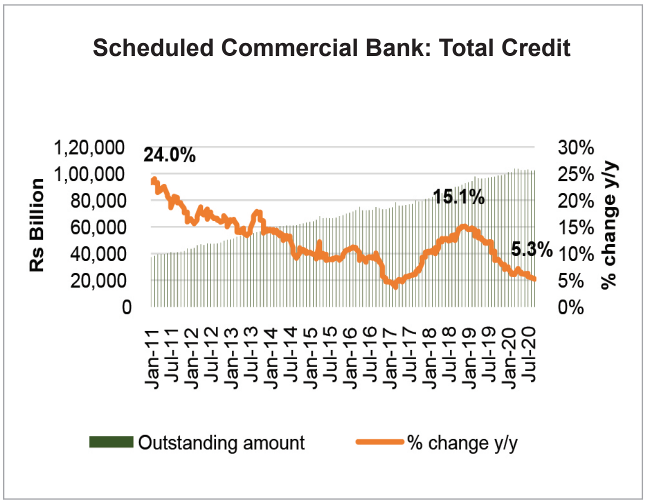
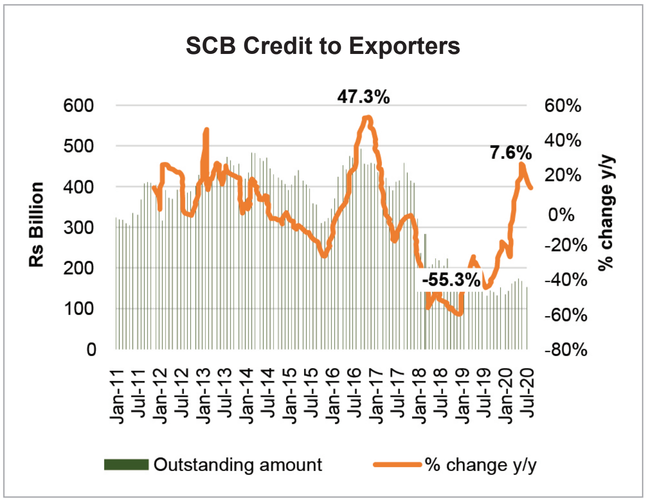
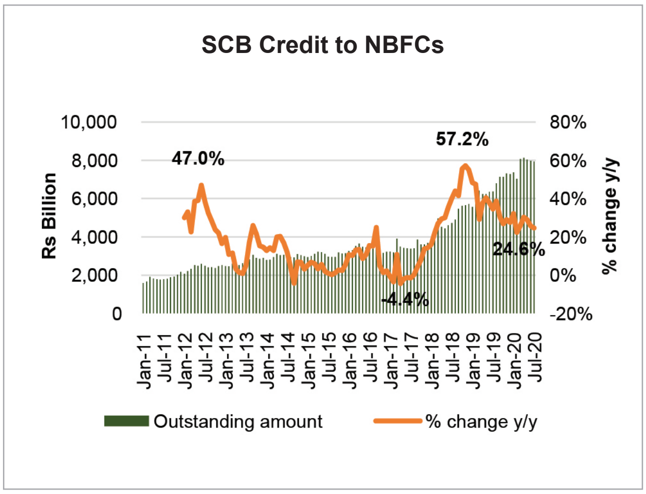


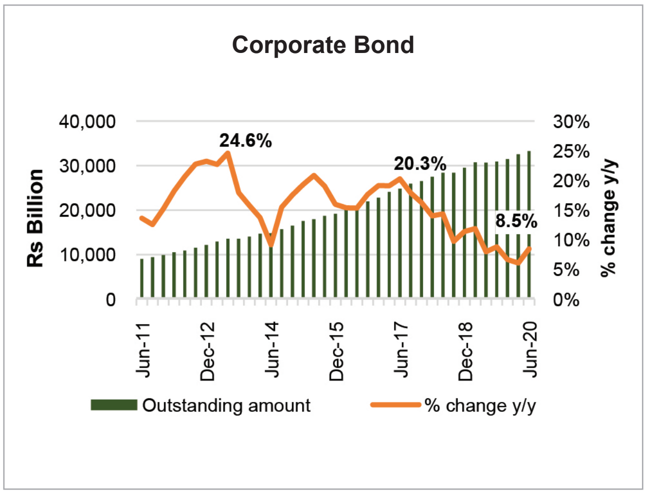
Source: MoSPI

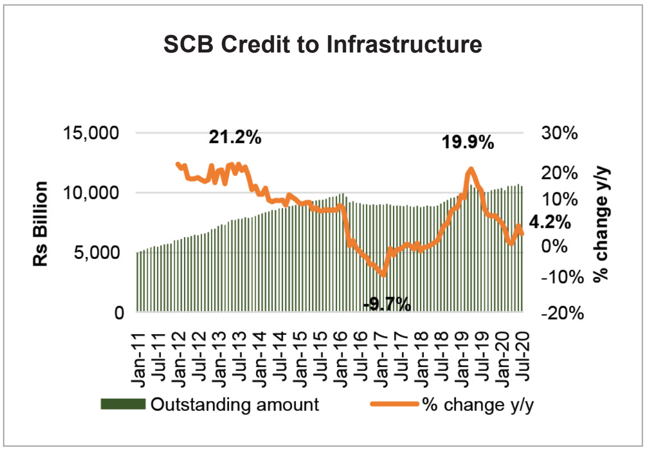
2 INDIAN CREDIT SCENARIO

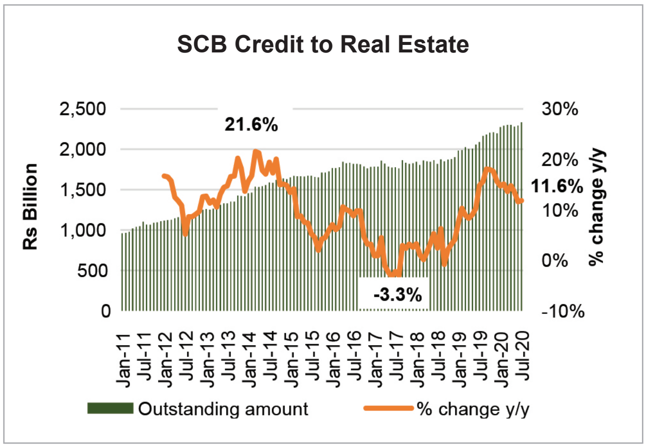


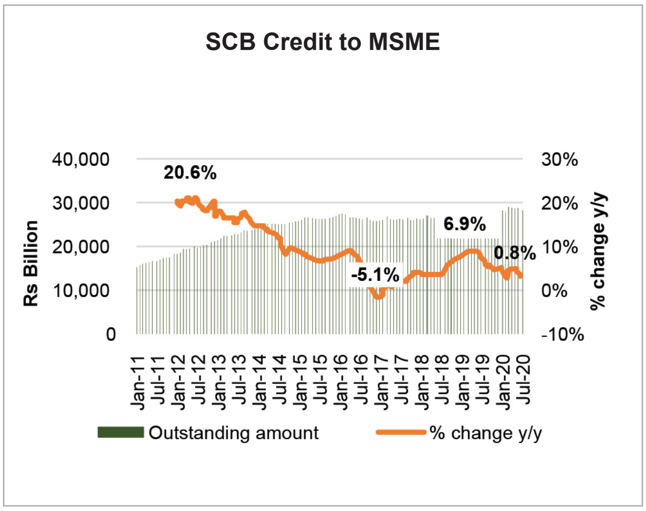


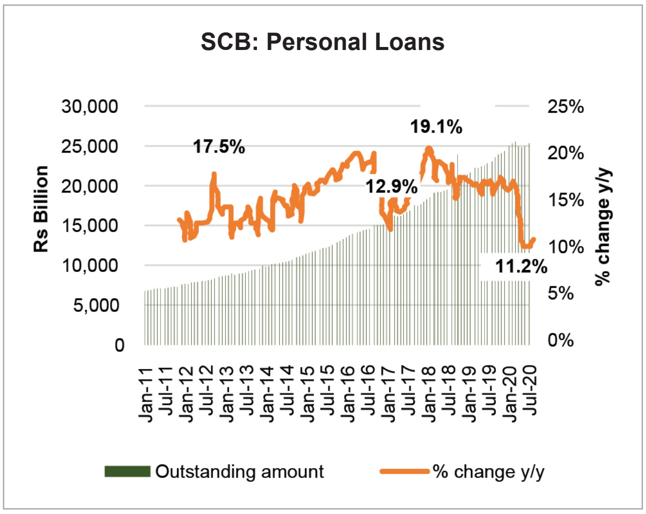


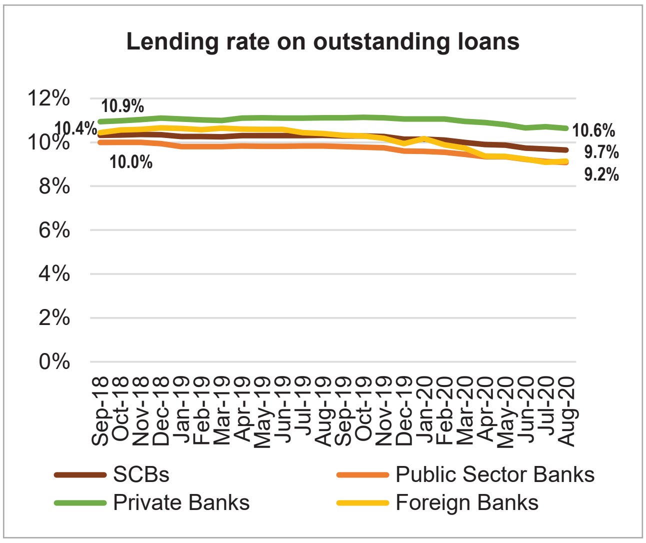


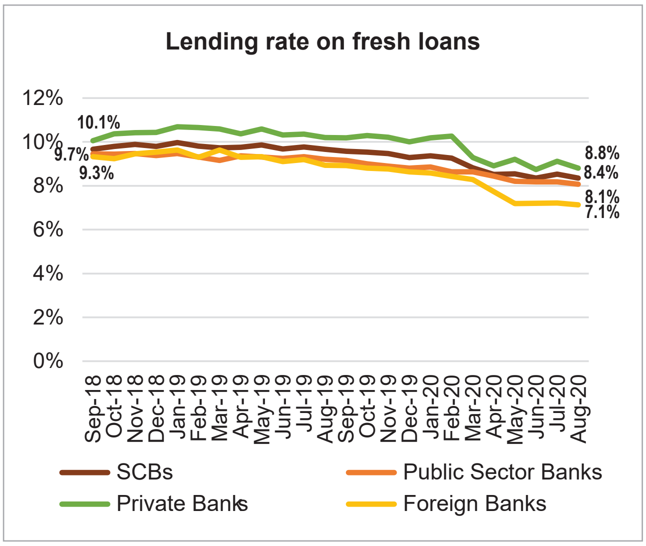





SCB Credit to MSME
Rs Billion
% change y/y
20.6%
6.9%
-5.1%
0.8%
Outstanding amount
% change y/y


SCB: Personal Loans
Rs Billion
% change y/y
17.5%
19.1%
12.9%
11.2%
Outstanding amount
% change y/y


Lending rate on outstanding loans
10.9%
10.4%
10.0%
10.6%
9.7%
9.2%
SCBs
Public Sector Banks
Private Banks
Foreign Banks


Lending rate on fresh loans
10.1%
9.7%
9.3%
8.8%
8.4%
8.1%
7.1%
SCBs
Public Sector Banks
Private Banks
Foreign Banks

Agriculture and Allied Activities

Agriculture is a state subject—the responsibility of improving the production and productivity of the sector lies with the state governments. The Central government supports this sector through centrally sponsored and central sector schemes. In 2019, the agriculture and allied sector contributed to 17% of India's gross value added (GVA) at current prices. The share of agriculture in GVA has steadily declined since the 1980s corresponding to an increase in the share of tertiary sector in GVA. However, agriculture remains an important sector in India, especially in terms of employment. As per the census of 2011, the agriculture sector employed almost 56% of the main workers in India. Out of these, 45% were cultivators while 55% worked as agricultural labourers.

Several states in India have a higher share of agriculture in their gross state value added (GSVA) than the secondary or tertiary sectors. Madhya Pradesh with a 40% share of agriculture gross state value added (GSVA), ranked first (Figure 1). The state's share of agriculture value added was more than twice that of the national average. Between 2014 and 2019, their share of agriculture GSVA increased by 4 percentage points. Andhra Pradesh ranked second, with an agriculture GSVA of 35%, followed by Arunachal Pradesh, Nagaland, and Tripura with an agriculture GSVA of approximately 31%. In 2019, the agriculture GSVA of 9 out of the 32 states and union territories increased from their 2014 levels. These states were Madhya Pradesh, Andhra Pradesh, Tripura, Mizoram, Manipur, Chhattisgarh, Meghalaya, Jharkhand, and Sikkim. Delhi and Chandigarh had the lowest share of agriculture GSVA, amounting to less than 1% of their total GSVA. Among the 5 states with highest agriculture GSVA, crops had the highest share in four out of five states, with Arunachal Pradesh being the exception. In Arunachal Pradesh, forestry and logging had a slightly higher contribution than crops. Livestock was the second largest agriculture sector contributor in Madhya Pradesh and Andhra Pradesh. In Tripura and Nagaland, forestry and logging were the second largest agricultural activity. Value addition from fishing and aquaculture was high in Andhra Pradesh. In Delhi and Chandigarh, livestock and related activities were the largest contributor to this sector.

However, a higher value-added share in the agriculture sector did not translate into a higher gross value added per worker in the agriculture sector (Figure 2). According to the Sustainable Development Goal India Index, 2019, India's average agriculture GVA per worker was approximately Rs 68,000. Goa, Punjab, Delhi, Kerala, and Haryana were among the highest ranked states, with GVA per worker as high as Rs 3.7 lakhs. Madhya Pradesh's GVA per worker was around Rs 69,000 in comparison. A higher population base and a higher reliance on crops yields that are

Figure 1: Gross State Value Added: Agriculture and Allied Activities

(Agriculture as a share of GSVA, %)

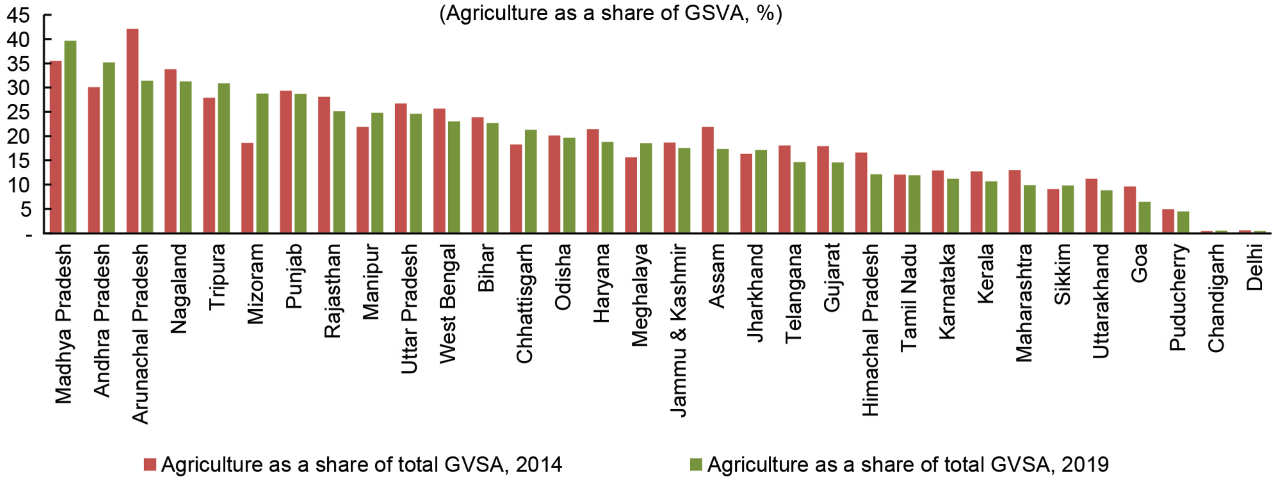
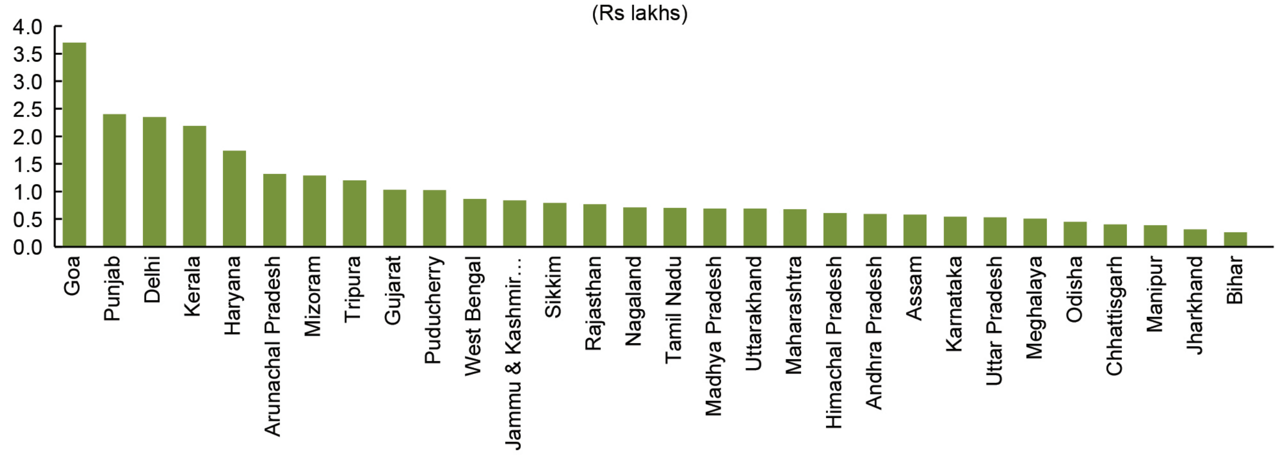


Figure 2: Gross Value Added in Agriculture Per Worker
(Rs lakhs)



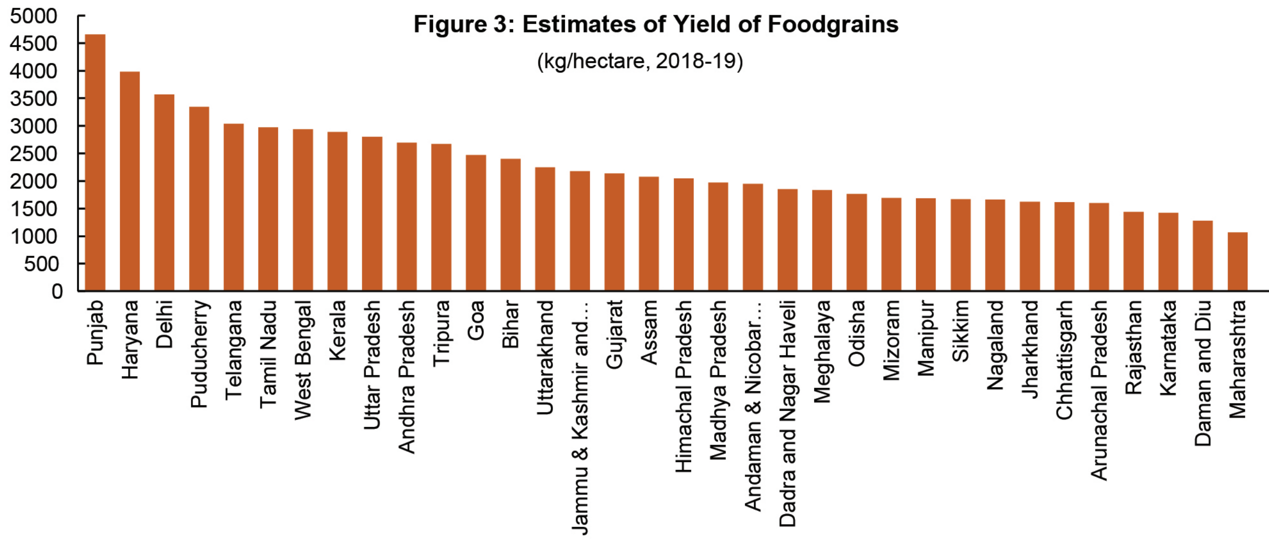
Source: SDG India Index, 2019

susceptible to weather conditions could explain why the top five states with the highest share of agriculture GSVA in 2019 were not in the top five states with highest value added per worker.

The Green Revolution of 1960s saw an increase in public investments in the agriculture sector, especially irrigation and research. Consequently, food grain production increased, making India self-reliant. As of 2015–16, almost 98.6% of Punjab's gross command area (GCA) under agriculture was covered with irrigation. Haryana was a close second with 91.4% of GCA under irrigation. Uttar Pradesh, Bihar, and West Bengal were the other states with more than 60% of their GCA covered with irrigation facilities. As of 2018–19, Punjab, Haryana, Telangana, Tamil Nadu, and West Bengal were also among the top five states with the highest productivity or yield of food grains, measured as output per hectare of land. Delhi and Puducherry have relatively higher yields, but that is on account of the relatively smaller area under cultivation. Their production is relatively small compared to those of bigger states.

To a large extent, the agriculture sector in India continues to be affected by seasonality and weather

Figure 3: Estimates of Yield of Foodgrains
(kg/hectare, 2018-19)



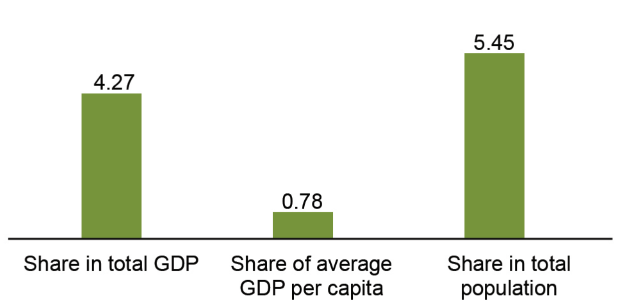
Source: EANDS, DACFW.

conditions. To balance the current consumption demands with off-season availability of essential food grains and avoid volatility in prices, it is important to measure supply and demand for agriculture goods accurately. The Economic Survey of India, 2019, recommends the development of commodity futures markets as an efficient way for price discovery of expected future prices that can help inform storage decisions. The report also suggests that development of forecasting mechanisms, strengthening trade policies and integrating agriculture markets are more effective ways of stabilizing prices. Technology can help in improving productivity and income of the agriculture sector, which will in turn have a positive impact on the several million workers employed in this sector.

Special Focus: Madhya Pradesh

Madhya Pradesh had the tenth largest state income (Rs 8.09 lakh crore) in 2019 that amounted to almost 4% of the country's GDP. In the last few years, Madhya Pradesh has grown at a faster rate than the Indian economy. Historically, MP's growth rate has been volatile reflecting its dependence on the agriculture sector that has the highest share in its gross state value added (GSVA). The agriculture sector has constantly been the largest contributor to the state's growth, accounting for almost 50% of the growth in current values. Trade, manufacturing, construction, and electricity were the other important sectors. However, their share in growth has declined in the last couple of years, making agriculture the most important sector for jobs and livelihood. In FY19, agriculture and mining contributed to almost 41% of the gross state domestic product (GSDP) followed by the tertiary sector that contributed to 33% of their GSDP. While the population of Madhya Pradesh has declined steadily since the mid-1990s, it is one of the five most populous states in India. Ranked fifth, the state contributes to 5.45% of the country's total population. As a result, its per capita income of Rs 99,025 was almost 0.78 times that of the average national income in 2019. As per the census of 2011, 72% of the state's population lived in rural areas, and almost 32% of the population lived below the poverty line. The state also had high rural and urban inequality reflected in the Gini coefficient of 0.27 and 0.36, respectively. Spread over 3,08,252 square

Figure 4: Madhya Pradesh GDP, Per Capital GDP and Population

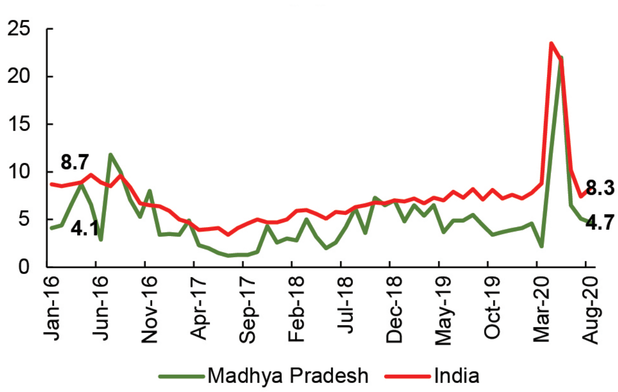


Source: MOSPI.

kilometers, Madhya Pradesh is one of the largest states in India, second only to Rajasthan. It also has the largest forest area in the country that covers 31% of the state's total area.

On average, the state's unemployment rate has been lower than that of India. As per CMIE data, as of August 2020, Madhya Pradesh had an unemployment rate of 4.7%, which was 3.6 percentage points lower than the national average rate of unemployment. The state's female labour force participation rate of 23.4% was higher than the national average of 17.5%. This is because agriculture is the largest sector for employment in the state where most women are likely to be engaged. According to the Census of 2011, the state had more male cultivators (62.4%) than females (37.6%) but women constituted more than half of its agriculture labour (52.5%). As much as 71% of operational holdings belongs to small and marginal farmers. Consequently, majority

Figure 5: Unemployment Rate (%)



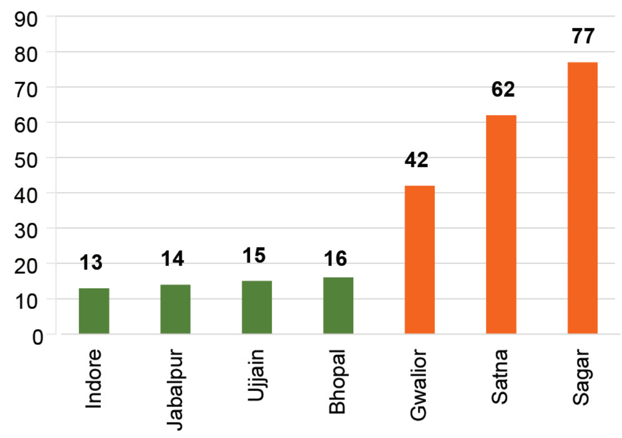
Source: CMIE.

of the agriculture activity in the state is subsistence farming, with low levels of income of those engaged in the sector. The 2018 Economic Survey of Madhya Pradesh recognizes that even though agriculture is the primary source of employment, it is still traditional and dependent on natural rainfall. According to the Agriculture Economic Survey report of the state, in 2016, the state had a gross irrigated area of 33.5%. The other areas were dependent on monsoon. These factors limit the productivity of the sector. For instance, Madhya Pradesh is the largest producer of soyabeans. Reports suggest that soyabean production in the state this year will decline by 10%–12% due to heavy rains and temperature variation. As the exports, industry and services sectors in the state are also linked to the agriculture sector, it is important to increase investments and modernize the sector.

For a landlocked state, Madhya Pradesh has immense export potential because of agri-products like soyabeans and oranges, pharmaceutical products, and auto parts and accessories. According to EXIM Bank's report on Madhya Pradesh's export strategy, the state contributed to only 1.6% of the country's merchandise exports in FY17. The state's highest exported commodities were drug formulations and biologicals (share of 23.1%), cotton yarn (7.8%), oil meals (6.6%), cotton fabrics, made ups, etc. (5.7%) and aluminum products (4.8%). Madhya Pradesh was ranked twelfth with a score of 49.47 in NITI Aayog's Export Preparedness Index, 2020. In comparison, other landlocked states like Rajasthan, Telangana, and Haryana performed much better. According to the report, the state has a relatively strong export ecosystem (for instance, presence of several agri-export zones within the state) and research and development infrastructure. The exports sector is also supported by strong export promotion policies and institutional frameworks like provisions for healthy center–state coordination, an export promotion council, and a redressal mechanism, among others. The state has a diversified export profile as well. However, a relatively weaker business environment, industrial corridors, internet connectivity, software parks and power connectivity, along with poor air cargo facilities, limit its export potential. The state needs to improve its overall business ecosystem as also access to finance, particularly credit to exporters.

The state's urban centres are among some of the best cities in the country. According to the Ease of Living Report of 2018, four out of seven cities from Madhya Pradesh—Indore, Jabalpur, Ujjain, and Bhopal—were among the top 20 smart cities of India in 'institutional ranking'. A high institutional ranking means that the city has efficient and effective institutions that aid service delivery and support urban infrastructure development in a sustainable manner. Indore, Jabalpur, and Bhopal were also in the top 20 list of social rankings. A high rank in this category means that the city has a safe and secure environment for its people that fosters cultural growth and robust health and education facilities. According to the latest ratings available, Indore Municipal Corporation and Bhopal Municipal Corporation had A+ and AA ratings, respectively. Even in rural areas, Madhya Pradesh's Panchayati Raj institutions perform well. 50% of seats in the state PRIs are held by women, which is higher than the national average of 46%. According to a report by the Ministry of Panchayati Raj (2016), the state is ranked twelfth in policy but seventh in practice, indicating a strong devolution of powers from state to local governments.

Figure 6: Institutional Ranking



Source: Ease of Living Report, 2018

Known as the 'Heart of India', Madhya Pradesh's central location gives it a unique advantage of connectivity and proximity with all major centres of trade and commerce in India. It is one of the fastest growing states in the country despite being reliant on agriculture sector. As the state continues to strengthen this sector, it is imperative that other sectors like export and tourism are also supported to diversify its growth potential. The state has abundant natural resources, with minerals and rich soil. Its pharmacy industry has the potential to grow further. Moreover, promotion of tourism (Bhedaghat, wildlife sanctuaries, etc.) should be explored. As a large share of domestic tourism is for religious purposes, Madhya Pradesh can strengthen its religious tourism space (Ujjain, Sanchi Stupa, Amarkantak, Omakreshwar, Chitrakoot, etc.). Improvements in access to finance will not only lead to formal job creation but also improve the export potential of the state, especially for the agriculture sector. Investments in agricultural machinery, roads and digital networks will improve efficiency gains of agriculture, trade and tourism sectors and strengthen its growth potential.

Reimagining Indian Agriculture

Since Independence, agriculture in India has made significant strides. Through the Green and White revolutions, the production of cereals and milk expanded considerably. Policy was designed to ensure food security, through measures right across the agriculture value chain. Public procurement and distribution systems were set up. Minimum support prices (MSPs) for crops were announced. To combat shortages, the Essential Commodities Act, 1955, was enacted. Subsidies were provided for the purchase of inputs such as seeds, fertilizers, and pesticides. Irrigation coverage expanded substantially. Policy was also designed to protect farmers by seeking to ensure remunerative prices, promoting transparent price discovery, and regulating practices in primary wholesale markets. These took the form of various state-level Agriculture Produce Market Committee
(APMC) acts.

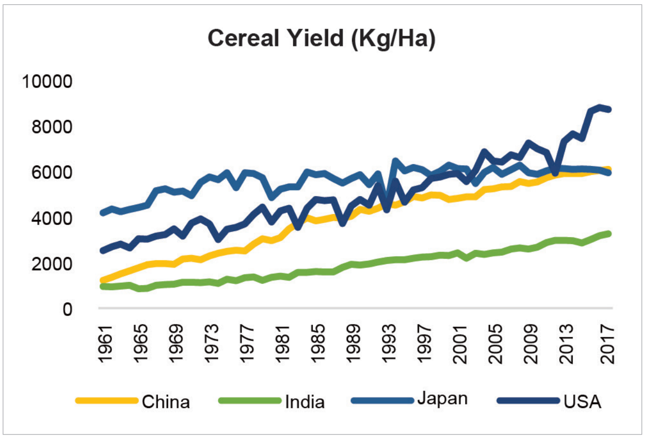
India and Global Agriculture

In time, India grew to become one of the largest producers of agro-commodities in the world, as the figure below indicates.

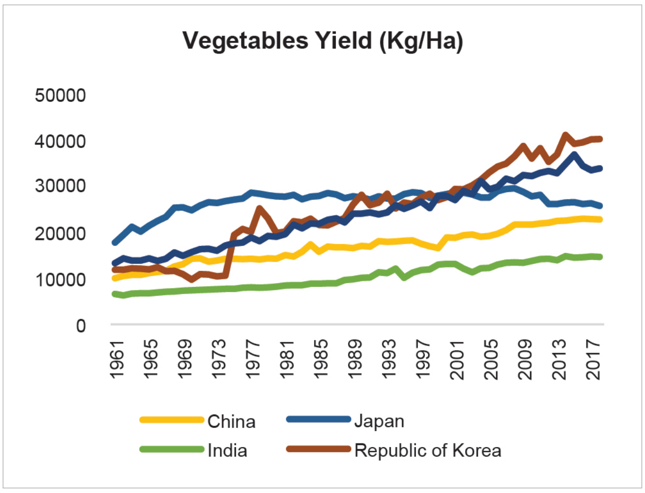
Yet, in terms of productivity, India still lags behind other nations. As the charts illustrate, there exists a significant productivity gap between India and competing nations. At the same time, it is also pertinent to note that India processes 10% of all

Source: Ministry of Food Processing

production and incurs wastage of Rs 90,000 crores While India has made significant strides in raising land productivity, labour productivity remains far

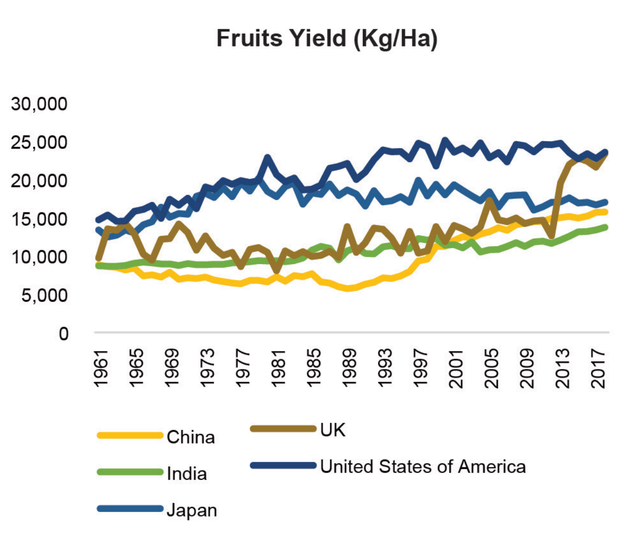


Source: FAO



Source: FAO

below other nations. This is primarily due to the large workforce that remains in agriculture in India. As a share of employment, India has one of the largest workforces in the world in agriculture.



Source: FAO

	Share in Emp (%)	Share in GDP (%)	Labour Productivity ($)
Australia	2.6	2.1	69,005
China	25.4	7.1	4,007
Germany	1.2	0.8	47,735
France	2.4	1.6	60,149
UK	1.0	0.6	49,075
India	42.4	16.0	1,872
Japan	3.4	1.2	23,588
USA	1.3	0.9	76,072

Source: World Bank

As can be seen from the table above, India has the highest share of agriculture in GDP and employment. While the share of GDP has been falling as per theory, employment in agriculture has not been falling at a similar rate. Due to the large population in agriculture, India's labour productivity (measured as value added per worker), is amongst the lowest in the world. The levels of low productivity per worker are also reflective of the small farm sizes in India. Official estimates indicate that close to 86% of India's farms are smaller than two hectares.

Need for a New Policy Paradigm

Overtime, it became evident that the policy tools designed to manage food deficiency saw decreasing relevance as India transitioned into a food surplus country. Marketing regulations strangled transparent price discovery. In essence, each notified APMC market yard divided a state into smaller markets, creating a highly fragmented system of agriculture marketing. Licences were needed to engage in interstate and intrastate trade, limiting the reach of APMC markets. As a result, the geographical area in which farmers were able to sell their produce was limited to their local APMC mandi.

Traders and commission agents commanded substantial influence, playing the roles of both buyers and moneylenders. Transparent price discovery was replaced by collusion and price fixing. In essence, APMC mandis functioned as monopsonies or oligopsonies. Just like a monopoly/oligopoly, where there are only one/few sellers, a monopsony/oligopsony is where there are only one/few buyers. Each exercised market control by price setting. Therefore, without any competition, the traders and commission agents at mandis acted as monopsonists, setting prices and terms for procurement of produce from farmers.

An Electronic National Agriculture Market (eNAM) was envisioned by the incumbent government. Despite linking over 1,000 mandis to eNAM, interstate trade failed to take off as anticipated. State APMC acts had to be amended to leverage the potential benefits offered by eNAM. However, the reform effort of states was largely piecemeal and cosmetic in nature, making no discernible difference at the ground.

The frequency at which the Essential Commodities Act was invoked, discouraged private investments in storage and transport. The fragmented markets led to a missing cold chain, leading to post-harvest losses of Rs 90,000 crores annually. Also, it is important to note that when talking of a cold chain, it is not enough to simply focus on making cold storages. Shortages of packhouses, ripening chambers and refrigerated vehicles also have to be addressed. Little effort was made in creating infrastructure at the farmgate, such as collection centres and pre-processing facilities. Nor was there an enabling environment for contract farming, which would allow corporates to tie up with farmers directly, ensuring adequate remuneration at the time of harvest.

Linkages to the food processing sector were sporadic as well. Despite production increasing manifold in the past few decades, only 10% of the total produce is actually processed in India. This number was much smaller in the case of fruits and vegetables (2%), poultry (6%), meat (21%) and marine (23%). The

[1] Ministry of Food Processing

prevalence of food processing is related to exports. Again, a similar story emerges. The share of India's food exports in world markets stood at 2.3% in 2019–20. Fragmented markets, poor backward linkages between processors/exporters and farmers, a non-existent cold chain are reflected through the low share of processing and exports in India.

In an era of rising production, with limited avenues to sell, the prices received by farmers remained depressed. Large scale public procurement was limited primarily to wheat and paddy, while procurement of pulses was undertaken in recent years. Therefore, the prices received by farmers even for notified crops, on some occasions fell below MSPs. Apparently, mechanisms that were designed to protect and empower farmers need to be further developed and strengthened.

Numerous committees, reports and working groups all made the same recommendations. First, the mandi system needed competition. Second, contract farming needed an enabling environment. Third, the Essential Commodities Act needed to be amended to encourage private investment in agriculture. Nor were raising MSPs and public procurement a viable solution. The need of the hour was a policy environment that promoted transparent price discovery, contract farming and private investments in the agriculture value chain. States were nudged to reform first in 2003 and then in 2018, when the Centre circulated model acts for states to consider. However, there has been limited action by states.

The old policy regime was designed for times of shortages and food deficiencies. There was a pressing need for a new policy framework, focusing on surplus management, rather than deficit management. It is in this context that the reforms in agriculture are rightly being termed as historic.

Historic Reforms

Three Bills were passed by both Houses of the Parliament in September 2020, with the potential to transform the landscape of India's agriculture sector.

The Farmers' Produce Trade and Commerce (Promotion and Facilitation) allows farmers to sell their produce outside the notified market areas, without paying any mandi taxes or commissions. The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services

[2] APEDA

Bill, 2020, provides for an enabling environment for farm services. The Essential Commodities (Amendment) Bill, 2020, deregulates storage, movement, and sales of food items such as cereals, pulses, and edible oils, amongst others, except in extraordinary circumstances. Reforms in marketing have been complemented by a Rs 1 lakh crore Agriculture Infrastructure Fund, for creation of farmgate infrastructure, including collection centres and pre-processing facilities.

Combined with policy reform in the food processing and manufacturing sectors, 2020 stands to be seen as a watershed moment for India, as the reforms undertaken this year have the potential to power India's growth in the coming years.

Bringing Reforms to the Doorstep of Farmers

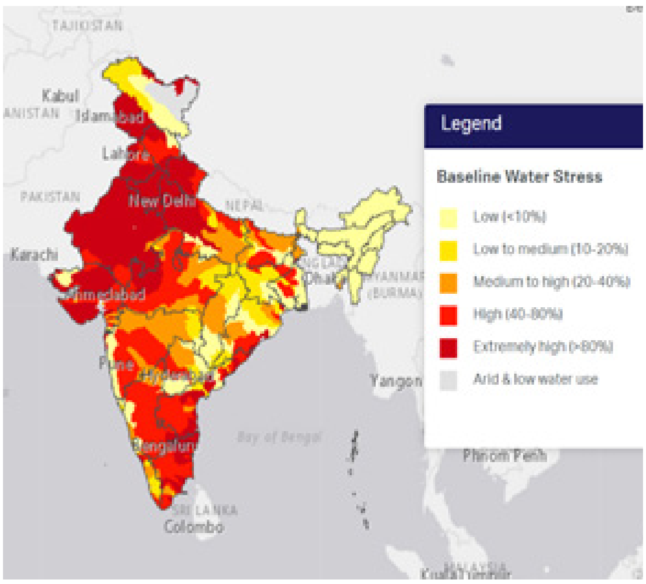
The next challenge in front of us is to bring the benefits of these reforms to the doorstep of farmers. Technological interventions can help bridge this gap. Over 500+ agri-tech startups exist in India. Farming as a Service (FaaS) is emerging as an attractive avenue. On demand farm services, delivered with the aid of technology, can substantially raise productivity at the farm level. However, most agri-tech startups lack scale to make an impact at the national level. In order to scale these operations, ensuring their adaptation and replicability across India, a vibrant 'phygital' ecosystem has been mooted.

Over the past few months, NITI Aayog has been working closely with the private sector to chart a roadmap for the digital transformation of India's agriculture sector. In this context, the idea of an AgriStack or KrishiNeev, to create a digital architecture for the Indian agriculture sector, paving the way for private-sector-led tech-based solution was presented to the Prime Minister. The KrishiNeev is expected to have four pillars: (i) farmer advisory services (ii) blockchain for quality certification and traceability; (iii) marketplace for outputs, inputs, and farm services and (iv) fintech for credit and financial services. Flow of real-time information will increase productivity and reduce risks. Deployment of a blockchain platform will ensure quality certification and traceability. With data of over 10 crore farmers being sourced, fintech can be leveraged to introduce cash-flow-based lending to farmers and assignment of credit ratings to farmers and FPOs, raising the flow of formal credit to the sector.

Ensuring Sustainable and Resilient Farms

A high-level panel of experts (HLPE) on food security and nutrition, constituted by the Committee on World Food Security has called for a shift towards sustainable food systems. In this context, agroecological principles gain prominence. In essence, diversification, mixed cultivation, intercropping, biological pest control, improvement of soil health and recycling of nutrients, energy, and waste are the broad principles on which agroecological farming systems are based.

With longstanding demands for reforms in marketing and contract farming fulfilled, sustainability of farming systems emerges as India's next big challenge. With climate change a reality, building resilience of our food systems will be critical going forward.



Source: indiawatertool.in

For example, irrigation constitutes 90% of India's groundwater, primarily through inefficient flood irrigation. As the graphic below shows, large parts of India are reeling from water stress. Soil degradation is another critical issue facing India in the coming years, with soil organic carbon levels depleting.

Therefore, if we are to raise our productivity levels, sustainability must be kept in mind. In this context, natural farming emerges as an attractive alternative. Recently, NITI Aayog hosted a national level consultation on principles and practices of natural farming. Early results indicate substantial improvements in soil health, a reduction in greenhouse gas emissions and increased water-use efficiency. The use of no chemical fertilizers and pesticides leads to significant reductions in cost of cultivation. Multi-cropping ensures multiple revenue generation avenues.

The HLPE report identifies five phases in making agroecological transitions. First, increasing input use efficiency. Second, substituting conventional inputs and practices with agroecological alternatives. Third, redesigning the agroecosystem on the basis of a new set of ecological processes. Fourth, establishing a more direct relationship between producers and consumers, which the recent reforms address. Fifth, building a new food system based on participation, fairness, and justice.

The initial results from natural farming practices are promising. Just as farmers have now been offered choices in where to sell their produce, they must now also be given the options to shift to natural farming. An enabling policy environment ensuring sustainability and resilience of our food systems is the next challenge India must navigate. Successfully navigating this challenge will ensure that India emerges as a global leader in this field, leading the transformation of global food systems to be more sustainable and resilient.

S&P Maintains Stable Outlook for India, Expects Recovery from '21 End

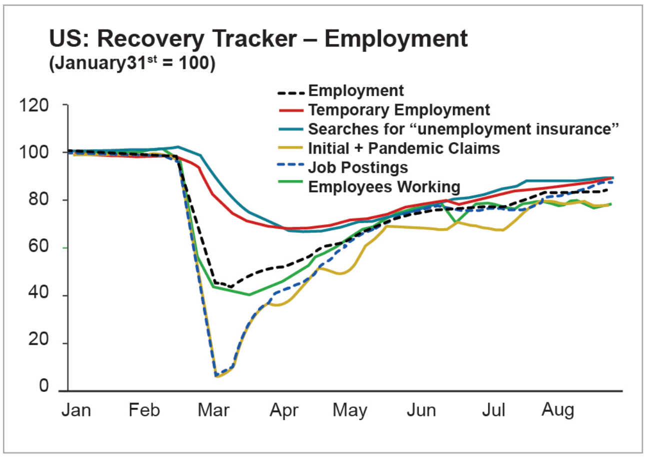
S&P Global maintained its rating for the Indian economy at 'BBB' for the long term and 'A-3' for the short term. It has maintained a stable outlook for the economy, and expects real GDP to recover towards the end of FY21. While the fiscal scenario for the Indian economy is worrisome, variables on the external economy side have improved.

Read more:
https://economictimes.indiatimes.com/markets/stocks/news/sp-affirms-indias-bbb-/a-3-rating-says-outlook-stable/articleshow/78314995.cms

Slow Growth in US Job Recovery in July–August

Employment growth slowed down in the US in July–August as permanent job losses increased, and government support started running out. The slowdown has put pressure on the White House to restart negotiations on another round of fiscal stimulus.

Figure 1: Rate of Employment Recovery is Slowing



Read more:
https://in.reuters.com/article/us-usa-economy/u-s-job-growth-loses-speed-as-fiscal-stimulus-ebbs-idUSKBN25V0FO

NY Top Fin Hub: Global Financial Centres Index

New York maintained its position as the top global financial hub on the Global Financial Centres Index, with London closing in at the second spot. Shanghai moved up one place to third and Tokyo dropped to the fourth position. Similarly, Hong Kong moved up a notch to rank fifth and Singapore fell to the sixth spot. Mumbai came in at the 35th position, rising 10 points since last year.

Read more:

https://www.longfinance.net/programmes/financial-centre-futures/global-financial-centres-index/gfci-28-explore-data/gfci-28-rank/

Table 1: Rankings on the Global Financial Centres Index

Centre	GFCI 28 Rank	GFCI 28 Rating	Rank (+/-)	Region
New York	1	770	0	North America
London	2	766	0	Western Europe
Shanghai	3	748	1	Asia Pacific
Tokyo	4	747	-1	Asia Pacific
Hong Kong	5	743	1	Asia Pacific
Singapore	6	742	-1	Asia Pacific
Beijing	7	741	0	Asia Pacific
San Francisco	8	738	0	North America
Shenzhen	9	732	2	Asia Pacific
Zurich	10	724	4	Western Europe

Source: Long Finance Initiative

US–China Tensions Rising over Covid at UN General Assembly Meeting

Heated exchange of words between the two global superpowers pointed towards looming risks to global stability. The Secretary General of the UN General Assembly mentioned that we are moving towards a precarious situation and the world can't afford a new Cold War.

Read more:
https://www.aljazeera.com/news/2020/9/23/war-will-benefit-no-one-world-concern-over-us-china-tensions

Vaccine Production Gathers Pace with Increased PPP

Researchers worldwide are working around the clock to find a vaccine against SARS-CoV-2, the virus causing the COVID-19 pandemic. The pandemic has given rise to unprecedented public-private partnerships all across the globe.

Read more:
https://www.raps.org/news-and-articles/news-articles/2020/3/covid-19-vaccine-tracker

AIM Unveils Winners of ATL Tinkering Marathon 2019

Atal Innovation Mission declared the results of its flagship national annual innovation marathon challenge, ATL Tinkering Marathon 2019, which saw participation of over 5000 Atal Tinkering Labs across the country and announced 150 winners. This year, the challenge was executed by AIM in partnership with MyGov on the latter's innovate platform.

Unlocking Online Dispute Resolution to Enhance the Ease of Doing Business

Exploring the massive potential of Online Dispute Resolution (ODR) to enhance the Ease of Doing Business in India, NITI Aayog in association with Agami and Omidyar Network India held a conversation—co-hosted by Confederation of Indian Industry (CII)—with heads of legal firms and industry representatives. The esteemed panellists agreed to adopt and institutionalize ODR, and to ensure efforts are taken to scale online dispute resolution in India.

AIM and Dell Launch Student Entrepreneurship Programme 2.0

AIM, in collaboration with Dell Technologies, launched Student Entrepreneurship Programme 2.0 (SEP) for young innovators of Atal Tinkering Labs. Following the outstanding success of SEP 1.0, the second series was kick-started in the presence of Dr Rajiv Kumar, Vice Chairman, NITI Aayog; Alok Ohrie, President and MD, Dell Technologies; R. Ramanan, Mission Director, AIM; and Dr Anjlee Prakash, Chairperson, Learning Links Foundation.

NITI Aayog Releases Export Preparedness Index 2020

NITI Aayog in partnership with the Institute of Competitiveness released the Export Preparedness Index 2020. The first report to examine export preparedness and performance of Indian states, EPI intends to identify challenges and opportunities; enhance the effectiveness of government policies; and encourage a facilitative regulatory framework.

India Ranked Among Top 50 Nations in Global Innovation Index

Good news for the country as India ranked 48th in World Intellectual Property Organization's Global Innovation Index 2020—a testament of our robust R&D Ecosystem. India had ranked 52nd in 2019, and 81st in 2015. Last year, WIPO had also accepted India as one of the leading innovation achievers of 2019 in the Central and Southern Asian region, after showing consistent improvement in its innovation ranking for the past five years.

AIM Launches Aatmanirbhar Bharat ARISE-ANIC Initiative

AIM launched one of its most awaited programmes, the Aatmanirbhar Bharat ARISE-Atal New India Challenges, to spur applied research and innovation in Indian MSMEs and startups. The programme will be driven by Indian Space Research Organization, four ministries— Ministry of Defence; Ministry of Food Processing Industries; Ministry of Health and Family Welfare; and Ministry of Housing and Urban Affairs—and associated industries to facilitate innovative solutions to sectoral problems.

IEA and NITI Aayog Launch Special Report on Sustainable Recovery Post Covid-19

Against the backdrop of the ongoing Covid-19 crisis, International Energy Agency (IEA), in collaboration with NITI Aayog, presented a 'Special Report on Sustainable Recovery' on 18 September 2020. Part of IEA's flagship World Energy Outlook series, the report proposes a number of actions that could be taken over the next three years to revitalize economies and boost employment while making energy systems cleaner and more resilient.

NITI Aayog and Dutch Embassy Sign SoI on Clean Energy

NITI Aayog and Embassy of the Netherlands, New Delhi, signed a Statement of Intent (SoI) on 28 September 2020 to support the decarbonization and energy transition agenda for accommodating cleaner and more energy. Through this collaboration, NITI Aayog and the Dutch Embassy seek a strategic partnership to create a platform that enables a comprehensive collaboration among stakeholders and influencers, including policymakers, industry bodies, OEMs, private enterprises, and sector experts.

सत्यमेव जयते

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