भारतीय स्टेट बैंक
STATE BANK OF INDIA

Second wave of infections: The beginning of the end?

Though we never thought we will have to put together slides documenting 2nd wave

State Bank of India

25 March 2021

Summary …. 1/2

COVID-19 UPDATE

- India is witnessing second wave of infection beginning Feb'21, with daily new cases and daily tests rising again
- Pan-India total cases in the second wave expected in the order of 25 lakhs (based on trends in data till 23-Mar)
- Notably, Maharashtra alone accounts for majority of the daily new cases currently. Considering the number of days from the current level of daily new cases to the peak level during the first wave, India might reach the peak in the second half of April
- The entire duration of 2nd wave might last upto 100 days counted from 15-Feb
- Though Global COVID-19 experience shows second wave much higher in intensity than the first wave, presence of vaccine makes the difference currently. Thus India will be able to manage the situation better
- District wise analysis reveals that cases have again started increasing in top 15 districts, mostly urban, while the spread in rural districts is almost stable: Shift in rural penetration from Kerala in Jan'21 to Maharashtra in Mar'21
- Cases are largely localised and concentrated
- Certain states like Rajasthan, Gujarat, Kerala, Uttarakhand, Haryana have vaccinated more than 20% of their elderly population (above 60 years)
- Several states with higher elderly population (>60 years) including Punjab, Tamil Nadu, Andhra Pradesh, Maharashtra and West Bengal have vaccinated less percentage of their elderly population and must increase their pace of inoculation
- If we assume more number of people are willing to take vaccines and the daily vaccine inoculation increases to 40-45 lakhs from the current maximum level of 34 lakhs, then with this capacity we can vaccinate our population above 45 years in 4 months from now

LOCKDOWN INEFFECTIVE, MASS VACCINATION IS THE ONLY HOPE

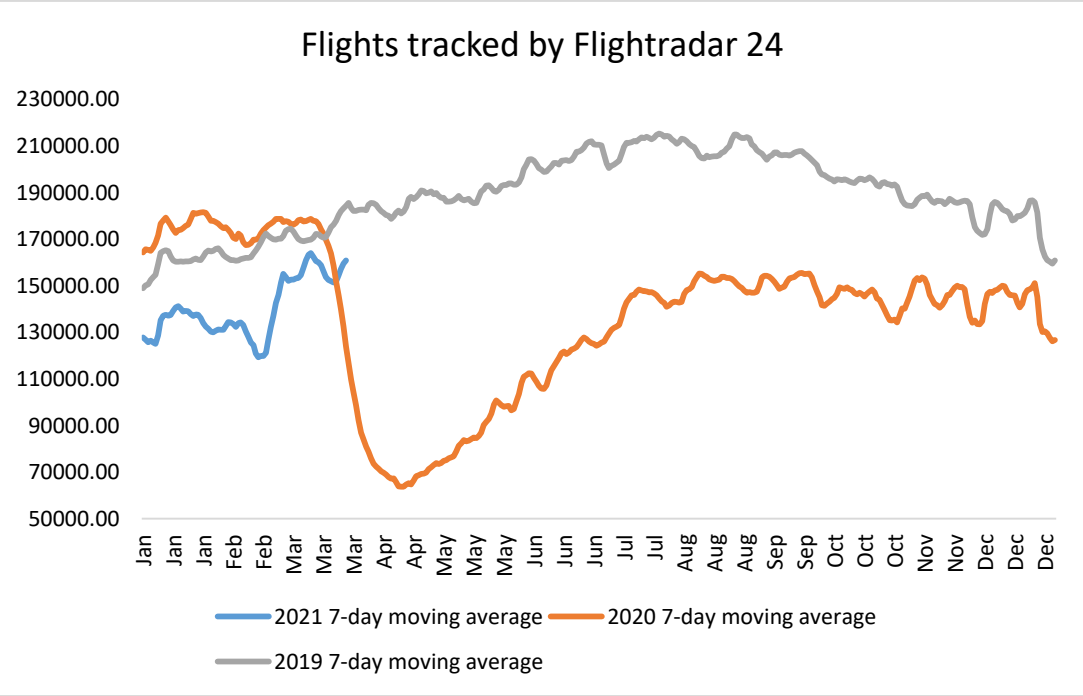
- Localised lockdowns/restrictions have not resulted in controlling the spread of infection. This is visible in case of many states including Maharashtra and Punjab
- There has also been a study in the past of the Great Pandemic flu of 1918-19 by Hatchett, Mecher and Lipsitch (2007) whose findings support the hypothesis that rapid implementation of multiple non-pharmaceutical interventions (NPIs) including closure of schools, churches, and theatres can significantly reduce influenza transmission, but that viral spread will only be renewed upon relaxation of such measures
- Thus increasing the speed of vaccination is the only way to win the battle against COVID-19 pandemic
- Injection to infection ratio shows Israel, UK and Chile are doing better than India. However, the pace of vaccination/hundred population in India is much higher
- So far India has given 508 lakh shots in a span of 67 days, or 7.9 lakh shots per day

ECONOMIC INDICATORS

- International air travel is gathering speed
- Business activity Index based on high frequency indicators has declined in the recent week ending 22 Mar'21 with the latest value at 101.7 (the lowest in 1 month) from 104.6 in the previous week
- Meanwhile, % of leading indicators showing acceleration has increased to 63% in Feb'21, indicating pick up in momentum. Thus the lockdown or restrictions imposed by certain states might become visible in next month
- Google mobility has declined in many states, like Maharashtra, Chhattisgarh and Madhya Pradesh, however the increase in COVID-19 cases has not reduced due to lockdowns
- Meanwhile, both bank credit and deposits have picked up pace in Feb'21 after dipping in Jan'21

International Travel is gathering speed

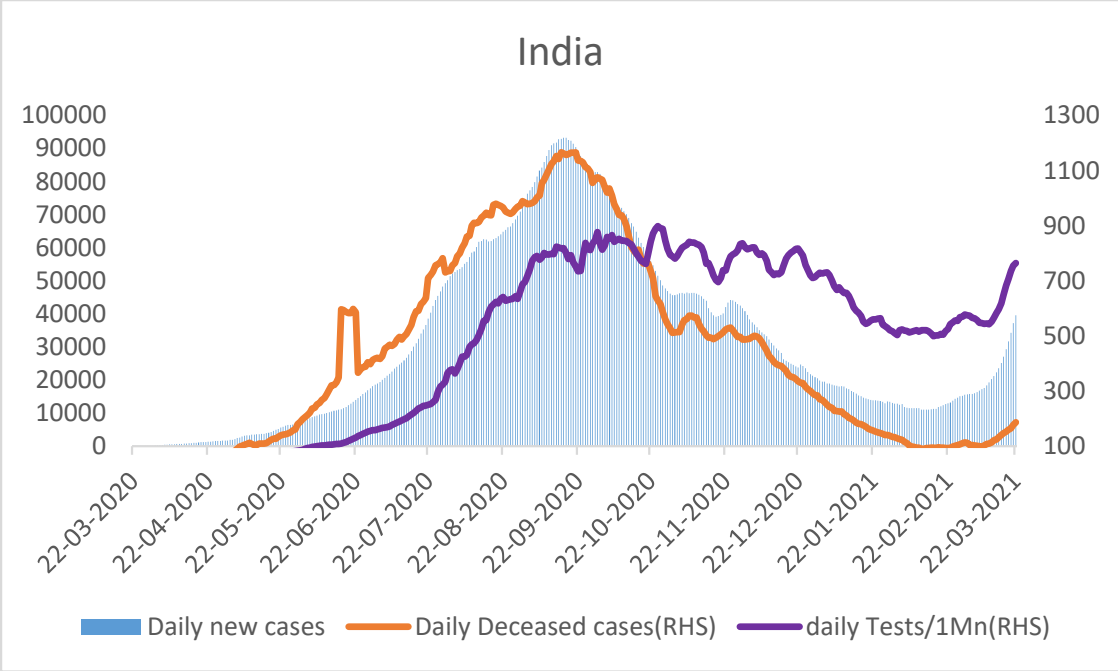
- Air travel has slowly inched towards the level it was at, in initial phase of COVID-19 in 2020 as visible from the 7-day moving average of total number of flights tracked by flightradar 24, as global cases figures tumble and mass vaccination efforts gather speed. However, a plethora of new variants emerging still make a case for being wary about the overall recovery in air travel



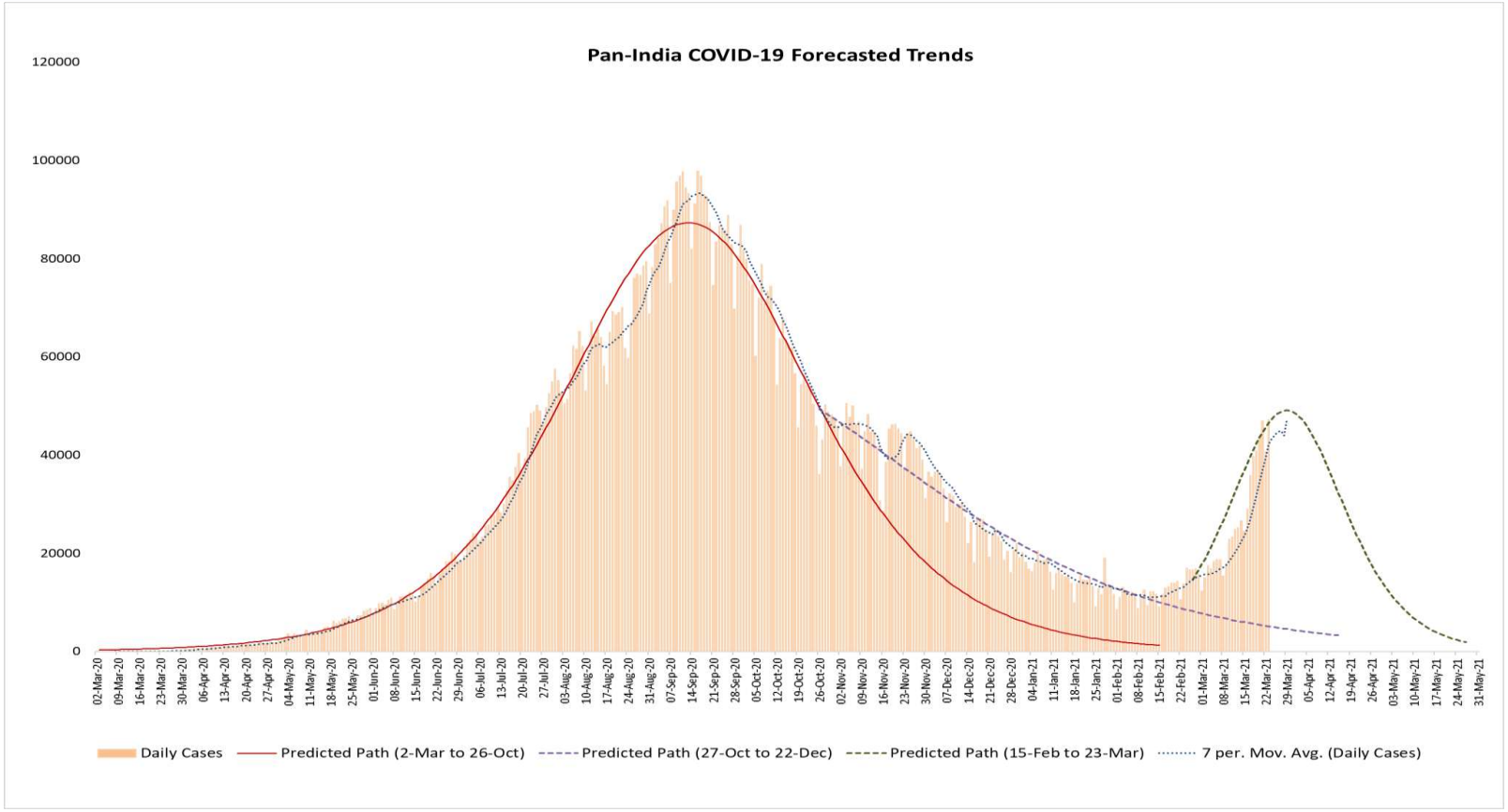
COVID-19 Update

Rising cases since Feb: Clearly a second wave

- India is witnessing increase in daily new cases since Feb'21, clearly indicating a second wave
- Daily tests per million have also started rising again after declining moderately at the beginning of this year



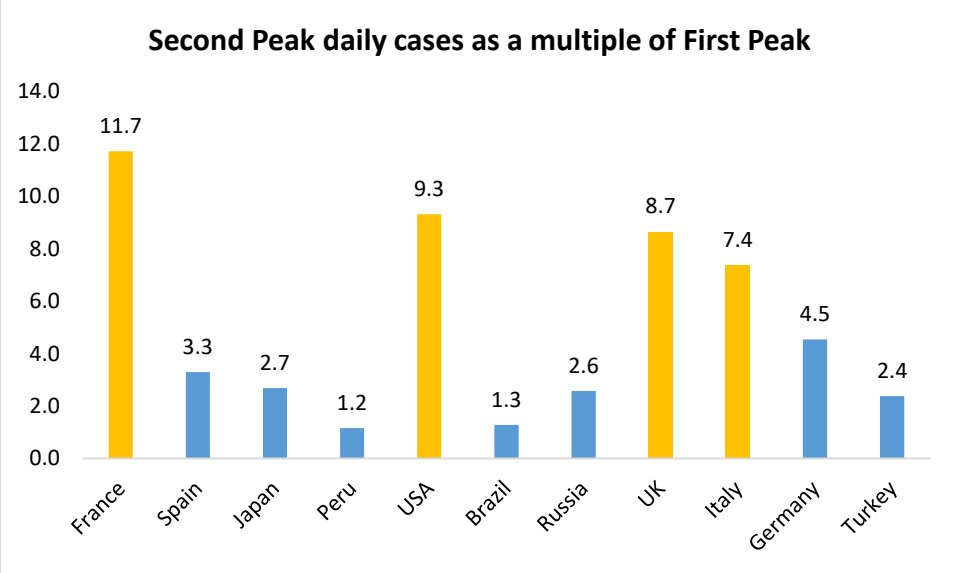
COVID-19 infection forecast



- Statistical evidence of second wave since Feb'21
- Pan-India total cases in the second wave in the order of 25 lakhs with 97.5% CI [18 lakh, 50 lakh] (based on trends in data till 23-Mar)
- The entire duration of 2nd wave may last approximately upto 100 days counted from 15-Feb

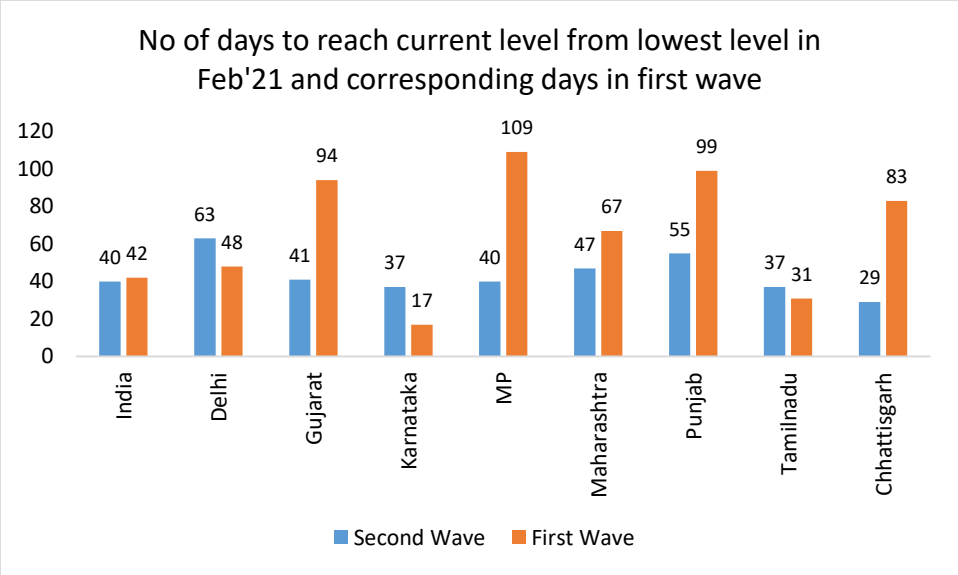
Globally, second wave much severe than the first one
However, availability of vaccine might make it different for India this time!

- Daily cases during the second wave peak witnessed in other countries has been multiple times the peak daily cases during the first wave: But at that time there was no vaccination
- For instance, France witnessed peak daily cases of around 11.7 times the daily peak of new cases witnessed during its first wave
- But India might be able to handle well as vaccine is now available



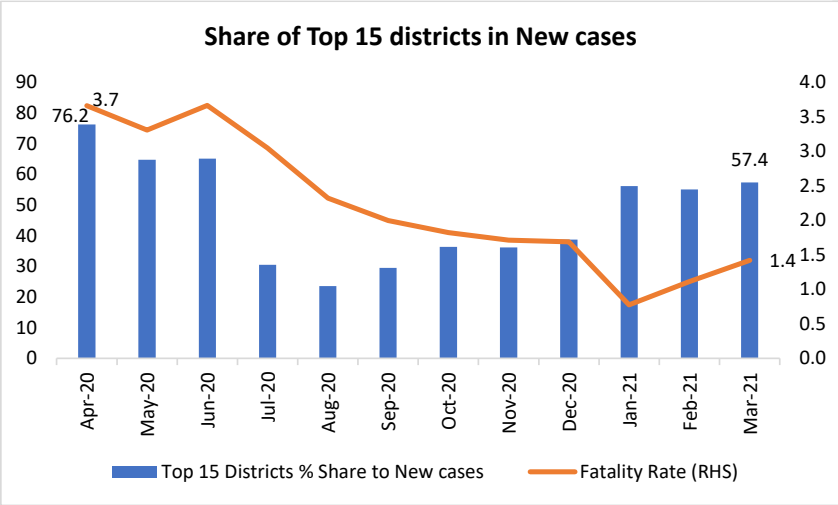
Spread of infection faster in certain states during the current wave compared to first wave

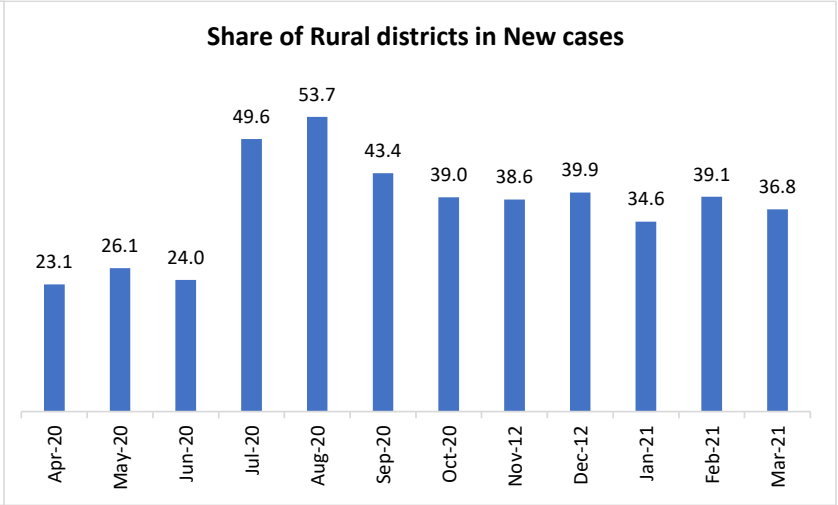
- If we consider the days required to reach the current level from the lowest level of daily new cases witnessed in Feb'21, overall number of days that India took during the second wave is similar to what was during the first wave
- However, the difference lies in the speed of spread of infection in certain States like Gujarat, MP, Maharashtra, Punjab and Chhattisgarh, where the cases have increased at a much faster pace during the current second wave
- Notably, Maharashtra alone accounts for majority of the daily new cases currently. Considering the number of days from the current level of daily new cases to the peak level during the first wave, India might reach the peak in the second half of April



India- share of top 15 districts rose in the last 3 months; Rural share almost constant

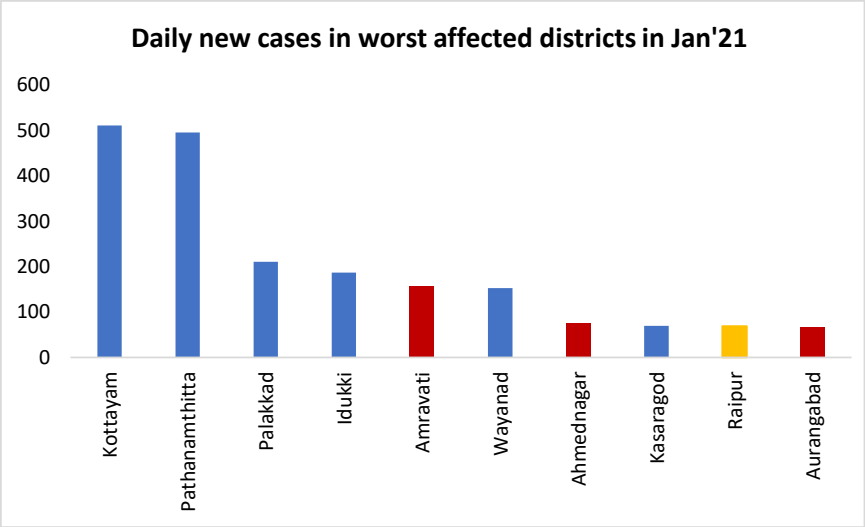
- New cases in top 15 districts, which are mostly urban increased this year. Cases are still concentrated
- Fatality rate in top 15 districts has also risen
- However, the good thing is that the share of rural districts in new cases is also almost constant over the past few months

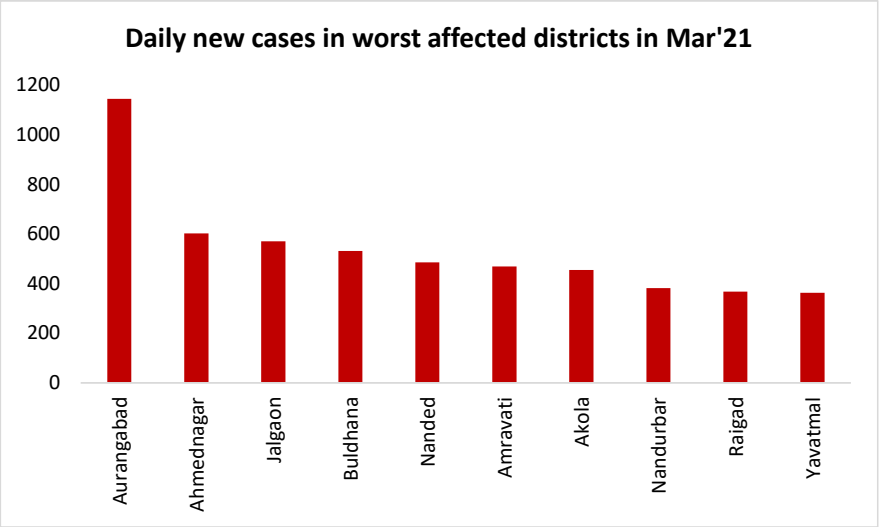




Worst affected rural districts shifted to Maharashtra in Mar'21 from Kerala in Jan'21!

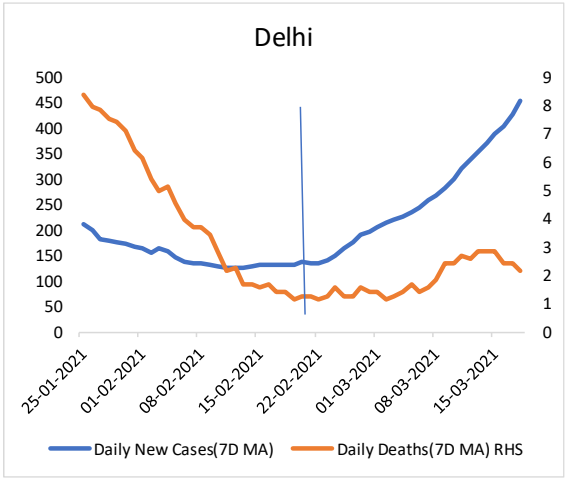
- Kerala had maximum number of worst affected districts in Jan'21. But it managed the situation well
- However, now all districts amongst top 10 worst affected rural districts are from Maharashtra

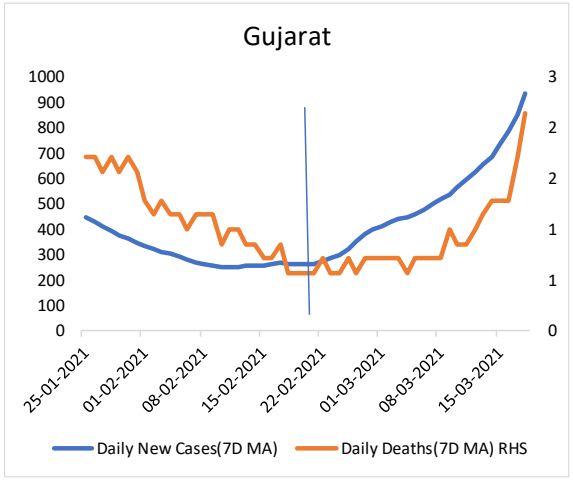


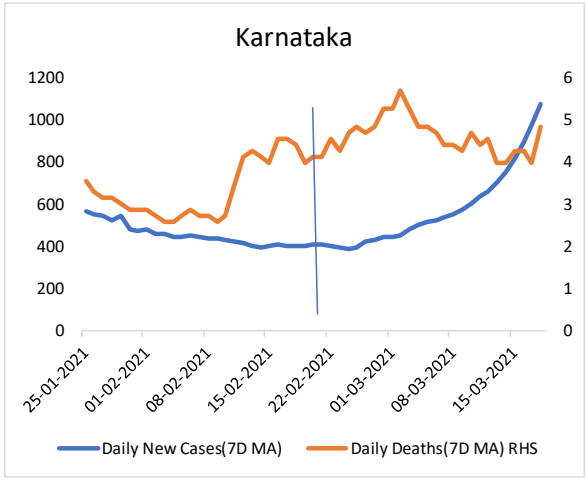


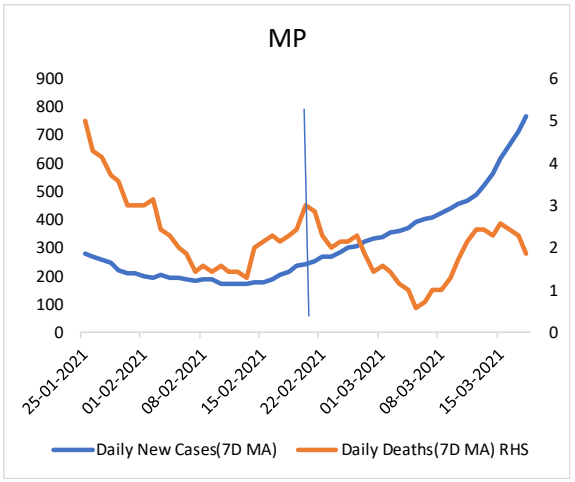
Lockdown – Does it really help? -I

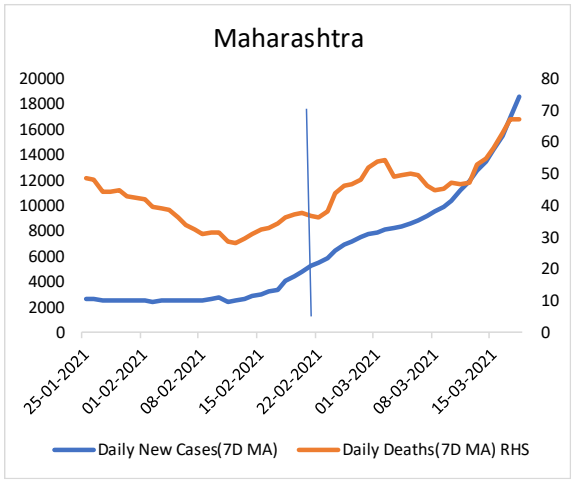
- The cases and death rate both seem to be unaffected with lockdown or restrictions imposed, as is clearly visible in case of many states

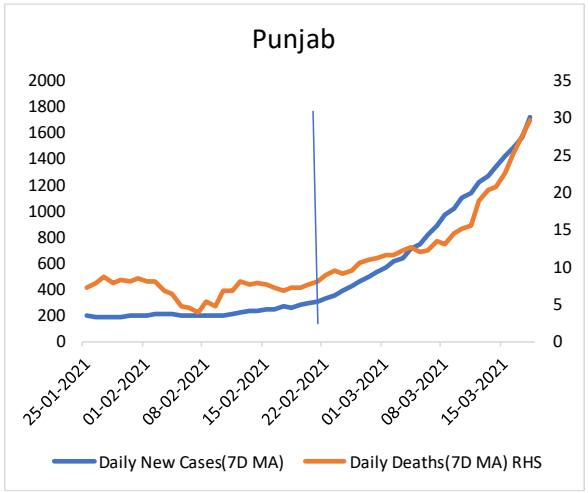






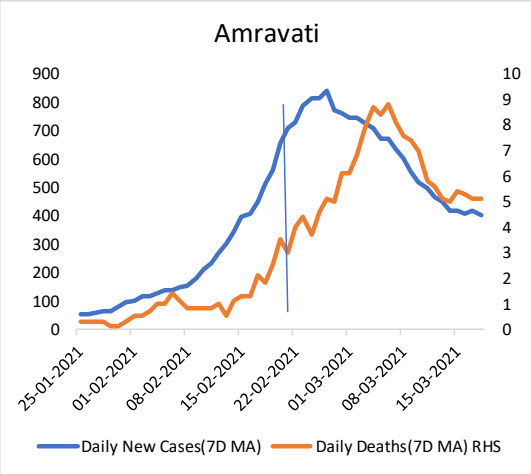


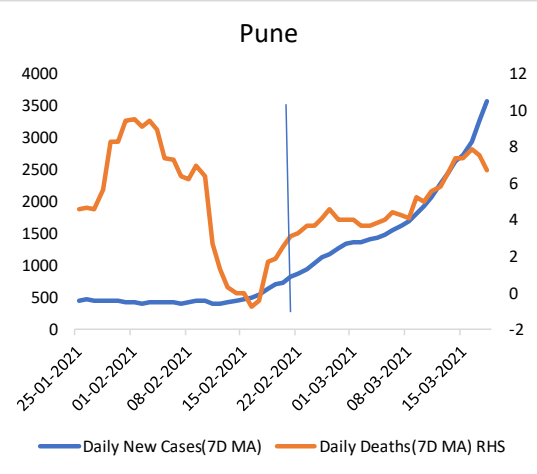


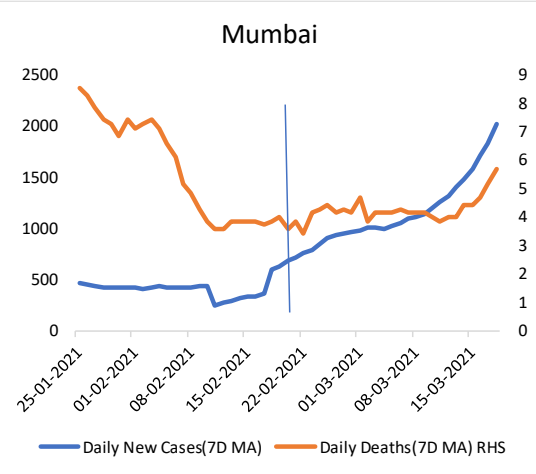


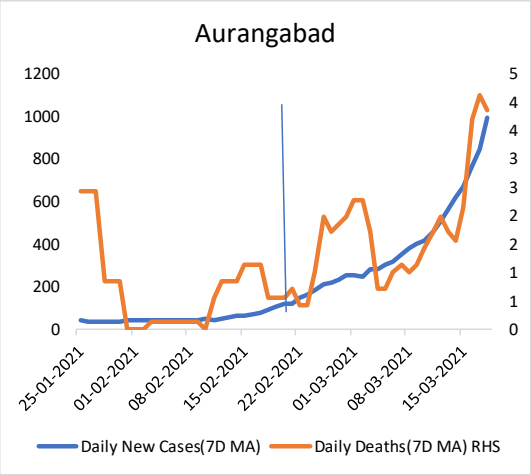
Lockdown – Does it really help? -II

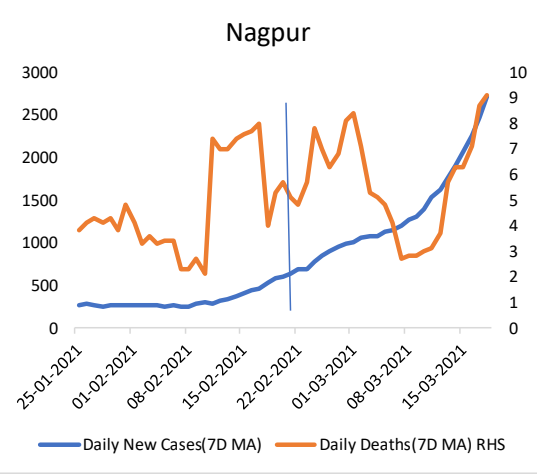
- Even the districts, except for Amravati show that daily new cases and death rate both continue to rise even after lockdown or restrictions are imposed

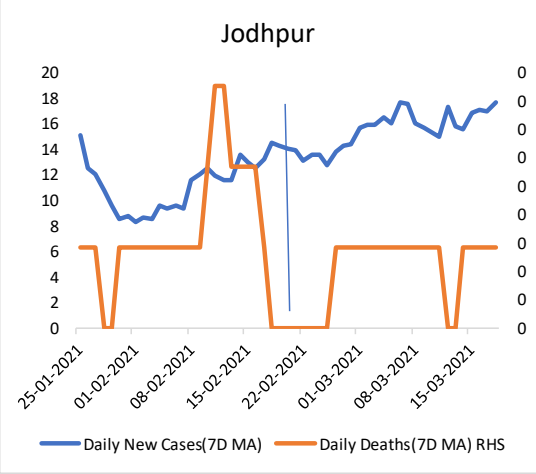












Independent study also reveals that loss to livelihood due to lockdown far greater than its benefits

- The loss arising of such restrictions and lockdowns in terms of livelihood loss and hunger and disease is much severe

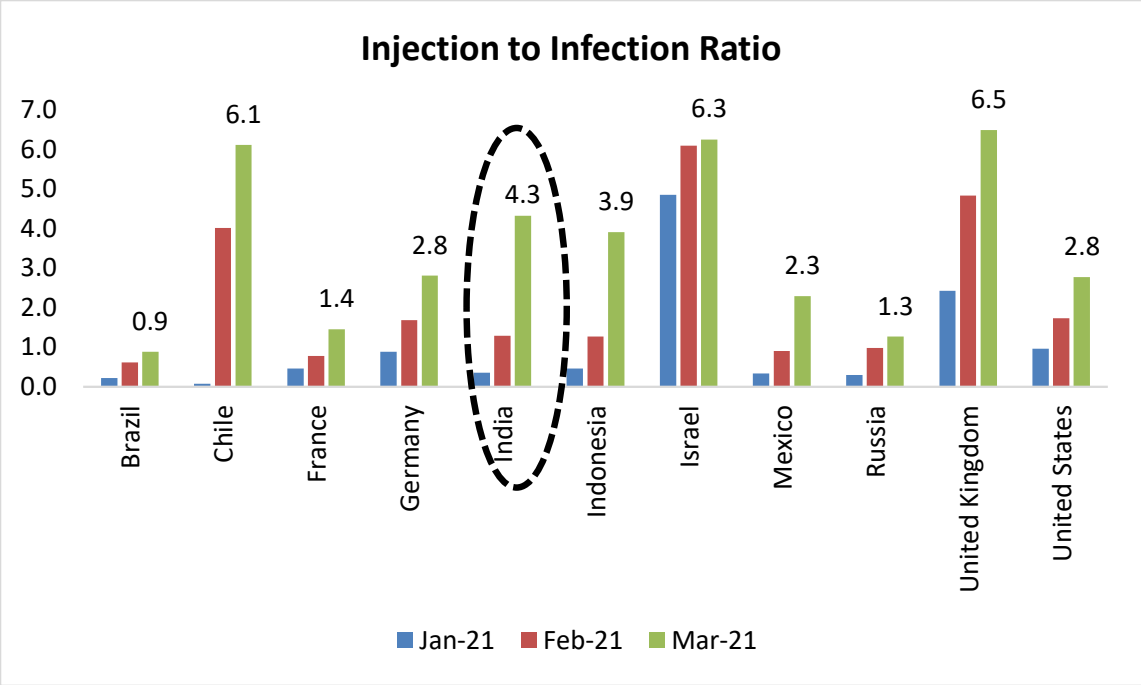
- Independent research (Elizabeth Bogan, Princeton University) suggests that much of the argument for shutting down today is based on a 2007 study of the Great Pandemic flu of 1918-19, by Hatchett, Mecher and Lipsitch. Quoting their study, "…closure of schools, churches, and theatres, was associated with lower peak death rates, but no single intervention showed an association with improved aggregate outcomes for the 1918 phase of the pandemic. These findings support the hypothesis that rapid implementation of multiple non-pharmaceutical interventions (NPIs) can significantly reduce influenza transmission, but that viral spread will be renewed upon relaxation of such measures…"

- Amongst other NPIs considered (closure of dance halls, other closures, isolation of cases, bans on public funerals, and making influenza notifiable), none showed a statistically significant association between the stage of implementation and the peak or cumulative excess death rates

- Also, second wave occurred only after the restrictions imposed were relaxed. If highly effective NPIs are put in place early in the epidemic, and these result in a smaller epidemic, then a large proportion of the population will remain susceptible to the renewed spread of the virus once interventions are relaxed. In the absence of an effective method of otherwise inducing immunity in the uninfected population (i.e., a well matched vaccine), such an epidemic is likely to have two phases, with the first phase mitigated by NPIs and the second commencing after NPIs are relaxed

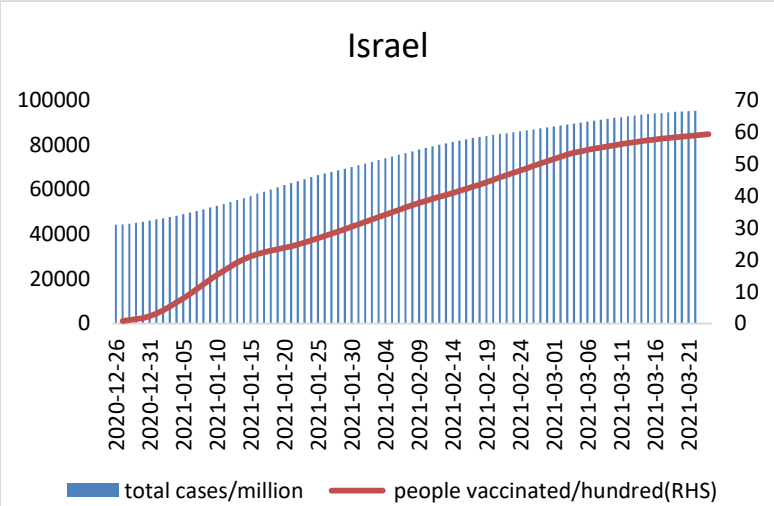
Global Vaccination drive: Injection to Infection ratio

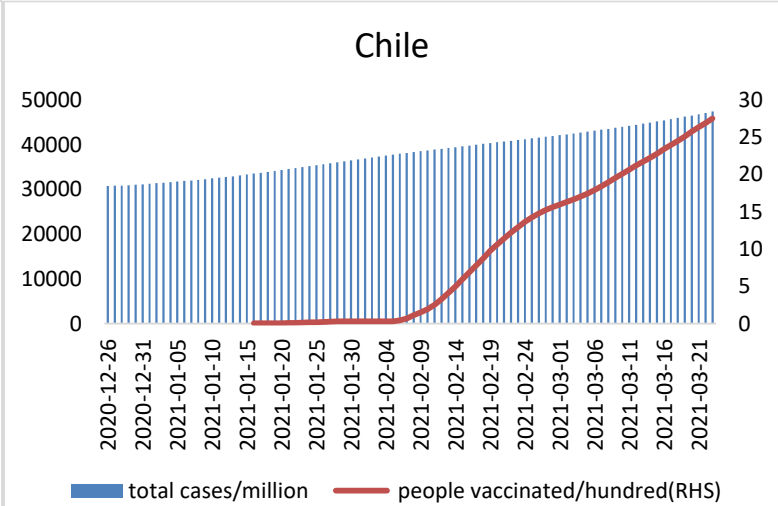
- Injection to infection ratio shows India doing best across emerging economies

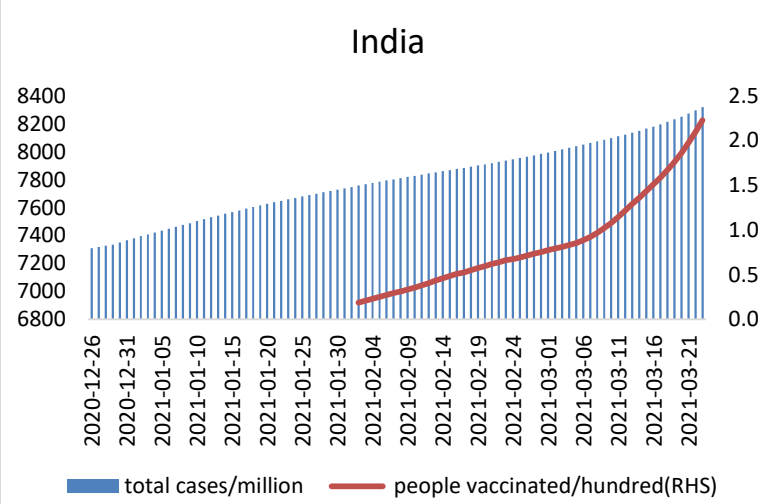


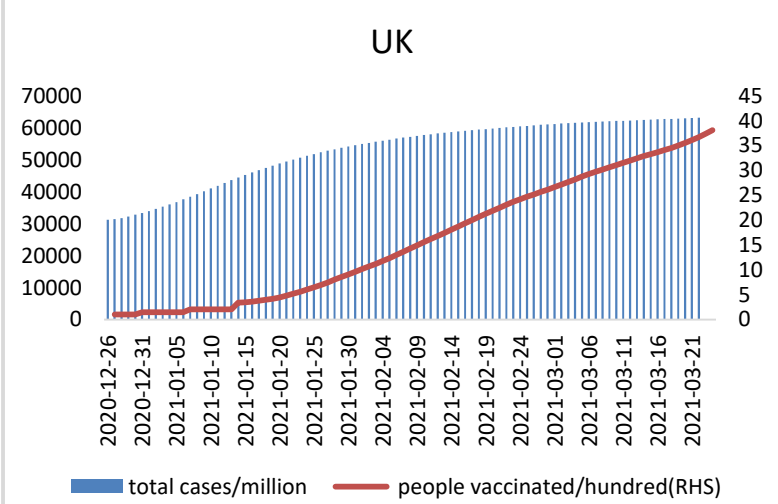
Pace of vaccination/hundred population in India is much higher !

- Vaccinations per 100 people show steep increase in vaccination speed in case of India compared to other countries where larger population has been given the shot

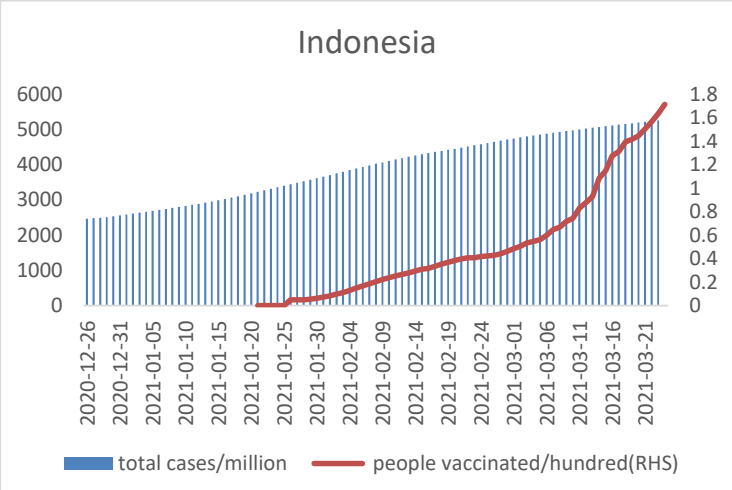


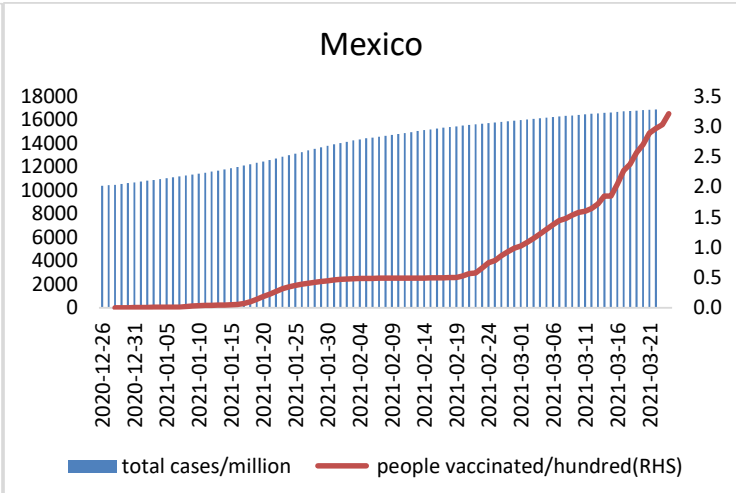


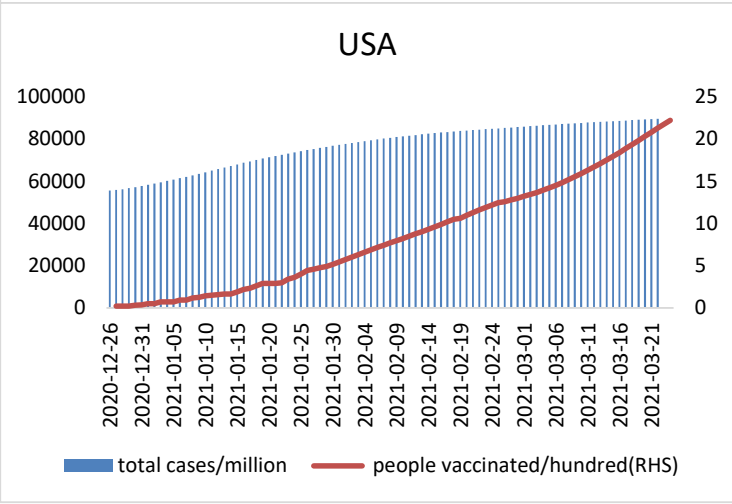


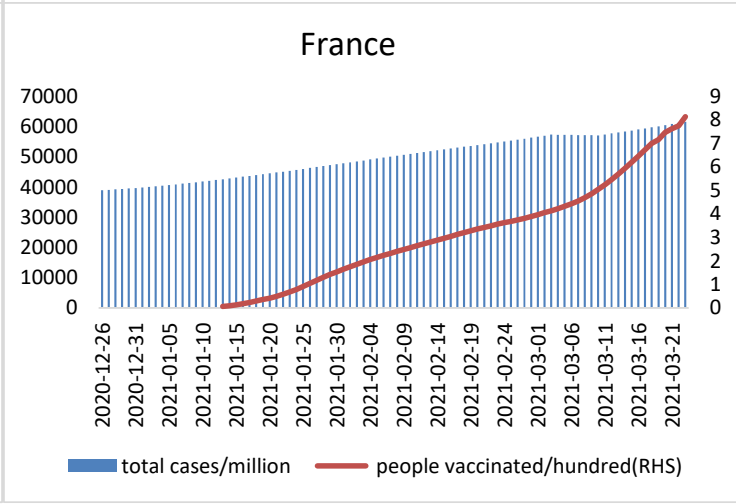


Certain other countries have also picked up speed



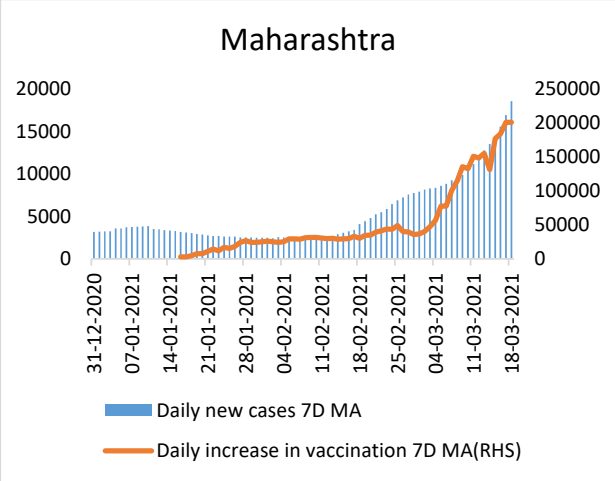


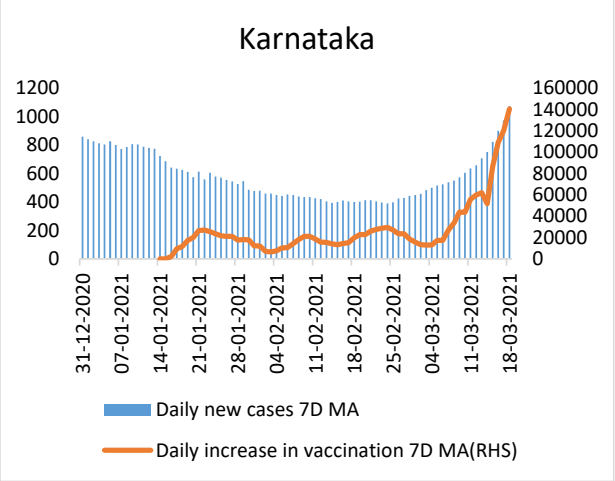


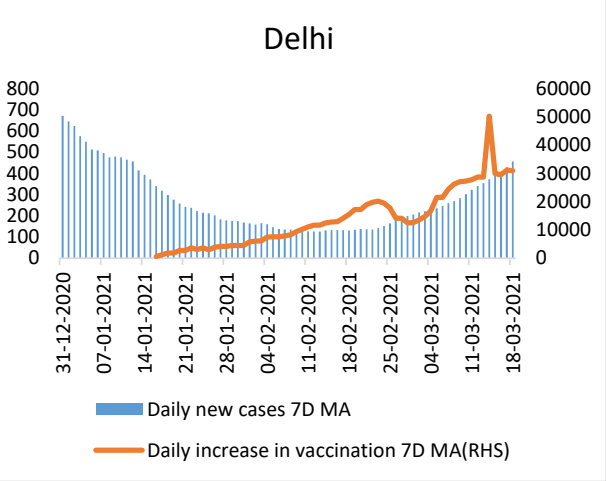


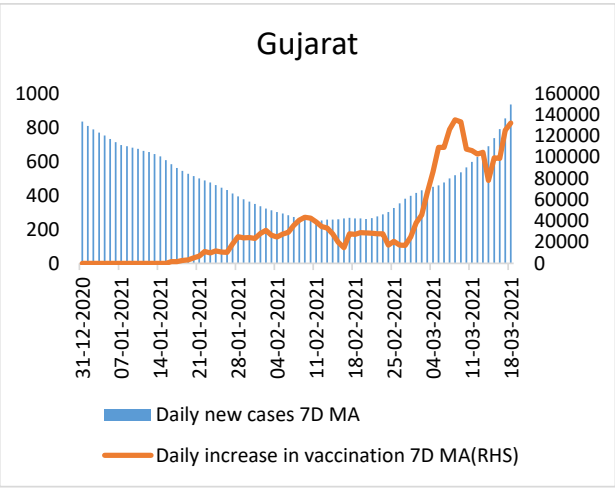
India Vaccination drive: Increasing inoculation but cases are rising rapidly

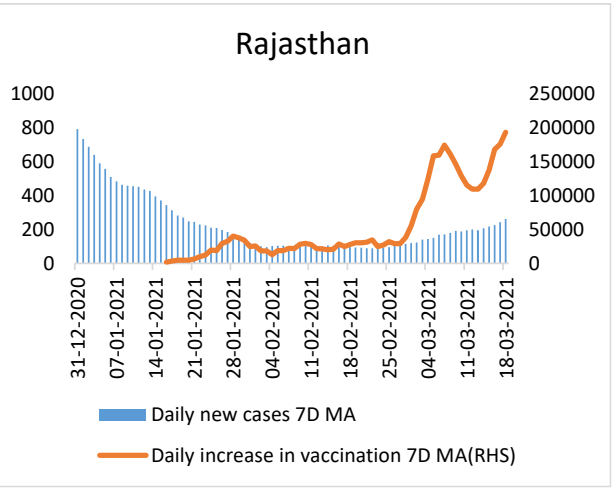
- Major states, excluding Kerala and Rajasthan are already in the second wave of infection even though vaccination inoculation is increasing rapidly

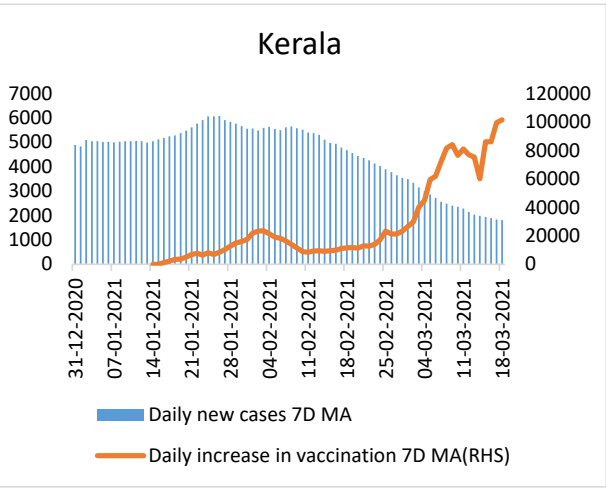






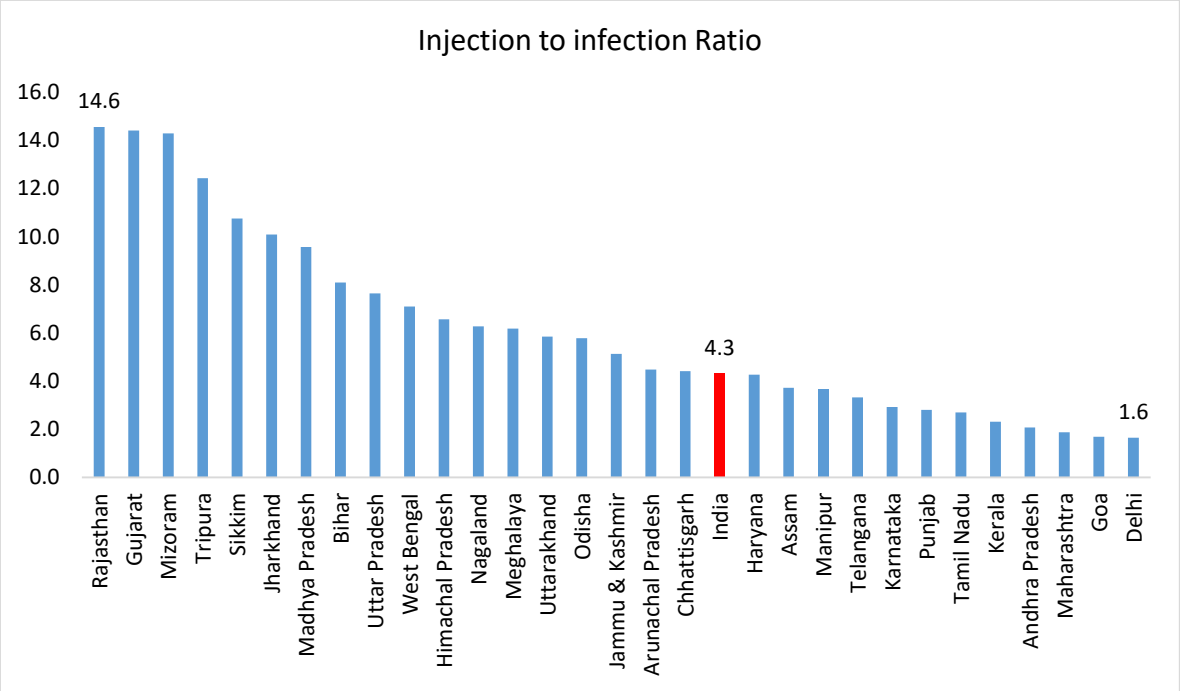






Many major states including Rajasthan, Gujarat, MP, UP have higher Injection to Infection ratio than overall India's average

- Injection to Infection ratio for many states, including Mizoram, Rajasthan, Gujarat, Tripura, Sikkim, Madhya Pradesh have higher injection to infection ratio, much higher than the overall average
- Meanwhile, Delhi, Maharashtra, Punjab, Andhra Pradesh have inoculated less number of people compared to spread of infection



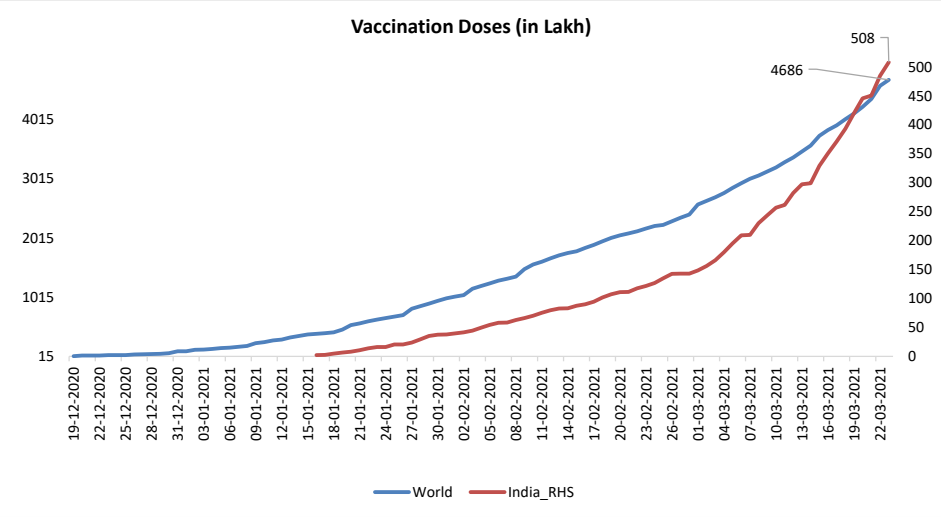
States with higher proportion of elderly (Punjab, Tamil Nadu, AP, Maharashtra and West Bengal) must step up their vaccination speed

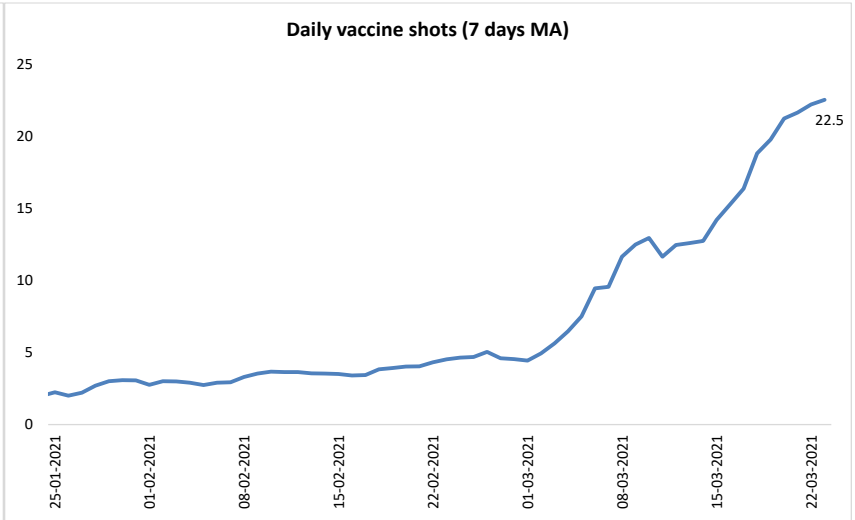
- Certain states like Rajasthan, Gujarat, Kerala, Uttarakhand, Haryana have vaccinated more than 20% of their elderly population (above 60 years)
- However, other states with higher elderly population (>60 years) including Punjab, Tamil Nadu, Andhra Pradesh, Maharashtra and West Bengal have vaccinated less percentage of their elderly population and thus must increase their pace of inoculation

State wise population age group & vaccine doses					
	Age: 45-59		Age: 60+		
State	Population (million)	Share in Total	Population (million)	Share in Total	% of above 60 population given vaccine
Rajasthan	8.7	11.0%	6.4	8%	42%
Gujarat	9.0	13.3%	6.7	10%	31%
Kerala	6.4	18.0%	5.8	16%	24%
Uttarakhand	1.4	11.9%	1.1	10%	24%
Haryana	3.3	11.7%	2.7	10%	22%
Chhattisgarh	3.5	12.2%	2.5	9%	22%
Himachal Pradesh	1.1	14.5%	0.9	12%	21%
Odisha	6.1	13.5%	4.9	11%	20%
Delhi	2.3	12.6%	1.8	10%	19%
Madhya Pradesh	9.4	11.4%	6.8	8%	19%
Karnataka	9.0	13.7%	7.3	11%	19%
Jharkhand	4.2	11.2%	3.2	8%	17%
India	167.4	12.4%	130.6	10%	16%
West Bengal	13.8	14.1%	10.9	11%	16%
Maharashtra	15.9	13.2%	13.9	12%	16%
Jammu & Kashmir	1.5	11.2%	1.2	9%	15%
Uttar Pradesh	23.5	10.3%	18.1	8%	10%
Andhra Pradesh	7.0	13.3%	6.3	12%	10%
Bihar	12.3	10.0%	9.5	8%	9%
Assam	3.9	11.7%	2.6	8%	7%
Tamil Nadu	12.2	16.0%	10.1	13%	7%
Punjab	4.1	13.7%	3.7	12%	6%

India can vaccinate entire population above 45 years age by July'21 at consistent 45 lakhs inoculation per day

- So far India has given 508 lakh shots in a span of 67 days, or 7.9 lakh shots per day
- India has 40,484 vaccine centres (35,042 Government and 5,442 Private) in India. Overall we have 25,743 PHCs, 5,624 CHCs, 25,778 Government Hospitals, 529 medical colleges and around 43,000 private hospitals, totalling 1,00,674 potential centres, i.e.3 times the existing centres used for vaccination. Thus going by the health infrastructure we have the capacity to increase the daily doses to around 1 crore per day from the current 34 lakhs per day
- But daily production capacity of Covishield and Covaxin is around 52 lakhs per day, and there is export of vaccines as well
- Thus, if we assume more number of people are willing to take vaccines and the daily vaccine inoculation increases to 40-45 lakhs from the current maximum level of 34 lakhs, then the entire population will be vaccinated in 1 year 9 months and with this capacity we can vaccinate our population above 45 years in 4 months





Higher pace of vaccination – the only way to control COVID-19 menace!

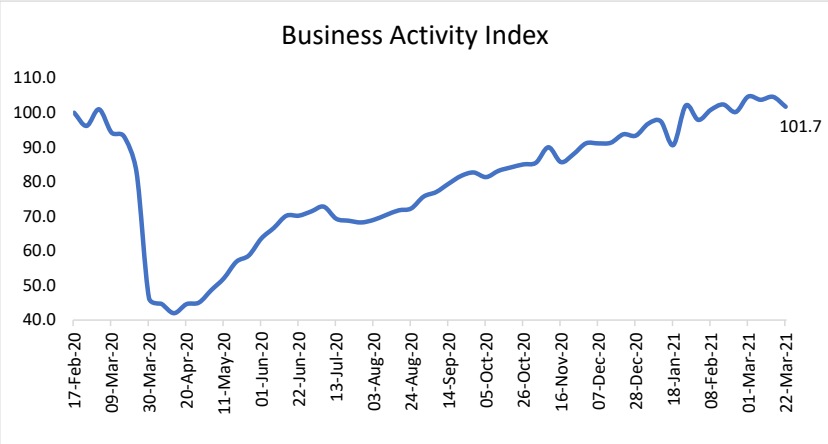
- According to a study 'Market design to accelerate COVID-19 vaccine supply' by Camillo Castillo et al, installed capacity for 3 billion annual vaccine courses has a global benefit of $17.4 trillion, over $5800 per course. Investing now in expanding capacity for an additional annual 1 billion courses could accelerate completion of widespread immunization by over 4 months, providing additional global benefits of $576 to $989 per vaccine course
- With more vaccinations getting approved, the Government should sign contracts in advance of clinical approval, thus shouldering some of this risk and incentivizing firms to install capacity earlier
- Furthermore, the enormous global benefits of additional vaccine capacity ($576 to $989 per annual course by their estimate) compared to prices of $6 to $40 obtained by vaccine producers in deals to date suggest a wide gap between social and commercial incentives for vaccine capacity. Economic principles of market and contract design can help bridge the gap, allowing society to realize the large potential gains at reasonable cost
- Contracts should include provisions for installing new capacity dedicated to the buyer rather than only specifying a quantity of vaccine courses. Buyers could try to eliminate delays by specifying deadlines for delivery, these may slip (as many existing contracts have) unless backed by late penalties. Paying up front for capacity may end up being cheaper for Governments. Governments should invest in supply-chain capacity for intermediate goods needed to make vaccines
- To facilitate efficient allocation across countries, a vaccine exchange mechanism is under consideration by COVAX. The mechanism would enable countries to engage in mutually beneficial trades of vaccine courses

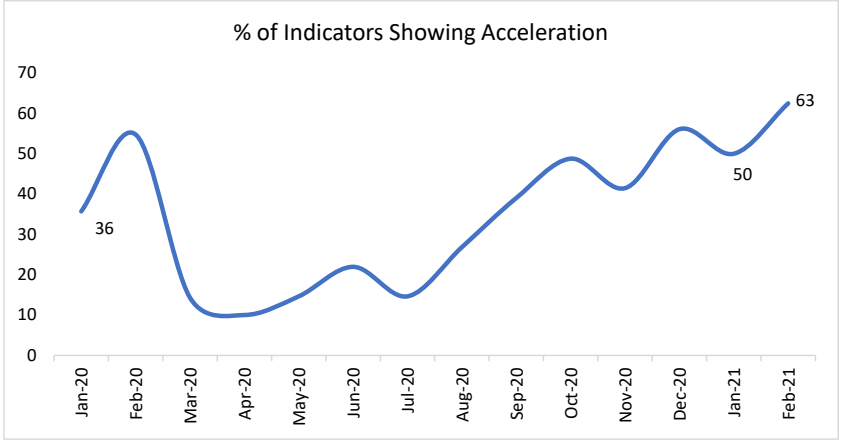
Economic Indicators

Business activity index shows sharp decline in activity in the recent week

- Business activity Index based on high frequency indicators has declined in the recent week ending 22 Mar'21 with the latest value at 101.7 (lowest in 1 month) from 104.6 in the previous week

- Meanwhile, % of leading indicators showing acceleration has increased to 63% in Feb'21, indicating positive momentum before the second wave started





*Feb'21 based on available data

Google Mobility is declining as cases continue to increase -I

- Google mobility since Dec'21 has declined marginally in all categories in India
- Some states including Maharashtra, Chhattisgarh and Madhya Pradesh have witnessed a decline in mobility associated with higher spread of infection since Dec'21

Change in Google mobility index since Dec'20									
States	Date	Retail & recreation	Grocery & pharmacy	Parks	Transit stations	Workplaces	Residential	Confirmed cases	% to total
India	31-12-2020	-18	21	-12	-4	-18	11	10286312	
	22-03-2021	-22	17	-11	-7	-17	8	11686330	
	Change	-4	-4	1	-3	1	-3	1400018	12.0
Maharashtra	31-12-2020	-23	20	-23	-14	-28	13	1932112	
	22-03-2021	-34	10	-27	-17	-26	13	2504327	
	Change	-11	-10	-4	-3	2	0	572215	22.8
West Bengal	31-12-2020	-16	18	-1	-1	-10	11	552063	
	22-03-2021	-24	6	-9	-8	-17	9	580999	
	Change	-8	-12	-8	-7	-7	-2	28936	5.0
Delhi	31-12-2020	-24	-1	-45	-24	-29	10	625369	
	22-03-2021	-29	2	-20	-14	-24	5	648872	
	Change	-5	3	25	10	5	-5	23503	3.6
Gujarat	31-12-2020	-30	2	-35	-12	-14	13	245038	
	22-03-2021	-25	11	-27	-6	-13	6	288649	
	Change	5	9	8	6	1	-7	43611	15.1
Karnataka	31-12-2020	-24	21	-26	-5	-33	12	919496	
	22-03-2021	-26	13	-21	-8	-28	11	971647	
	Change	-2	-8	5	-3	5	-1	52151	5.4
Uttarakhand	31-12-2020	4	28	23	24	-8	10	90920	
	22-03-2021	-4	34	-2	21	-1	5	98552	
	Change	-8	6	-25	-3	7	-5	7632	7.7
Chhattisgarh	31-12-2020	-14	27	-3	-3	-10	10	279575	
	22-03-2021	-17	21	5	-5	-12	8	325678	
	Change	-3	-6	8	-2	-2	-2	46103	14.2
Punjab	31-12-2020	-15	11	-30	-18	-19	9	166522	
	22-03-2021	-20	15	-13	-19	-18	1	215409	
	Change	-5	4	17	-1	1	-8	48887	22.7
MP	31-12-2020	-17	21	-13	0	-10	12	241791	
	22-03-2021	-20	19	-12	-3	-11	9	277075	
	Change	-3	-2	1	-3	-1	-3	35284	12.7

Google Mobility is declining as cases continue to increase -II

- In case of districts where lockdown/restrictions have been imposed, there has been a notable reduction in mobility (retail recreation, grocery, parks, transit stations and even workplaces), while the cases have increased significantly, particularly in Amravati, Nagpur, Aurangabad and Pune

Change in Google mobility index since Dec'20									
Districts	Date	Retail & recreation	Grocery & pharmacy	Parks	Transit stations	Workplaces	Residential	Confirmed cases	% to total
Aurangabad	31-12-2020	-16	28	-49	8	-18	15	53104	
	22-03-2021	-29	12	-43	-9	-22	15	76109	
	Change	-13	-16	6	-17	-4	0	23005	30.2
Amravati	31-12-2020	-16	16	-5	-3	-11	16	20064	
	22-03-2021	-41	-15	-25	-29	-30	21	46344	
	Change	-25	-31	-20	-26	-19	5	26280	56.7
Nagpur	31-12-2020	-23	36	-31	-10	-18	14	125232	
	22-03-2021	-67	-22	-58	-31	-43	26	200208	
	Change	-44	-58	-27	-21	-25	12	74976	37.4
Pune	31-12-2020	-26	7	-37	-4	-41	14	372655	
	22-03-2021	-34	-3	-38	-12	-35	15	475471	
	Change	-8	-10	-1	-8	6	1	102816	21.6
Jodhpur	31-12-2020	-22	-4	-16	-7	-16	14	43835	
	22-03-2021	-16	-1	-10	3	-10	7	45574	
	Change	6	3	6	10	6	-7	1739	3.8
Ahmedabad	31-12-2020	-35	-2	-50	-17	-22	14	57634	
	22-03-2021	-30	7	-32	-7	-18	8	67354	
	Change	5	9	18	10	4	-6	9720	14.4

Bank Credit & Advances have picked up pace

- Both bank credit and deposits have picked up pace in Feb'21 after dipping in Jan'21
- In Mar'21 again, the incremental credit and deposits will increase further

Deposits and Advances - Incremental Variation (Rs Bn)					
Products	Dec-20	Jan-21	Feb-21	YTD Till 26 Feb'21	YoY (26 Feb'21)
Demand Deposits	1065	87	1243	12800	13642
Time Deposits	285	710	118	863	2434
Aggregate deposits	1350	797	1361	13663	16076
Loan cash credit and Overdrafts	1912	59	611	4374	6990
Inland Bills Purchased	3	3	27	6	8
Inland Bills Discounted	47	31	48	-335	-281
Foreign Bills Purchase	15	-7	8	-18	-26
Foreign Bills Discounted	10	-2	7	12	9
Bank Credit	1986	83	702	4040	6699

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