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February 2021 | ISSUE 01

PERFECT 7

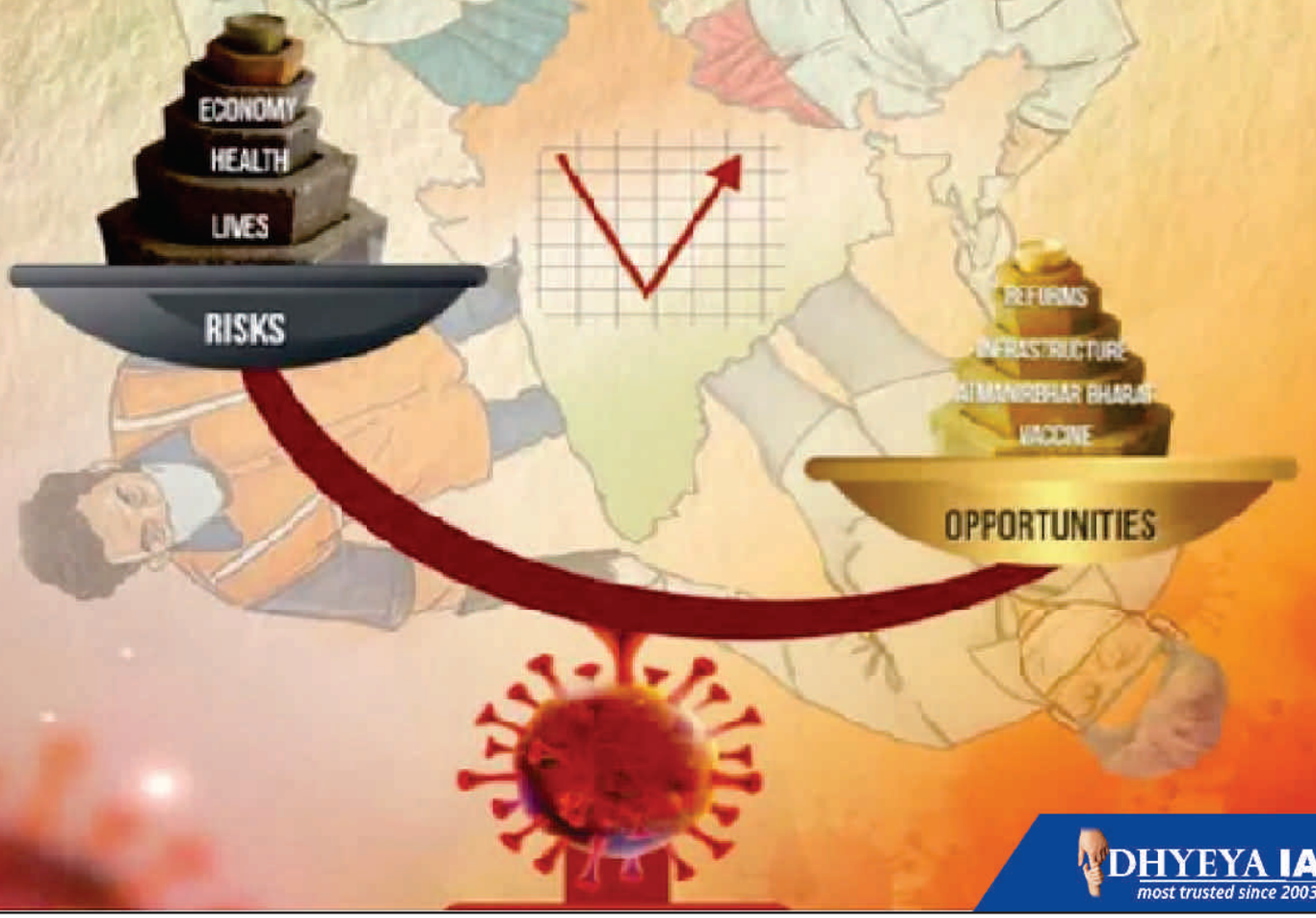
Weekly Current Affairs

An Initiative of Dhyeya IAS

Special Issue on

ECONOMIC SURVEY 2020-21

Volume-I



DHYEYA IAS
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DHYEYA IAS : AN INTRODUCTION

Vinay Kumar Singh
Founder & CEO

The guiding philosophy of the institute, throughout, has been creation of knowledge base. Dhyeya IAS inculcates human values and professional ethics in the students, which help them make decisions and create path that are good not only for them, but also for the society, for the nation, and for the world as whole. To fulfill its mission in new and powerful ways, each student is motivated to strive towards achieving excellence in every endeavor. It is done by making continuous improvements in curricula and pedagogical tools.

The rigorous syllabi not only instills in them, a passion for knowledge but also attempts to teach them how to apply that knowledge in real-life situations. The programmes lay emphasis on well-rounded personality development of the students and also in inculcating the values of honesty and integrity in them.

Q.H. Khan
Managing Director

Dhyeya IAS is an institution that aims at the complete development of the student. Our faculty are hand-picked and highly qualified to ensure that the students are given every possible support in all their academic endeavors. It is a multi-disciplinary institution which ensures that the students have ready access to a wide range of academic material.

Our brand of education has broad horizons as we believe in exposure. Our students are encouraged to widen their knowledge base and study beyond the confinements of the syllabus. We aim to lend a gentle guiding hand to make our students recognize their inner potential and grow on their own accord into stalwarts of tomorrow's society.

PERFECT 7 : AN INTRODUCTION

Kurban Ali
Chief Editor

With immense pleasure I would like to inform you that the new version of **'Perfect 7'**, from the Dhyeya IAS, is coming with more information in a very attractive manner. Heartily congratulations to the editorial team. The **'Perfect 7'** invites a wider readership in the Institute. The name and fame of an institute depends on the caliber and achievements of the students and teachers. The role of the teacher is to nurture the skills and talents of the students as a facilitator. This magazine is going to showcase the strength of our Institute. Let this be a forum to exhibit the potential of faculties, eminent writers, authors and students with their literary skills and innovative ideas.

Please do visit our website www.dhyeyaias.com and our youtube channel for regular and updated information on current affairs.

Ashutosh Singh
Managing Editor

We have not only given the name **'Perfect 7'** to our magazine, but also left no stone unturned to keep it 'near to perfect'. We all know that beginning of a task is most vital and full of challenges. So we met the same fate.

Publishing **'Perfect 7'** provided us various challenges because from the beginning itself we kept our bar too high to ensure the quality. Right from the very first issue we had a daunting task to save aspirants from the 'misinformation' or 'overdose of information'. Focussing on civil services examination **'Perfect 7'** embodies in itself perfect friend and guide in your preparation. This weapon is built to be precise yet comprehensive. It is not about bombardment of mindless facts, rather an analysis of various facets of the issues, selected in a systematic manner. We adopted the 'Multi Filter' and 'Six Sigma' approach, in which a subject or an issue is selected after diligent discussion on various levels so that the questions in the examination could be covered with high probability.

Being a weekly magazine there is a constant challenge to provide qualitative study material in a time bound approach. It is our humble achievement that we feel proud to make delivered our promise of quality consistently without missing any issue since its inception.

Your suggestions and popular demands always motivate us and keep our morale high.

May this version of **'Perfect 7'** instill a new energy and a new spirit in you. We wish that the bond of affection between you and Dhyeya IAS reaches at a new height.

PREFACE

Dhyeya family has decided to bring a new colourful and vibrant version of **'Perfect 7'** – a panacea for current affairs, which will add positive and dynamic energy in your preparation.

'Perfect7' is an outstanding compilation of current affairs topics as per the new pattern of Civil Services Examination (CSE). It presents weekly analysis of information and issues (national and international) in the form of Articles, News Analysis, Brain Boosters, PIB Highlights and Graphical Information, which helps to understand and retain the information comprehensively. Hence,**'Perfect 7'** will build in-depth understanding of various issues in different facets.

'Perfect7' is our genuine effort to provide correct, concise and concrete information, which helps students to crack the CSE. This magazine is the result of the efforts of the eminent scholars and the experts from different fields. **'Perfect 7'** is surely a force multiplier in your effort and plugs the loopholes in the preparation.

We believe in environment of continuous improvement and learning. Your constructive suggestions and comments are always welcome, which could guide us in further revision of this magazine.

Omveer Singh Chaudhary

Editor
Dhyeya IAS

As a proud jewel of Dhyeya IAS, **'Perfect 7'** now comes in a new coloured avatar. **'Perfect 7'** is a quintessential part of your preparation strategy for Civil Services Examination. A regular and manageable dose of current affairs will now reach you in new format, making it more reader friendly. Our humble attempt to serve you is surely rewarded by your appreciations. It encourages us to innovate and provide the best as per our ability.

A dedicated team of experts at Dhyeya IAS toils night and day to make your dream of Civil Services come true. I heartily thank and express my gratitude to the esteemed readers and all the people involved in making this magazine a shining star in the galaxy of Dhyeya IAS.

Rajat Jhingan

Editor
Dhyeya IAS

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ECONOMIC SURVEY 2020-21

VOLUME-I

01

Saving Lives and Livelihoods Amidst a Once-in-a-Century Crisis

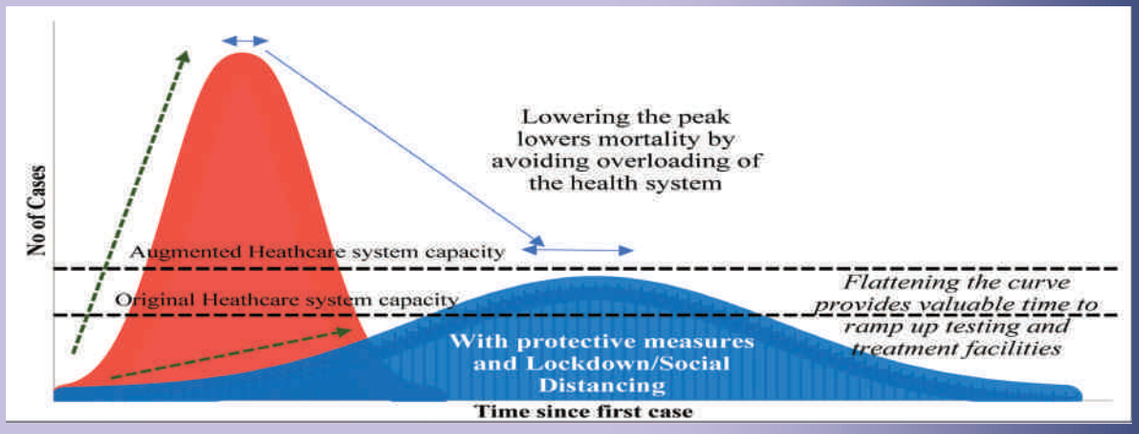
COVID-19: ONCE IN A CENTURY 'CRISIS'

- The world has endured a year of the unexpected onslaught by the novel COVID-19 virus -SARS-CoV-2 - first identified in Wuhan city of China in December 2019. The virus has posed an unprecedented challenge for policy making, globally and nationally. It has tested the mettle of policymakers to deal with uncertain, fluid, complex and dynamic situations having far-reaching socio-economic implications. It has also tested the frontiers of medical science, which rose to the challenge by developing an effective vaccine within a year.
- The pattern and trends in spread of the virus across major countries showed that confirmed cases spread exponentially once community transmission began. By the end of February 2020, the infection had spread to over 54 countries, infected more than 85,403 individuals across the world and resulted in around 3,000 deaths. The exponential rise in the number of cases being witnessed daily compelled the World Health Organization (WHO) to title this outbreak a pandemic on March 11, 2020 – within a period of three months of its emergence. Within a year, it has infected around 9.6 crore people growing at an average rate of 3.3 per cent per day. The number of daily cases is still rising with more than 6 lakh cases per day. The pandemic has accounted for 20.5 lakh death across 220 countries with a global case fatality rate of 2.2 per cent as of 15th January 2021. However, in the initial stages of the pandemic, the world average case fatality rate (CFR) was much higher at 5-6 per cent. These features have made the virus lethal.
- The only strategy that seemed viable for containment of the pandemic was active surveillance, early detection, isolation and case management, contact tracing and prevention of onward spread by practicing social distancing and safety precautions. Various non-pharmaceutical interventions (NPIs) – such as lockdowns, closure of schools and non-essential business, travel restrictions – were, therefore, adopted by countries across the globe. These were aimed to slow down the transmission of infection or 'flatten the epidemic curve' and buy the health care system some time to handle the surge in demand for its services and for development of an effective treatment and a vaccine.
- The world economy is estimated to contract in 2020 by 4.3 per cent, as per World Bank, and 3.5 per cent, as per IMF. The crisis World is facing today is unique in a number of ways. Firstly, the health crisis-induced global recession is in contrast with previous global recessions which were driven by confluences of a wide range of factors.
- Secondly, this recession is highly synchronized as the fraction of economies experiencing annual declines in national per capita is highest since 1870—more than 90 per cent, even higher than the proportion of about 85 per cent of countries in recession at the height of the Great Depression of 1930-32. The pandemic is, therefore, once in a 150-year event with an unprecedented impact with all regions in the world projected to experience negative growth in 2020. It is aptly called the 'Great Lockdown'.
- Thirdly, the present crisis is unique as it originated in a pandemic that required social distancing and limiting of physical interactions. Thus, inherent to the crisis there was the tradeoff – at least in the short run – between health and human lives, on the one hand, and the economy and livelihoods, on the other hand.
- The short-run trade-off presented countries with policy options that revealed policymakers' preferences for the "value" placed on human life versus the "price" of temporary economic restrictions. Unlike Oscar Wilde's cynic, "who knows

the price of everything and the value of nothing," India's policy response to the pandemic stemmed fundamentally from the humane principle advocated eloquently in the Mahabharata that "Saving a life that is in jeopardy is the origin of dharma."

Flattening the Curve

- Epidemiological research highlights that a key strategy to combat the spread of an epidemic is termed as "flattening the curve." The curve refers to the projected number of people who will contract the disease in a given population. The shape of the curve varies according to the rapidity with which the infection spreads in the community. There is a "peak" of the disease, where the number of infected individuals reaches a maximum, followed by a decline.



- The transmission potential is often summarized by the expected number of new infections caused by a typical infected individual during the early phase of the outbreak, and is usually denoted by the basic reproduction number, R0. It is simply the expected number of new cases of the disease caused by a single individual. Three possibilities exist for the potential transmission or decline of a disease, depending on its R0 value: (i) If R0 < 1, each existing infection causes less than one new infection and the disease eventually peters out; (ii) If R0 =1, each existing infection causes one new infection and will not lead to an outbreak or an epidemic and (iii) If R0 > 1, each existing infection causes more than one new infection and there may be an outbreak or epidemic. Occasionally, one person may transmit to tens or even hundreds of other cases - this phenomenon is called super-spreading.
- If individuals and communities take appropriate steps to reduce R0 and slow the spread of the virus, the cases would be stretched out across a longer period of time, thereby flattening the curve and avoiding overburden of the existing healthcare systems. It also buys time to potentially develop newer drugs and vaccines targeted at the virus.

RESEARCH-DRIVEN POLICY RESPONSE AMIDST UNPRECEDENTED UNCERTAINTY

- Two fundamental strategies to combat an epidemic are possible: (a) mitigation, which focuses on slowing the epidemic spread by reducing R0, and (b) suppression, which aims to reverse epidemic growth by reducing R0 below 1.

UNCERTAIN COVID-19 PARAMETERS IN MARCH 2020

- In Epidemiology, two factors are particularly important for evaluating the severity of a contagious disease: first, Case Fertilite Rate (CFR) or the fraction of individuals infected who lose their life due to the disease; second, the basic reproduction number R0 - the expected number of new cases of the disease caused by a single individual. However, both the indicators were uncertain at the onset of the pandemic and showed wide variation.
- Another key factor regarding uncertainty in both the CFR and R_0 was the fact that many cases were initially asymptomatic. This made it very difficult to ascertain the true number of individuals infected with COVID-19, and hence determine the CFR and R_0.
- When faced with enormous uncertainty, policies must be designed with the objective of minimizing large losses by selecting the policy that would be optimal under the worst-case scenario (Hansen and Sargent, 2001).

- COVID-19, therefore, presented before the world in March 2020 the predicament of which strategy to choose and whether to save 'lives' or 'livelihoods'.

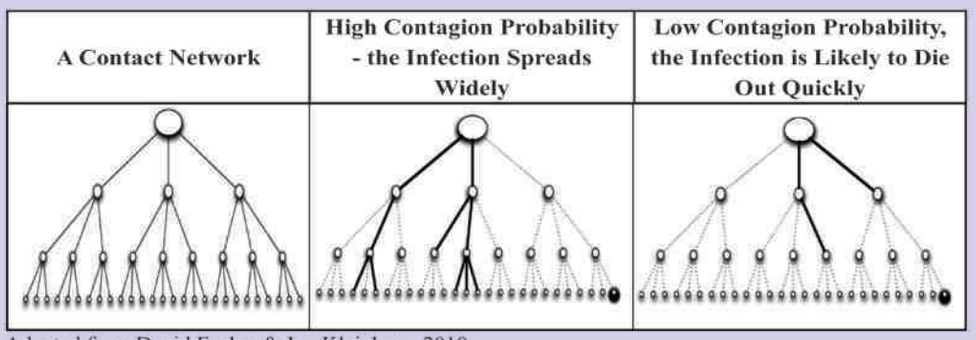
HIGHER SPEED OF TRANSMISSION POTENTIAL IN DENSE AREAS

- The virus would be transmitted faster when people live in close vicinity or work in close physical proximity in factories, or in service sectors with face-to-face interactions with the public. Two important factors that, then, become significant are the absolute population and population density.
- This is evident in the spread of COVID-19 wherein countries with higher population have shown higher caseloads and higher fatalities while countries with higher population density have shown higher caseloads though fatalities do not vary much with population density.

Network Effects of a Pandemic

- The transmission potential of an epidemic is measured by the basic reproduction number, R_0 - the expected number of new cases of the disease caused by a single individual. R_0 is an interplay between the number of people an infected person meets (k) and the probability with which he spreads the infection to the person he comes into contact with (p). Small changes in (k) and (p) can have a large effect when R0 is near 1. Suppose R_0 is very slightly below 1, and any one of the factors increases by a little bit; the result could push R_0 above 1, suddenly resulting in a positive probability of an enormous outbreak. The same effect can happen in the reverse direction as well, where slightly reducing the contagiousness of a disease to push R_0 below 1 can eliminate the risk of a large epidemic. This indicates that around the critical value $R_0 = 1$, it can be worth investing large amounts of effort even to produce small shifts in the basic reproductive umber by controlling each of the two factors. Both (p) and (k) would be impacted by the network structures in a population.

Mode of Contagion of an Epidemic



Adapted from David Easley & Jon Kleinberg, 2010
Note: Bold lines implies spread of infection in the contact network

- Infectious diseases spread through the human social network, and network effects are significant in influencing the spread of disease (David Easley & Jon Kleinberg, 2010). The patterns of spread of epidemics are determined not just by the roperties of the pathogen carrying it — including its contagiousness, the length of its infectious period, and its severity — but also by network structures within the population it is affecting. The social network within a population, i.e., the modes of interaction determines a lot about how the disease is likely to spread from one person to another.
- These epidemic models on networks help to determine the features affecting spread, how interaction within networks can be restricted, and in particular, how it is possible to reduce spreading by means of public health measures such as vaccination, (quicker) diagnosis and treatment, isolation, travel restrictions and so on. A key priority is, therefore, the early and rapid assessment of the transmission potential of any emerging infection.

EFFICACY OF LOCKDOWNS IN A PANDEMIC: LEARNINGS FROM SPANISH FLU

- Given the uncertainty and potency of the COVID-19 virus, it was prudent to learn from any earlier experience. The Spanish flu pandemic of 1918-19, was one of the deadliest in world history with peak of worldwide mortality in modern times, as it infected around 500 million persons, or about one-third of the world's population, and killed anywhere from 50 to 100 million people (Barro et al, 2020).

- Lockdowns implemented in 1918 resemble many of the policies used to reduce the spread of COVID-19, including school, theater, and church closures, public gathering and funeral bans, quarantine of suspected cases, and restricted business hours. Other public health interventions used were emphasis on hand-washing, sanitization practices and social/physical distancing.
- Hatchett et al., 2007 showed that cities in which multiple interventions were implemented at an early phase of the epidemic had peak death rates ~50 per cent lower than those that did not and had less-steep epidemic curves. For COVID-19 too, evidence showed that a combination of three interventions (face masks, physical distancing and handwashing) works better than a single intervention (D.Chu et al, 2020). The chances of infection were around 13 per cent when people maintained a distance of one metre – that reduced to a fifth, that is 2.6 per cent, when a distance of more than one metre was maintained.
- The economic effects of lockdowns could be both positive and negative. All else equal, lockdowns constrain social interactions and thus dampen any economic activity that relies on such interactions. While lockdowns lower economic activity, they have a salubrious effect by delaying the temporal effect of a pandemic, reducing the overall and peak attack rate, reducing the number of cumulative deaths, providing valuable time for production and distribution of pandemic-strain vaccine and antiviral medication and decreasing the burden on health care services and critical infrastructure.
- It also shows that implementing lockdowns earlier in the pandemic and using them more intensely produced significantly higher rates of growth in manufacturing output and employment from 1919 to 1923 than did slower activation or less intense use of lockdowns. Estimates from the study indicates that a one standard deviation increase in the speed of adopting lockdowns (8 days) is associated with 4 per cent higher growth of employment and 5 per cent higher output after the pandemic, while a one standard deviation increase in lockdown intensity leads to 6 per cent higher employment growth and 7 per cent higher output. The findings suggest that pandemics can have substantial economic costs, and lockdowns can lead to both better economic outcomes and lower mortality rates.
- The above learnings from research in epidemiology and economics, especially the research focused on the Spanish Flu, guided India's policy response. In sum, the learnings were as follows:
  a. The pandemic curve needs to be 'flattened' to spread the pandemic over time and enable more people to receive proper health treatment, thereby lowering the fatality rate ultimately.
  b. Given the network structures that affect the transmission of the pandemic, higher population can lead to faster spread of the pandemic.
  c. Denser areas are more vulnerable to faster spread of the virus and this effect is especially strong at the onset of the pandemic.
  d. Early lockdowns delay the time taken to reach the peak, reduces the magnitude of the peak, and thereby decreases the total mortality burden by providing valuable time to ramp up the health and testing infrastructure.
  e. Implementing lockdowns earlier in the pandemic and using them more intensely – while costly in the short-run – led to a much sharper economic recovery and reduced mortality as well.
  f. When faced with enormous uncertainty, policies must be designed with the objective of minimizing large losses by selecting the policy that would be optimal under the worst-case scenario.

INDIA'S HUMANE POLICY RESPONSE: SHORT-TERM PAIN, LONGTERM GAIN

- In the absence of a potent cure, preventive vaccine; interplay of network structures in densely populated areas, and a high CFR, India weighed the costs and opportunities strategically.
- Given the 'black swan event' marked by sheer uncertainty and once in a century crisis, Indian policymakers followed an approach similar to the Barbell strategy in finance – hedging for the worst outcome initially, and updating its response step-by-step via feedback. The clear objective of 'Jaan Hai to Jahan hai' and to 'break the chain of spread' before it reaches 'community transmission' helped the government face the dilemma of 'lives vs livelihood', pace the sequence of policy interventions and adapt its response as per the evolving situation. India was amongst the first of the countries that imposed a national lockdown when there were only 500 confirmed cases. The stringent lockdown in India from 25th

March to 31st May was necessitated by the need to break the chain of the spread of the pandemic. This was based on the humane principle that while GDP growth will come back, human lives once lost cannot be brought back.

- The 40-day lockdown period was used to scale up the necessary medical and para-medical infrastructure for active surveillance, expanded testing, contact tracing, isolation and management of cases, and educating citizens about social distancing and masks, etc. The lockdown provided the necessary time to put in place the fundamentals of the '5 T' strategy - Test, Track, Trace, Treat, Technology. As the first step towards timely identification, prompt isolation & effective treatment, higher testing was recognized as the effective strategy to limit the spread of infection. At the onset of the pandemic in January, 2020, India did less than 100 COVID-19 tests per day at only one lab. However, within a year, 10 lakh tests were being conducted per day at 2305 laboratories. The country reached a cumulative testing of more than 17 crore in January, 2021.
- The districts across India, based on number of cases and other parameters were classified into red, yellow and green zones. Across the country, 'hotspots' and 'containment zones' were strategy was increasingly adopted for intensive interventions at the local level as the national lockdown was eased. This enabled a smooth transition to 'Jaan bhi aur Jahan bhi'.
- The analysis in the chapter makes it evident that India was successful in flattening the pandemic curve, pushing the peak to September. India managed to save millions of 'lives' and outperform pessimistic expectations in terms of cases and deaths. It is the only country other than Argentina that has not experienced a second wave. It has among the lowest fatality rates despite having the second largest number of confirmed cases. The recovery rate has been almost 96 per cent. India, therefore, seems to have managed the health aspect of COVID-19 well.

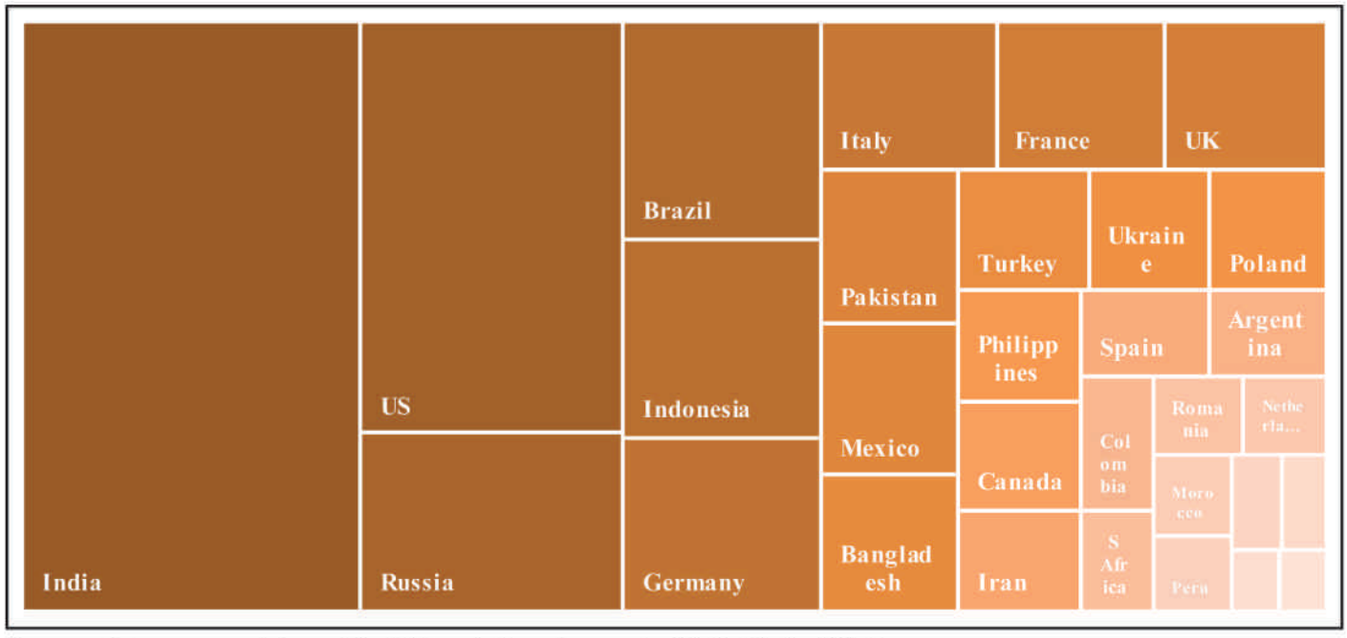
EFFICACY OF INITIAL LOCKDOWN IN CONTROLLING THE PANDEMIC

- COVID-19 prompted a wide range of responses from governments around the world. The Oxford COVID-19 Government Response Tracker (OxCGRT), provides a systematic way to track government responses to COVID-19 across countries. Common lockdowns used included school closings, travel restrictions, bans on public gatherings, emergency investments in healthcare facilities, new forms of social welfare provision, contact tracing, wide scale testing and other interventions to contain the spread of the virus, augment health systems, and manage the economic consequences of these actions. However, government policy responses have varied substantially—both across countries, and often within countries—in the measures that they have adopted and how quickly they have adopted them.

CROSS-COUNTRY ANALYSIS

- Survey has analyzed if the policy response across countries was effective in controlling the spread of the pandemic and associated fatalities across countries. To assess this, the counterfactual is estimated, i.e., what would have been the natural caseload and associated fatalities purely based on the population, population density and the demographics of the population.
- After estimating the natural caseload and fatalities, the actual cases and deaths are compared with these estimates. The analysis shows that India has been able to effectively manage both the spread of COVID-19 and the fatalities. India has 37.1 lakh less cases than what was estimated by the model while the actual cases in US are more than the estimated cases by 62.5 lakh cases.
- Although all age groups are at risk of contracting COVID-19, older people face significant risk of developing severe illness if they contract the disease due to physiological changes that come with ageing and potential underlying health conditions. Though India has a young population with only around 10 per cent share of people above 60 years of age, the population of people above 60 years of age is significantly higher in India than in any of the 30 countries that account for 86 per cent of the cases. If we take the total cases in India as estimated by the analysis above and apply the CFRs of countries with comparable proportion of old age people and CFRs of some worse affected countries, it is evident that India has been able to save a large number of lives.

Elderly Population (above 60 Years of Age) is Much Higher in India than Other Countries



Source: Data accessed from World Population Prospects 2019, United Nations

Estimated Lives Saved in India Using Case Fatality Rates (CFR) of Other Countries

Figure 14a: Using CFR of Countries with Similar Demographics

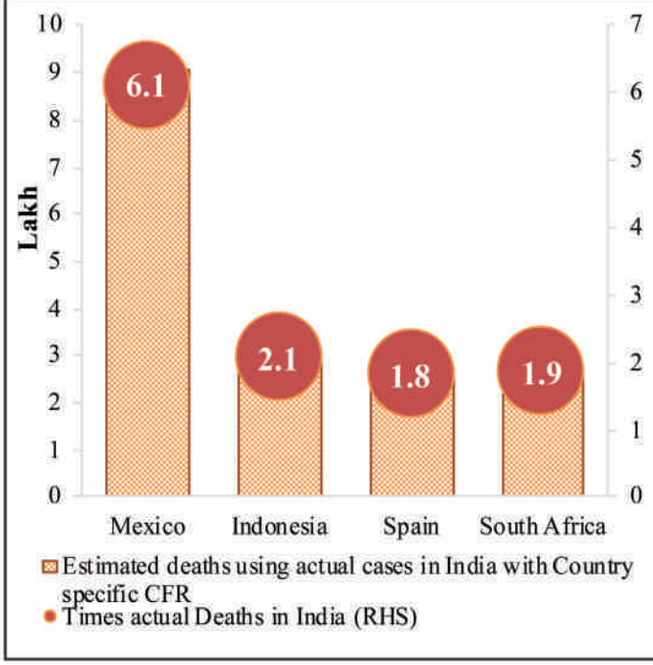
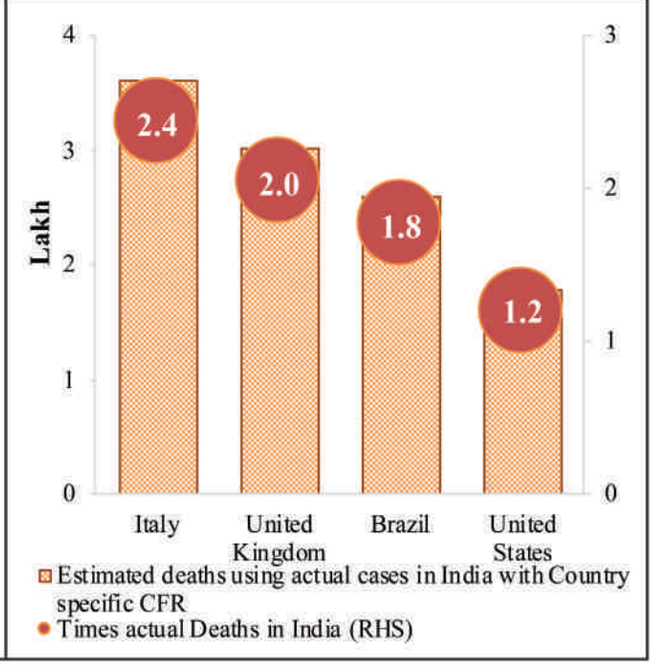


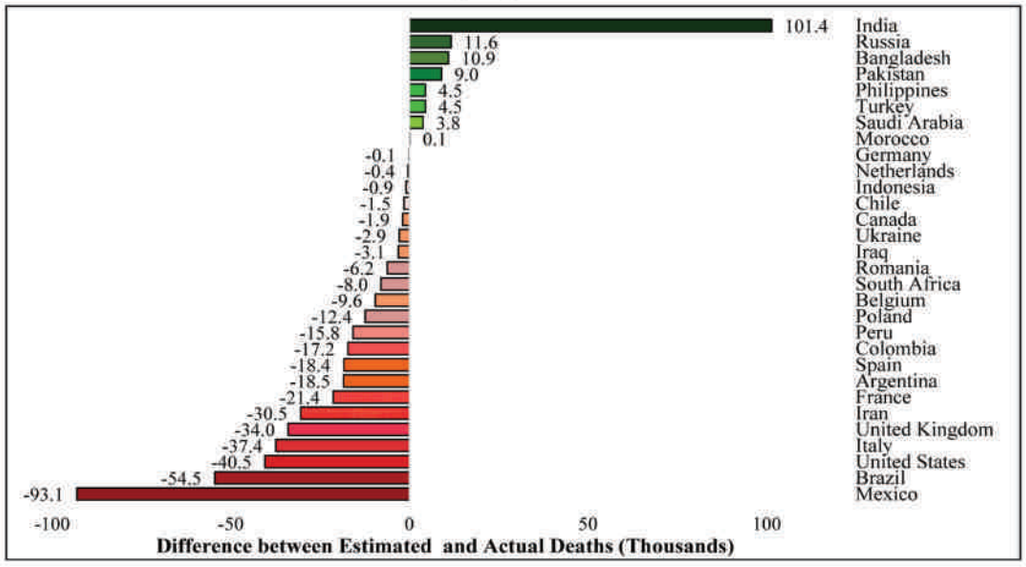
Figure 14b: Using CFR of Worst-Affected Countries (as Measured by Total Number of Deaths)



Source:Survey clculations

- The model used for estimating the number of deaths across countries also shows that India has been successful in controlling deaths and saving lives.

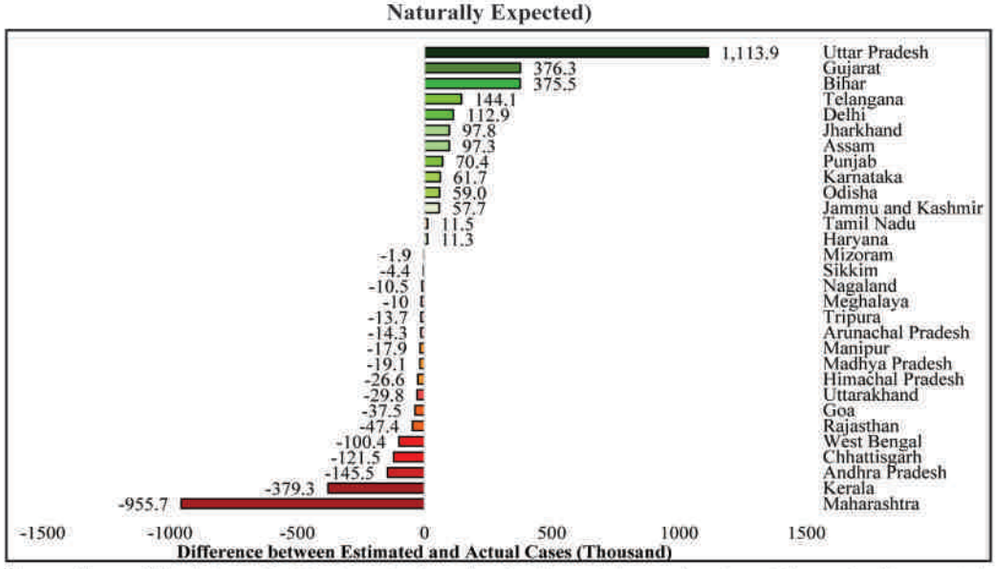
Management of COVID-19 across Countries (Measured as Actual Deaths *vis-à-vis* Naturally Expected)



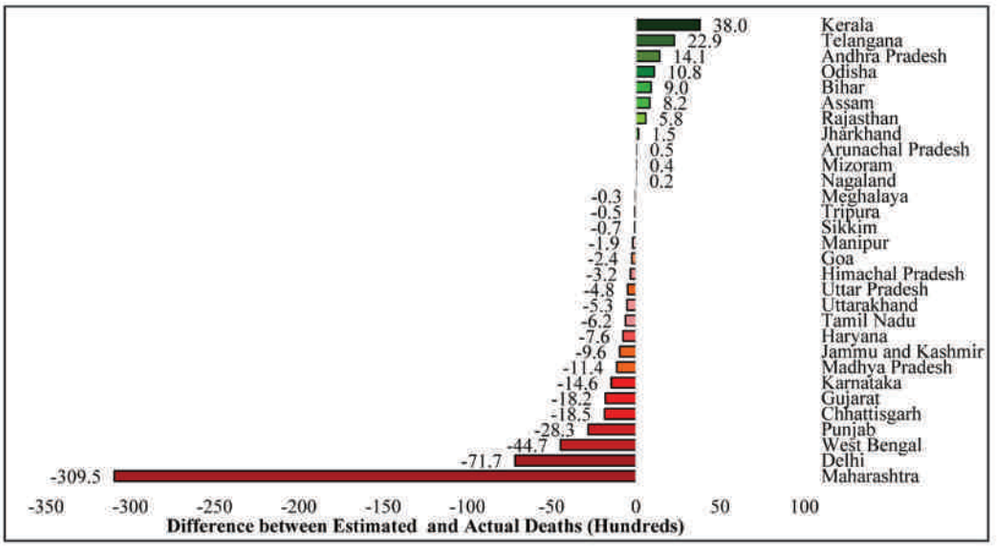
Source: Survey calculations; Positive (negative) number implies actual deaths less (more) than naturally expected

- The cross-country analysis above demonstrates clearly that the intense lockdown helped India to effectively manage the pandemic. Given the diversity within India, an inter-state analysis is also informative to assess States that were able to manage the spread of COVID-19 well.
- The network impact of COVID-19 is evident in India with States with higher population and population density having witnessed higher spread of cases and weak in case of deaths.
- The model shows that Maharashtra has performed the worst in number of cases and deaths. In terms of estimated cases, Survey compares Maharashtra with Uttar Pradesh and Bihar; these three States have the most population with Bihar and Maharashtra having almost identical population. But Maharashtra has a lower population density than both Bihar and Uttar Pradesh. Yet, Uttar Pradesh and Bihar have much lower cases than what is naturally expected while Maharashtra had much higher cases. In fact, highly populous, densely populated States like Uttar Pradesh (with a density of 690 persons per square km) and Bihar (with a density of 881 persons per square km) – as against the national average of population density of 382 persons per square km – have managed the pandemic well. This ultimately held India in good stead. In terms of deaths, Kerala, Telangana and Andhra Pradesh have managed it effectively.

Management of COVID-19 by States in India (Measured as Actual Cases vis-à-vis Naturally Expected)



Source: Survey Calculations; Positive (negative) number implies actual cases less (more) than naturally expected

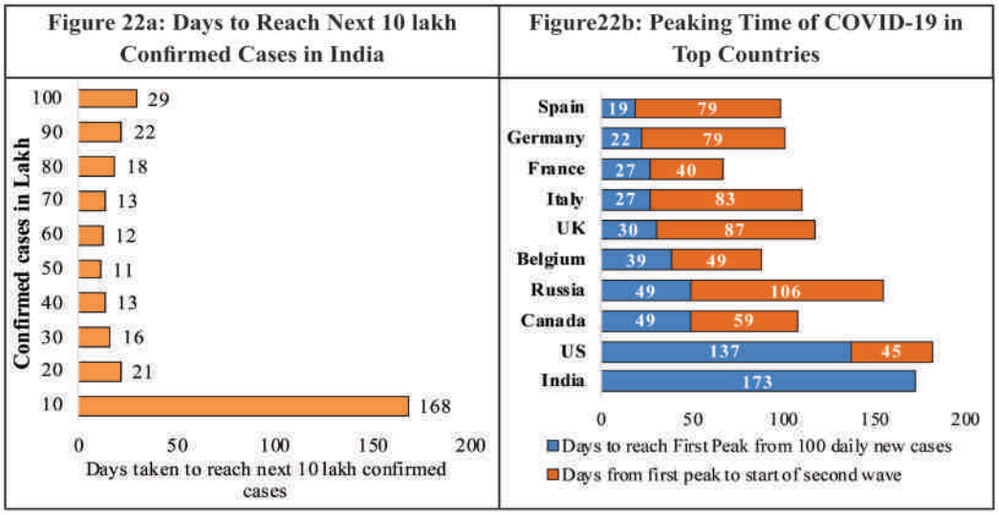


Source: Survey calculations; Positive (negative) number implies actual deaths less (more) than naturally expected

INDIA: RIDING AGAINST THE WAVE

- India, in fact, has been an outlier in its experience with COVID-19. It reached its first peak in mid-September, after which rising mobility has been accompanied with lower daily new cases. Globally, many European countries and US have been facing deadly second and third waves around this time with easing of lockdowns and increasing mobility. Most countries had to re-impose intermittent lockdowns while India has been increasingly unlocking. These trends reinforce that India has been effective in combating the COVID-19 pandemic.
- As of December 31, 2020, the spread of the pandemic has been effectively controlled. The number of days to add an additional 10 lakh confirmed cases has been increasing since September, 2020 (Figure 22a). India took 168 days to reach the first 10 lakh cases – largely due to the stringent lockdown in the initial days. The lockdown, in effect, pushed the epidemic curve ahead and gave time to policymakers to build up the testing and health infrastructure to cope up with the increasing caseload once lockdowns were eased – in effect shifting the peak of the pandemic to September. The institutional capacity built during the initial period helped to cope with the peak caseload and sustain the controlled spread after the peak. Among the worst affected countries, India took around 175 days to reach the peak from its first 100 cases while most countries reached their first peak in less than 50 days (Figure 22b). This may have led to overwhelming of their health capacity.

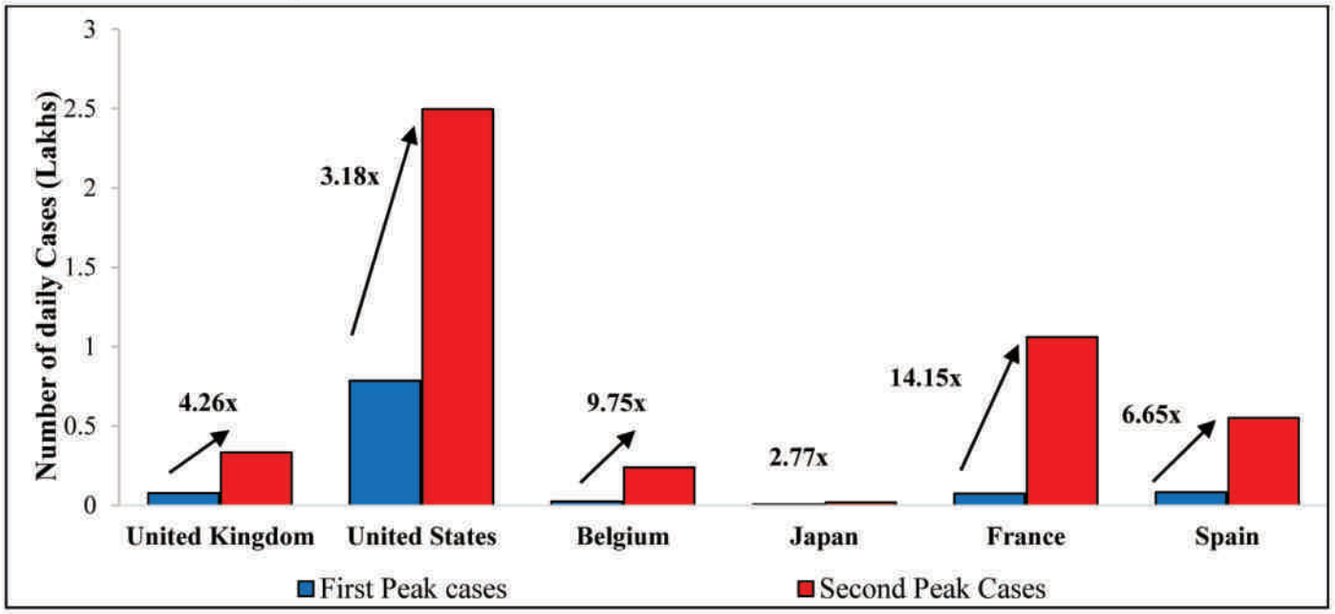
Figure 22: Shifting of the Peak of the COVID-19 Curve in India



Source: Data accessed from https://www.Covid19india.org/ and MOHFW - Data as on 31st December, 2020

- Also, most countries experienced their subsequent waves within a period of 2-3 months of crossing their first peak. These second waves have been more lethal in terms of number of cases. (Figure 23). The fatalities in US were 2.9 times higher during second wave. The prospect of India facing a strong second wave is receding with the start of the vaccination this year.

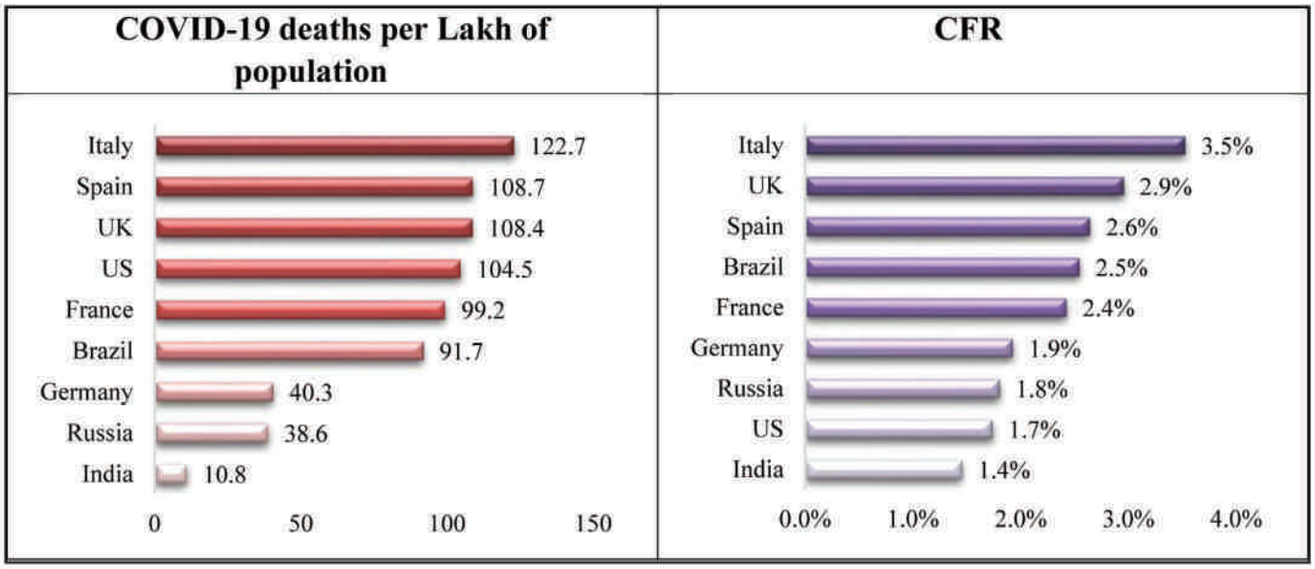
Figure 23: Second Wave in Countries Has Been More Lethal



Source: Survey Calculation

- From the peak of 97,900 new cases in a day on September 16, 2020, the COVID-19 curve has flattened with a decline in the number of active cases and new daily cases.

Comparison of COVID-19 Deaths in Top 10 Worst Affected Countries



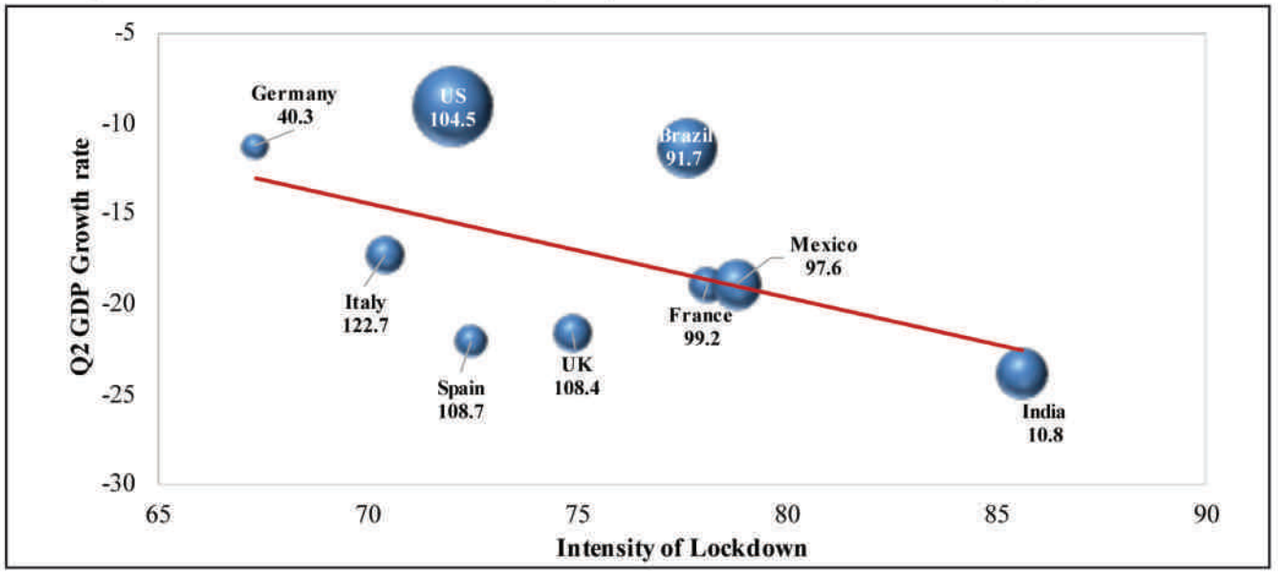
Source: Data accessed from Covid19india.org, MoHFW as on 31st December, 2020

- India's strategy of imposition of a stringent lockdown in the initial stages to control the spread and focus on ramping up testing infrastructure and health facilities are validated by this analysis. The lockdown, therefore, was a critical instrument in "flattening the curve" and saving lives.

V-SHAPED ECONOMIC RECOVERY DUE TO TIMELY STRINGENT LOCKDOWN

- 1.42 Evidence from the experience of Spanish flu establishes that cities that intervened with lockdowns earlier and more aggressively experience stronger recovery in economic front in the long run. Learning from this experience, India implemented an early and stringent lockdown from late March to May to curb the pace of spread of COVID-19. With the economy brought to a standstill for two complete months, the inevitable effect was a 23.9 per cent contraction in GDP as compared to previous year's quarter. This contraction was consistent with the stringency of the lockdown (Figure 26).

Figure 26: Correlation between Stringency and GDP Contraction during Apr-June, 2020



Source: Compiled from various sources
Note: Bubble size corresponds to number of deaths as on 31st December, 2020; number of deaths per lakh indicated with the bubble

- The economy was gradually unlocked since June, 2020 and has experienced a V-shaped recovery since then. An attempt has been made to capture the impact of the stringency of lockdown on high-frequency indicators of economic activity States across India.

FAR-SIGHTED POLICY RESPONSE FOR ECONOMIC RECOVERY

- The public health response needed to slow transmission of COVID-19, together with need for social distancing and minimizing contact, has meant that service sectors reliant on face-to-face interactions—particularly wholesale and retail trade, hospitality, and arts and entertainment— have seen larger contractions than manufacturing. These service sectors, in most economies, contribute a significant portion to both incomes and employment. The scale of disruption in these sectors has, therefore, had a severe impact on the livelihoods of sections engaged in these sectors.
- The pandemic induced lockdowns led to local, regional, and global supply disruptions hitting economic activity – rendering a 'first order' supply shock. This, in turn, has led to a demand shock both through disruptions in the labour market, which affect household income, and through the precautionary motive to save, which stemmed from the uncertainty amidst the health crisis. In a normal economic crisis, policy support is rendered to stimulate aggregate demand as quickly as possible. However, the containment measures required to limit the spread of the pandemic, which constrained economic activity, reduced the efficacy of demand-side measures during the lockdown.
- Indian policymakers, backed by evidence, recognized that the lockdown would adversely impact economic activity and disrupt livelihoods. The fiscal policy response of the Government of India to the pandemic was, accordingly, strategized with a step-by-step approach. During the first two quarters of FY:2020-21, the Government ensured that funds for essential activities were available despite a sharp contraction in revenue receipts. The initial approach was to provide a cushion for the poor and section of society and to the business sector (especially the MSMEs) to tide over the distress caused by disruption of economic activity. The Pradhan Mantri Garib Kalyan Yojana (PMGKY) for ensuring food security through public distribution system, direct benefit transfers to widows, pensioners and women, additional funds for

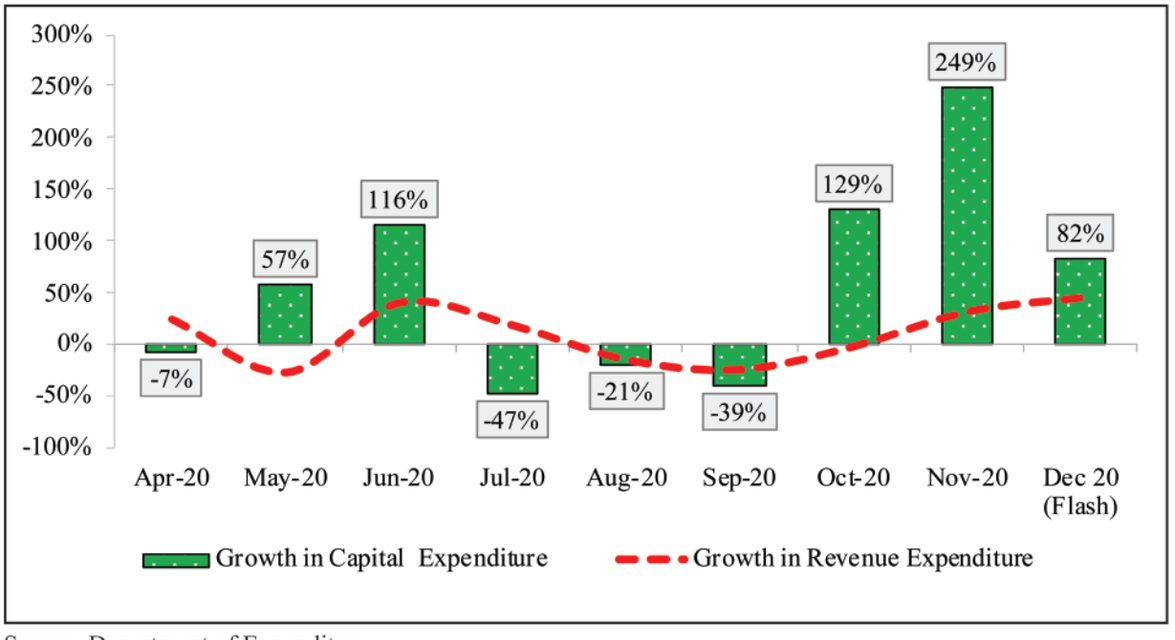
MGNREGS, and debt moratoria and liquidity support for businesses (Table 3). With the easing of movement and health-related restrictions in the third quarter, the the government transited in a calibrated fashion to support investment and consumption demand through Atmanirbhar 2.0 and 3.0. The timing of stimulus was tuned to the absorptive capacity of the economy, which was affected by the lockdown. There was no point in pushing the accelerator while the foot was firmly on the brake as a demand stimulus at a time when supply was constrained would have not helped. The timing of the expenditure push, especially the capital expenditure, after the reduction in health-related curbs, manifests the strategy of stimulating 'growth' when it would be most effective (Figure 29). As we have seen above, the economic recovery gained momentum since the first quarter.

Table 3: Pradhan Mantri Garib Kalyan Package – Total Direct Benefit Transfers

Scheme	Number of Beneficiaries (Crore)	Amount (₹ Crore)
Support to PMJDY women account holders	1st Ins – 20.65 2nd Ins – 20.63 3rd Ins – 20.62	10,325 10,315 10,312
Support to NSAP (Aged widows, Divyang, Senior citizen)	2.81	2814
Front-loaded payments to farmers under PM-KISAN	8.94	17891
Support to Building & Other Construction workers	1.82	4987
24 per cent contribution to EPFO	.45	2570
Pradhan Mantri Ujjwala Yojana	1st Ins – 7.43 2nd Ins – 4.43 3rd Ins – 1.82	9700
TOTAL	**42.1**	**68914**

Source: PIB
Note: Progress as on 31st December 2020, Ins means Instalment.

Figure 29: Trend in Growth of Monthly Expenditure of Central Government during FY 2020-21 (YoY)



Source: Department of Expenditure

Structural Reforms

- The Indian policymakers also recognized that the 'supply' shock induced by the lockdown would disrupt the productive capacity of the economy. This capacity would need to be strengthened to meet the pent-up demand once it resumes – any mismatch would lead to macro-economic instabilities. This was, in effect, an 'underheating' of the economy with lack of demand, disruption of supply chains and anticipated large scale corporate distress. A simple reflating of the economy through increased government expenditure would, under these circumstances, have led to runaway inflation especially given the inherent supply-side constraints in India's food economy. Therefore, India initiated a slew of multi-sectoral supply-side structural reforms to lend flexibility and resilience to supply chains as a part of the Atmanirbhar Bharat Mission (ANB) (Table 4). India is the only country to have undertaken structural reforms on the supply-side at the initial stages of the pandemic. This far-sighted policy response will generate productivity gains in the medium to long term.
- These reforms primarily focus on strengthening the potential of primary and secondary sectors of the economy to create jobs. The primary sector in India (agriculture and mining sectors) contributes around 16 per cent of Gross Value Added (GVA) while it employs around 43 per cent of the workforce (as per PLFS, 2018-19). This indicates the huge potential to provide gainful employment opportunities for people employed in these sectors. The secondary sector provides expanded opportunities for formal employment with enhanced incomes, income stability and social security provisions.

Sector	Structural Reform Undertaken
Deregulation and Liberalization of Sectors	
Agriculture	◆ Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020 ◆ Farmers (Empowerment and Protection) Agreement of Price Assurance and Farm Services Act, 2020 ◆ Essential Commodities (Amendment) Act, 2020
MSMEs	◆ New MSME definition covering almost 99 per cent of all firms enabling MSMEs to grow in size and create jobs ◆ Removal of artificial separation between manufacturing and service MSMEs
Labour	◆ Enactment of four labour codes namely, Wage Code, Industrial Relations Code, 2020, Code on Occupational Safety, Health & Working Conditions Code, 2020 & Social Security Code, 2020 ◆ 'One labour return, one licence and one registration'
Business Process Outsourcing (BPO)	◆ Simplification of the Other Service Provider (OSP) guidelines of the Department of Telecom. Several requirements, which prevented companies from adopting 'Work from Home' and 'Work from Anywhere' policies have been removed
Power	◆ Tariff Policy Reform: DISCOM inefficiencies not to burden consumers, Progressive reduction in cross subsidies, Time bound grant of open access, etc. ◆ Privatization of Distribution in UTs
PSUs	◆ PSUs in only strategic sectors ◆ Privatization of PSUs in non-strategic sectors
Mineral Sector	◆ Commercial Mining in Coal Sector ◆ Removal of distinction between captive and merchant mines ◆ Transparent auction of mining blocks ◆ Amendment to Stamp Act, 1899 to bring uniformity in stamp duty across States ◆ Introduction of a seamless composite exploration-cum-mining-cum-production regime
Strengthening Productive Capacity	
Industry	◆ Production Linked Incentive (PLI) Scheme for 10 identified sectors ◆ National GIS-enabled Land Bank system launched

Space	◆ Level playing field provided to private companies in satellites, launches and space-based services ◆ Liberal geo-spatial data policy for providing remote-sensing data to techentrepreneurs
Defence	◆ Corporatization of Ordnance Factory Board ◆ FDI limit in the Defence manufacturing under automatic route to be raised from 49 per cent to 74 per cent. ◆ Time-bound defence procurement process
Strengthening Productive Capacity	
Education	◆ PM-eVidya to enable multi-mode and equitable access to education ◆ Manodarpan initiative for psychosocial support
Social Infrastructure	◆ Scheme for Financial Support to Public Private Partnerships (PPPs) in Infrastructure Viability Gap Funding (VGF) Scheme extended till 2024-25
Ease of Doing Business	
Financial Markets	◆ Direct listing of securities by Indian public companies in permissible foreign jurisdictions ◆ Provisions to reduce time line for completion of rights issues by companies ◆ Private companies which list NCDs on stock exchanges not to be regarded as listed companies
Corporates	◆ Including the provisions of Part IXA (Producer Companies) of Companies Act, 1956 in Companies Act, 2013 ◆ Decriminalization of Companies Act defaults involving minor technical and procedural defaults ◆ Power to create additional/ specialized benches for NCLAT ◆ Lower penalties for all defaults for Small Companies, One-person Companies, Producer Companies & Start Ups ◆ Simplified Proforma for Incorporating Company Electronically Plus (SPICe +) introduced
Administration	◆ National platform for recruitment: National Recruitment Agency to conduct a Common Eligibility Test ◆ Revised guidelines on Compulsory retirement to remove ineffective or corrupt officials through Fundamental Rule 56(j)/(l) and Rule 48 of CCS (Pension) Rule ◆ Faceless tax assessment and a 12-point taxpayers charter ◆ Fast track Investment Clearance through Empowered Group of Secretaries

- Major structural reforms launched by the Government – in agriculture markets, labour laws and definition of MSMEs – provide unparalleled opportunity to grow and prosper now and thereby contribute to job creation in the primary and secondary sectors. The modified definition of MSMEs facilitates expansion and growth of these enterprises without them fearing the loss of government incentives, thereby avoiding the phenomenon of dwarfs among MSMEs. The resulting economies of scale can enhance productivity without the MSMEs losing out on several government incentives including interest subvention, collateral-free loans, market support, export promotion, preferential procurement in the public sector and enabling of IT ecosystems.
- The historic labour reforms – discussed for three decades after the conditionality in the 1991 loan from IMF but never implemented thus far – will benefit MSMEs to increase employment, enhance labour productivity and thereby wages in MSMEs. The use of fulltime equivalents provides flexibility to MSMEs to tailor their labour strength to market conditions and thereby enhance employment. The increase in the size thresholds from 10 to 20 employees to be called a factory, 20 to 50 for contract worker laws to apply, and 100 to 300 for standing orders enable economies of scale and unleash growth. The drastic reductions in compliance stem from (i) 41 central labour laws being reduced to four, (ii) the number of sections falling by 60 per cent from about 1200 to 480, (iii) the maze due to the number of minimum wages being reducing from about 2000 to 40, (iv) one registration instead of six, (v) one license instead of four, and

(vi) de-criminalisation of several offences. These reforms balance the interest of both workers and employers. These codes provide social security, protection, safe and working environment and effective conciliation dispute mechanism to workers.

- The reforms in the agricultural sector were more overdue than even the labour reforms as the existing laws kept the Indian farmer enslaved to the local Mandi and their rent-seeking intermediaries. While every other category of producer in India had the freedom to decide where to sell his/her produce, the Indian farmer did not. The local monopolists created by this legal infrastructure enabled the intermediaries to prosper at the cost of the farmer, especially the poor ones without the wherewithal to store their produce. The agricultural reforms enable the farmer to sell where he gets the best deal and thereby enable competition that is sine qua non to create welfare for the small farmer. The reforms in agriculture markets will enable creation of 'One India one market' for agri-products, create innumerable opportunities for farmers to move up the value chain in food processing - from farm to fork, create jobs and increase incomes.
- The proposed structural reforms in the mining sector aim to increase participation of the private sector in mineral exploration, redefine the norms of exploration for auction of mineral blocks to ensure a seamless exploration-cum-mining-cum-production regime. They will also redefine the standard of exploration required for auctioning of blocks for prospecting license-cum mining lease and open acreage licensing policy for allocation of mining rights which will give a major boost to the production of minerals in the country. These reforms aim to reduce dependence on imported coal, to create a strong, self-reliant domestic energy sector, attract private investments, generate jobs and stimulate the economic growth in the medium-term.
- At the same time, production-linked incentive (PLI) schemes have been implemented in ten key specific sectors to make Indian manufacturers globally competitive, attract investment in the areas of core competency and cutting-edge technology; ensure efficiencies; create economies of scale; enhance exports and make India an integral part of the global supply chain. These Schemes provide incentive to enhance production and create wealth and jobs. The proposed privatization of Public Sector Enterprises in non-strategic sectors recognizes the need for efficient allocation and use of resources. All these reforms are intended to bolster the productive capacity of the economy, and create wealth and jobs especially at the bottom of the pyramid. This would, in turn, lead to inclusive growth and sustained demand generation in the economy. The policy package ensures that the regulatory environment is conducive to ease of doing business with simpler, transparent and timebound procedures for doing business.

LOOKING FORWARD

- The V-shaped economic recovery while avoiding a second wave of infections make India a sui generis case in this unique, synchronized global recession. Despite the hardhitting economic shock created by the global pandemic, India is witnessing a V-shaped recovery with a stable macroeconomic situation aided by a stable currency, comfortable current account, burgeoning forex reserves, and encouraging signs in the manufacturing sector output. India is reaping the "lockdown dividend" from the brave, preventive measures adopted at the onset of the pandemic, which were based on the humane principle advocated eloquently in the Mahabharata that "Saving a life that is in jeopardy is the origin of dharma." The policy maturity and the alacrity displayed to not "waste a crisis" has helped the country to save both 'lives' and 'livelihoods' in its own unique way and has shifted the focus away from the short-term pain created by the crisis to the potential for long-term gains engendered by the policy response.

02 Does Growth lead to Debt Sustainability? Yes, But Not Vice- Versa!

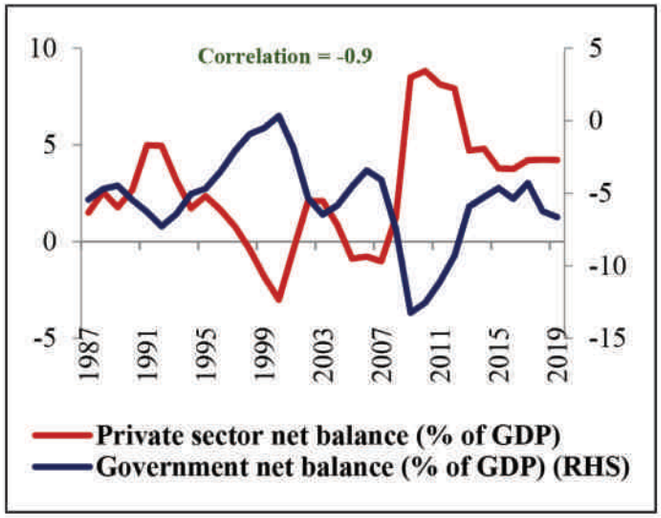
FOCUS OF THIS CHAPTER

- Growth leads to debt sustainability in the Indian context but not necessarily vice-versa. This is because the interest rate on debt paid by the Indian government has been less than India's growth rate by norm, not by exception.
- As Blanchard (2019) explains in his 2019 Presidential Address to the American Economic Association: "If the interest rate paid by the government is less than the growth rate, then the intertemporal budget constraint facing the government no longer binds."
- This phenomenon highlights that debt sustainability depends on the "interest rate growth rate differential" (IRGD), i.e. the difference between the interest rate and the growth rate in an economy.

COUNTER-CYCLICAL FISCAL POLICY

- In advanced economies, the extremely low interest rates, which have led to negative IRGD, on the one hand, and have placed limitations on monetary policy, on the other hand, have caused a rethink of the role of fiscal policy. The same phenomenon of a negative IRGD in India – not due to lower interest rates but much higher growth rates –must prompt a debate on the saliency of fiscal policy, especially during growth slowdowns and economic crises.
- Amidst the Covid-19 crisis, fiscal policy has assumed enormous significance across the world. Naturally, the debate around higher Government debt to support a fiscal expansion is accompanied by concerns about its implications for future growth, debt sustainability, sovereign ratings, and possible vulnerabilities on the external sector.
- While fiscal policy is especially salient during an economic crisis, in general, fiscal policy must be counter-cyclical to smooth out economic cycles instead of exacerbating them.
- For the United States and United Kingdom, the correlation between private sector and public sector net balances is almost perfectly negative (-0.9).

Figure 1b: ***United States (1987 – 2019)***

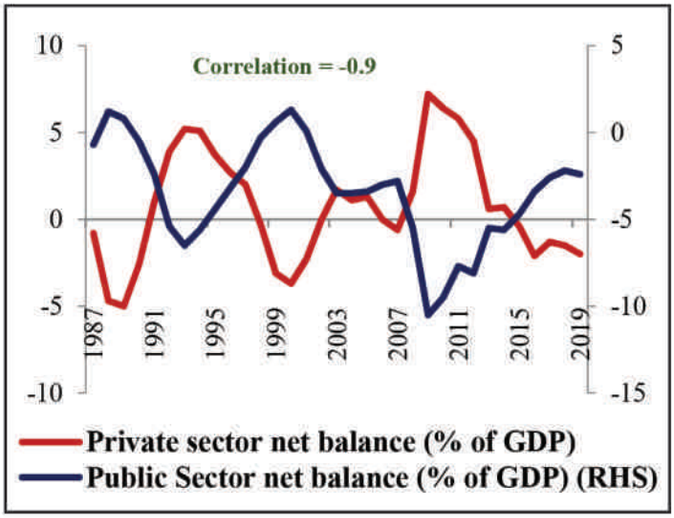


Source: BEA (US)

Government net Balance =Total Government Receipts- Total Government Expenditure

Private Sector Net Balance= Gross Private Domestic Investment - Gross Private Savings (Domestic business, households & institutions)

Figure 1c: ***United Kingdom (1987 – 2019)***



Source: UK Economic Accounts (ONS) & OBR (UK)

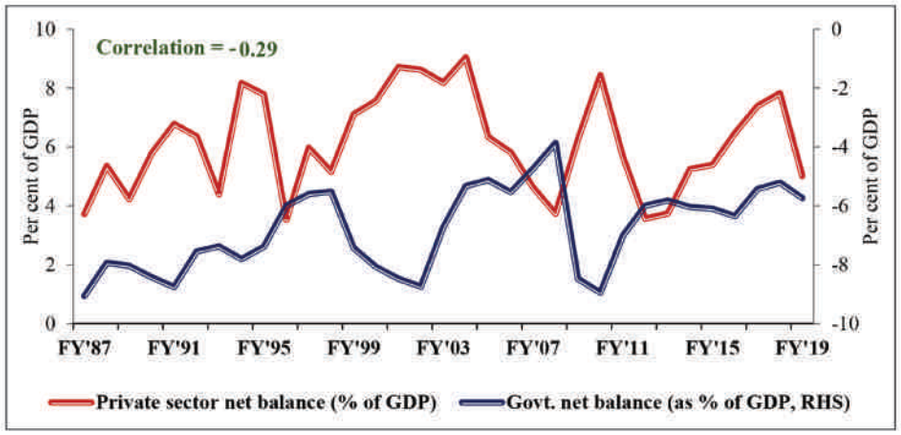
Public Sector net Balance = Net lending by General Govt and Public Corporations

Private Sector Net Balance = Net lending by Households, Non Profit Institutions serving the Households and private Non Financial Corporations

- In India, however, fiscal policy has not been counter-cyclical in general.

Figure 1: Trends in Government and Private sector balances

Figure 1a: *India (FY 1987 – FY 2019)*



Source: RBI, MoSPI
Note: Govt net balance = (Public Sector Financial & Non-Financial Corporations and General Govt Gross Domesic Saving) – (Public Sector Financial &Non-Financial Corporations and General Govt Gross Capital formation)
Private sector net balance = Private sector Gross Domesic Saving – Private sector Gross Capital formation
For Households, total savings does not include gold and silver (to make it comparable).

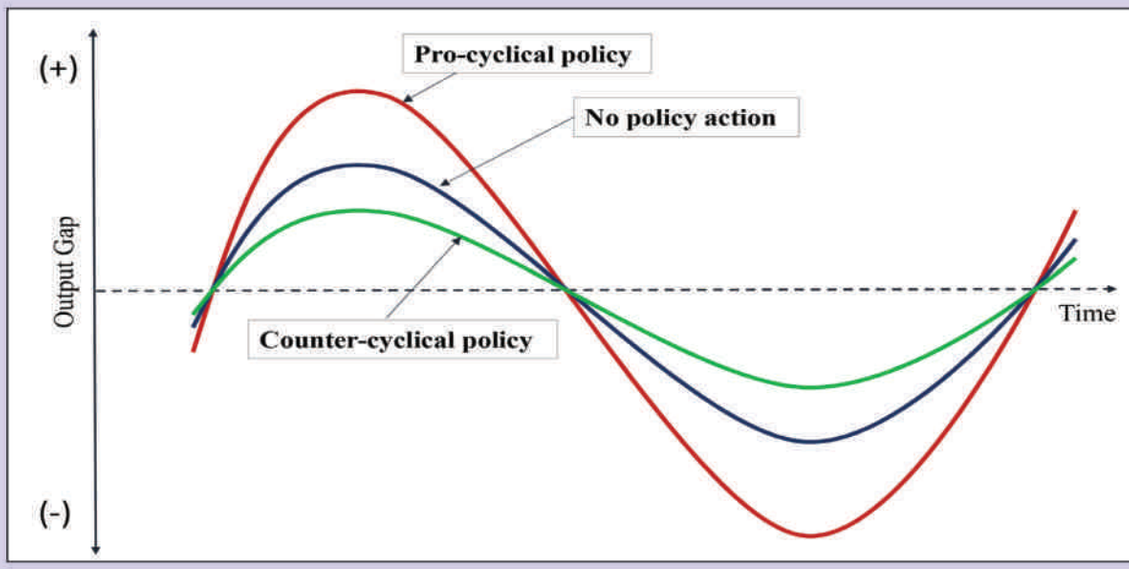
SIGNIFICANCE OF COUNTER-CYCLICAL FISCAL POLICY

- Indian Kings used to build palaces during famines and droughts to provide employment and improve the economic fortunes of the private sector. Economic theory, in effect, makes the same recommendation: in a recessionary year, Government must spend more than during expansionary times.
- Such counter-cyclical fiscal policy stabilizes the business cycle by being contractionary (reduce spending/increase taxes) in good times and expansionary (increase spending/reduce taxes) in bad times. On the other hand, a pro-cyclical fiscal policy is the one wherein fiscal policy reinforces the business cycle by being expansionary during good times and contractionary during recessions

Fiscal policy (FP) stance	Recession (↓ GDP)	Expansion (↑ GDP)	Outcome
Pro-cyclical	Contractionary FP ↓ Govt. Expenditure or /and ↑ Taxes	Expansionary FP ↑ Govt. Expenditure or/and ↓ Taxes	Deepens recessions and amplifies expansions, thereby increasing fluctuations in the business cycle.
Counter-cyclical	Expansionary FP ↑ Govt. Expenditure or/and ↓ Taxes	Contractionary FP ↓ Govt. Expenditure or /and ↑ Taxes	Softens the recession and moderates the expansions, thereby decreasing fluctuations in the business cycle.

- While counter-cyclical fiscal policy is necessary to smooth out economic cycles, it becomes critical during an economic crisis. This is because fiscal multipliers, which capture the aggregate return derived by the economy from an additional Rupee of fiscal spending, are unequivocally greater during economic crises when compared to economies.
- In advanced economies, where the public andprivate sector labour markets are not too segmented, fiscal spending can increase public sectoremployment, reduce the supply of labour in the private sector, bid up wages, and thereby crowdout private sector employment.
- However, in a country like India, where the private and publicsector labour markets are largely segmented, such crowding out of private sector employmentis minimal. Thus, debt-financed public expenditure is more cost-effective toemploy during recessions than during economic booms.

Figure A: Business Cycle under Various Fiscal Policy Stance



- Most studies aimed at estimating the variation in effects of fiscal policies with country's position in the business cycle, concur that the fiscal policies are considerably more effective inrecessions than in expansions.
- Recalling the National Income identity, Y= C+I+G+X-M , the net effect of a recession on the private sector may be in terms of lower private consumption (C), lower private investment (I), risk aversion by the private sector and pessimistic expectations/sentiments. In such a scenario, adopting a counter cyclical policy by expanding the Government Expenditure – both consumption and investment - will support the GDP and minimise the output gap. This happens primarily through the following channels:
  - An expansion in Government expenditure can cushion the contraction in output by
  - contributing to the GDP growth, by offsetting the decline in consumption and investment; and also by boosting private investment and consumption through higher spending multipliers during recession.
  - Through risk multiplier by compensating for greater risk-aversion of private sector to bring back 'animal spirits'.
  - Through expectation multiplier by building confidence in tough times: Governments adopting counter-cyclical fiscal policy are able to credibly exhibit their commitment to sound fiscal management. As a result, rational agents in the economy would expect the economy not to fluctuate as much and therefore their private actions would reinforce this, in turn enabling stronger macroeconomic fundamentals.
- For India, in the current scenario, when private consumption, which contributes to 54 per cent of GDP is contracting, and investment, which contributes to around 29 per cent is uncertain, the relevance of counter-cyclical fiscal policies is paramount.

IMPACT OF FISCAL STIMULUS DURING RECESSION/ SLOWDOWN

- Fiscal policy is more effective in boosting private consumption during recessions (for OECD countries from 1970-2002) due to the presence of binding liquidity constraints on households.
- Fiscal stimulus decreases the spread (between the bank deposit rate and the bank loan rate), which fluctuates counter cyclically due to the cyclical variation in bank intermediation costs. This in turn encourages more borrowing and spending, which further expands the economy and decreases the spread again, encouraging more borrowing; and the process repeats itself. Since this financial friction (spread) increases during recession, therefore the chain effect of fiscal stimulus in boosting borrowings and output is greater during recession compared to expansionary periods.
- Fiscal multipliers are likely to be higher in recessionary periods because private savings increase through the precautionary motive to save. Therefore, any potential crowding out of private investment - even if at all it manifests during expansionary periods – is unlikely to manifest because of the increased pool of loanable funds.

- Increasing public employment stimulates labour demand, which increases tightness and therefore crowds out private employment. Critically, the quasi-labour supply is convex. Hence, when labor demand is depressed and unemployment is high, the increase in tightness and resulting crowding-out are small.
- A spending shock during periods of economic slack leads to a persistent increase in the amount of government investment relative to government consumption during a downturn (which is not the case in normal times). This relative increase in government investment spending provides signals about future increases in output and productivity, and hence are reflected in higher measured confidence. This results in higher impact on consumption and output.

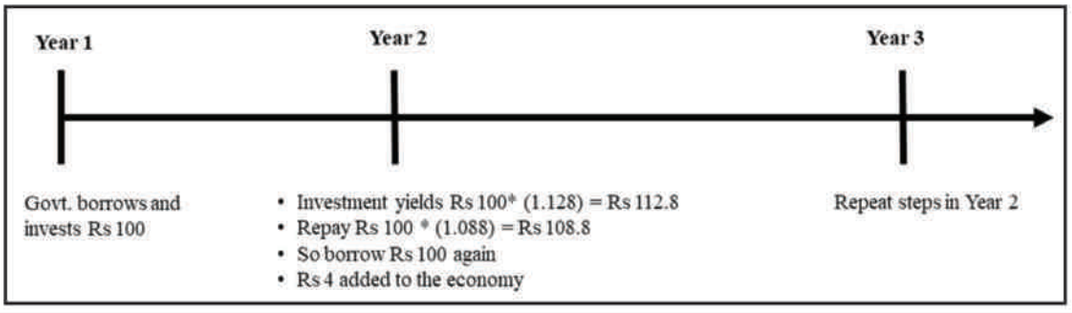
The Modigliani-Miller Theorem, Principles ofCorporate Finance and Sovereign Debt

- Before the Global financial crisis, macroeconomics largely ignored the role of finance and the financial sector. However, recent macroeconomic research incorporates the role of finance in the macro-economy. So, to think carefully and clearly about a country's fiscal policy and how the same can impact its investment policy, a corporate finance perspective.
- A study postulates that fiat money in a country resembles the equity in a corporation because a Rupee of fiat money enables the owner to a lay a one Rupee claim on the country's output just like a share of common stock entitles the holder to a pro-rata share of residual cash flows of a firm; higher the fiat currency owned by a citizen, greater the claims that the citizen can lay on the country's output.
- To think about sovereign debt in this framework, it is useful to start with the Modigliani-Millertheorem (Modigliani and Miller, 1958), which provides the conceptual bedrock for thinking aboutdebt and capital structure.
- The theorem posits that, under certain ideal conditions, the amount of debt or the capital structure of a firm (or a sovereign by extension) is irrelevant.
- The theorem employs the concept of "homemade leverage" to arrive at this important conclusion.Homemade leverage is a financial concept that holds that as long as investors can borrow on thesame terms as a firm, which prevails only under ideal conditions, they can artificially duplicatethe effects of corporate leverage by creating their own homemade leverage to either nullify orduplicate any debt-equity choice made by the firm.
- Therefore, under ideal conditions, investorswould not care between investing in a firm having zero debt and one that chooses to have debt inits capital structure.
- Similarly, under ideal conditions, the investors in a country, which includesthe citizens as equity holders via holders of fiat money, would not care about the amount of debtraised by the country.
- As with most theories, the practical utility of the Modigliani-Miller theorem arises fromunderstanding the precise set of conditions that lead to its failure, specifically from the ways inwhich the postulated ideal conditions get violated in practice.
- Relaxing the assumptions that lead to the ideal conditions enables us to understand what practicalconsiderations do impact capital structure. These are absence of taxes, bankruptcy costs, agencyproblems or asymmetric information etc.
- In developing economies such as India, the presumption that citizens can borrow on thesame terms as the sovereign gets violated sharply because of the combination of bankruptcycosts and asymmetric information, which in turn result in lack of access to credit markets forlarge sections of the population.
- In developing economies such as India, the wedge between thecost of borrowing for the sovereign and the cost to an average (common) citizen is much higherthan in developed economies. This wedge includes the costs faced by the average citizen on boththe intrinsic and extrinsic margins, i.e. the interest rate paid conditional on being able to borrowand the cost from being credit rationed respectively. Therefore, the application of the homemadeleverage argument leads to the inference that fiscal multipliers would be significantly higher in adeveloping economy such as India than in developed economies.
- The literature in corporate finance highlights that financing constraints impact investment materially. As financing constraints faced by the private sector get significantly exacerbated during an economic crisis, the role of the sovereign in using fiscal policy to foster investment becomes particularly salient in a crisis.
- Potential inflation as the primary cost of raising debt in the domestic currency:
  - A domestic-currency sovereign bond is, in effect, a pay-in-kind note because the bond has to be repaid using fiat domestic currency, which is in turn a claim on the nation's output. Therefore, debt denominated in the domestic currency is in effect a claim onthe nation's (future) output.

- Seen this way, an interesting parallel arises between the costs of dilution from fresh equity issuance and costs due to inflation, which essentially dilutes the value of future output, when more money is printed.
- Printing more money can result in inflation and loss of purchasing power for domestic residents if the increase in money supply is larger than the increase in output.
- Ifthe increased money supply creates a disproportionate increase in output because the moneyis invested to finance investment projects with positive net present value (where such valueincorporates all the societal value generated by the investment), the increased money supply is beneficial to the citizens.

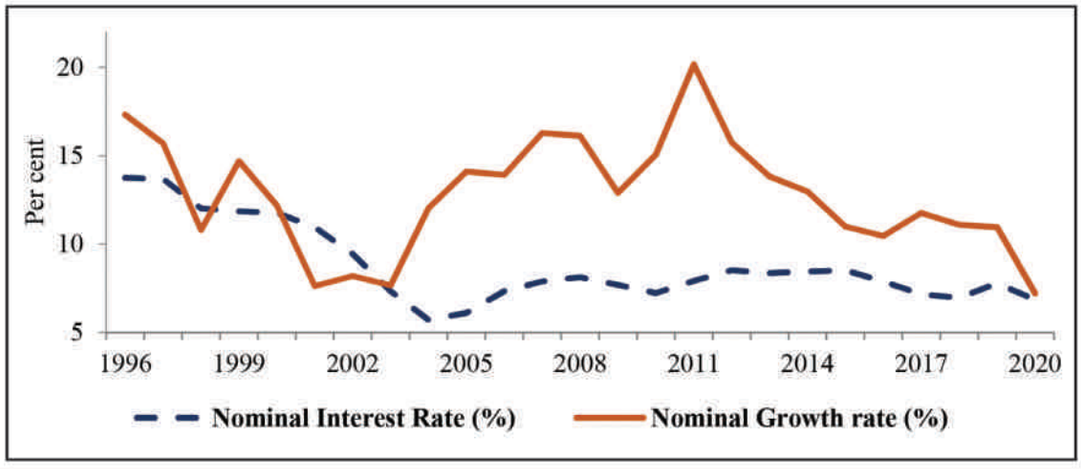
THE (r-g) DIFFERENTIAL AND DEBT SUSTAINABILITY IN INDIA

- As a norm in India, over the last two and a half decades, GDP growth rates have been greater than interest rates This evidence is consistent with the phenomenon described by Blanchard (2019) in his 2019 Presidential Address to the American Economic Association: "If the interest rate paid by the government is less than the growth rate, then the intertemporal budget constraint facing the government no longer binds."
- Intuitively, when nominal growth rate exceeds the nominal interest rate for the foreseeable future, debt sustainability is obtained .
- As the government's investment of a Rs. 100 produces Rs. 112.8 while the principal and interest repayment equalsRs. 108.8, Rs. 4 can be added to the economy after the loan of Rs. 100 is rolled over to the next period.
- Of course, this roll-over of the debt that yields debt sustainability can only manifest if interest paid on debt in an year is greater than the nominal GDP growth rate. If the inequality reverses, then rollover of debt does not become automatic, thereby jeopardizing debt sustainability.



- This inequality has thus led to a negative IRGD for most of the years during the lasttwo and a half decades, which, in turn, has caused debt levels to decline. There is a strong correlation observed between IRGD and change in general government debt. Since thisinequality reduces the fiscal costs of a debt rollover, it expands the scope forfiscal policy to (i) cater to slowdowns in aggregate demand and (ii) thereby enable growth tofoster debt sustainability.

2a: During the Last 25 years, i > γ is a Norm, Except for a Short Period During the Asian Financial Crisis



- A closer look at the trends in interest rate and growth rate in India highlights aperceptibly higher variability in the growth rates relative to interest rates over the pasttwo-and-a-half decades. This implies that changes in IRGD are mostlyattributable to changes in growth rates rather than the changes in interest rates. Thus, it is a higher growth that provides the key to the sustainability of debtfor India.
- Evidence over the last two-and-a-half decades demonstrates clearly that in India, higher GDP growth causes the ratio of debt-to-GDP to decline but not vice-versa.

CASE STUDY: INDIA DURING ASIAN FINANCIAL CRISIS

- Across economic crises over the last century, fiscal policy has been a prominent savior to bring back economic growth. For the past three decades, the Indian economic story has been characterized by long spells of high GDP growth. Fiscal policy has been a key determinant of growth acceleration after an exogenous global shock led to a decline in growth.
- Consider the shock due to the AsianFinancial Crisis (1997-98)(India also fought Kargil War during the same period).
- During the period 1997-98 to 2002-03, growth slowed down to anaverage of 5.3 per cent in real terms. Despite a fall in growth levels, an expansionary fiscal policythat focused on infrastructure spending was adopted by the Vajpayee Government.
- Removal of small scale reservations during early 2000s encouraged the overall employment growth and productivity of firms which were earlier constrained by the size restrictions.
- Government expenditure increased consistently during these years, which led to generalgovernment debt reaching record levels. This fiscal push imparted the necessary impetus required for the growth to take off and average 8 per cent in real terms over the next six years from 2003-04 to 2008-09. High growth in this period brought debt down from the record high levels of 83 per cent of GDP attained in 2003-04 to around 70 per cent of GDP in 2009-10 . This episode highlights that public debt – when productively streamlined – can enable the economy to reach a higher growth trajectory and, in turn, ensure debt sustainability.
- On the other hand, the policy direction following the Global Financial Crisis (2008-2010, Manmohan Singh' second term era) was in stark contrast to that following the Asian Financial crisis. While fiscal spending was stepped up after the GFC, the quality of spending remained poor. Moreover, absence of reforms exacerbated the poor-quality fiscal spend.

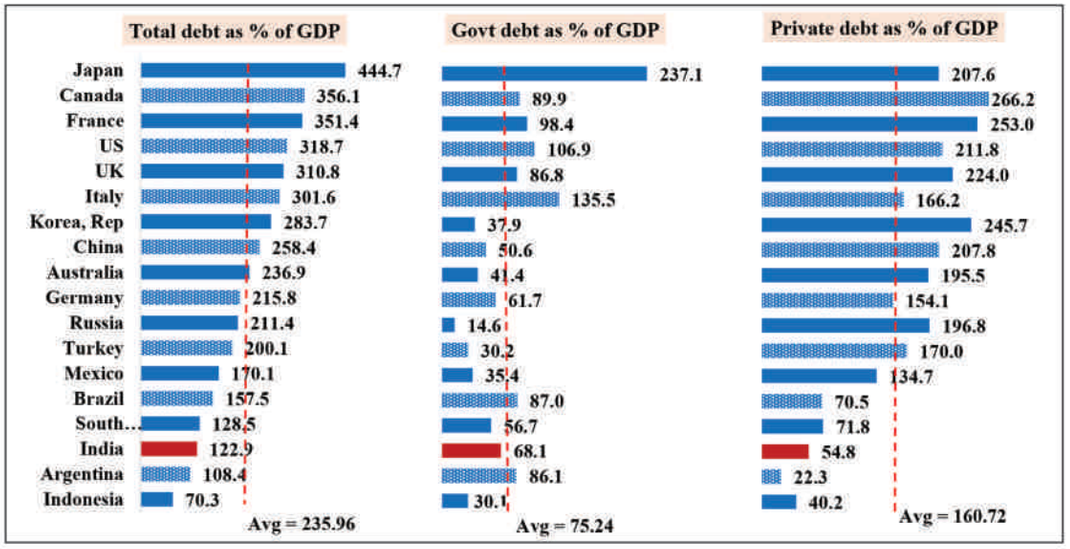
NEED FOR INDIA CUSTOMISED MODELS

- The confusion about the direction of causality – from growth to debt sustainability or vice versa– possibly stems from the fact that the academic and policy literature focuses primarily on advanced economies, where the direction of causality may be entangled by lower potential growth when compared to a high-growth economy such as India.
- On examining the trends in IRGD and change in debt-to-GDP ratio for low growtheconomies like US and UK, no correlation is observed between the two variables.This indicates lack of evidence for direction of causality from real growth rate to government debt-to-GDP these countries.
- For countries growing their GDP at high rates,growth leads to lowering of their public debt as measured by their debt-to-GDP ratios but notvice versa. In contrast, when the GDP growth rate is low, no such causal relationship manifestsbetween growth and public debt. This is seen through the following summary of the resultsdemonstrated so far:
  - For India and other EMEs (Emerging Market Economies), which have consistently grown their GDP at high rates over thelast few decades, the relationship between debt and growth exhibits a clear direction ofcausality: Higher growth lowers debt-to-GDP ratios but lower debt does not necessarilylead to higher growth.
  - The same phenomenon is obtained during the high growth phases for the advancedeconomies, which have otherwise grown at significantly lower GDP growth rates whencompared to India and other EMEs.
  - In contrast, across both the high and low growth episodes, in the advanced economies,where GDP growth rates have been low on average over the last few decades, thisrelationship does not manifest.
  - A Granger causality test of this relationship for panel of advanced countries and EMEsincluding India, shows that while real GDP growth rate causes general governmentdebt-to-GDP in EMEs, this relationship is not clearly seen in the advanced countries.

STRUCTURE OF INDIA'S DEBT

- India's public debt-to-GDP has been significantly low compared to high global debt levels. A cross-country comparison of debt levels points out that for India, the government debt level as a proportion of GDP is equal to the median in the group of G-20 OECD countries and in the group of BRICS nations.
- India's overall debt levels as a per cent of GDP are the lowest amongst the group of G-20 OECD countries and also among the group of BRICS nations. Moreover, public debt and overall debt level for India has declined since 2003 and has been stable since 2011.

Figure 17: Debt-to-GDP ratio for India amongst the Rest of the world (2018)



Source: IMF Debt database

- The Government's debt portfolio is characterized by very low foreign exchange riskas the external debt is only 2.7 per cent of GDP (5.9 per cent of total Central Governmentliabilities).
- Of the total public debt, 70 per cent is held by the Centre.
- As the central government is entrusted with the responsibility of macro-economic management,this distribution of debt between the centre and states is desirable because of the incentivecompatibility that it generates.
- The long maturity profile of India's public debt (issuance oflonger tenure bonds) along with a small share of floating rate debt (floating rate debt of Central
- Government is less than 5 per cent of public debt) tends to limit rollover risks, and insulates thedebt portfolio from interest rate volatility.

Figure 19: Composition of General Government public debt

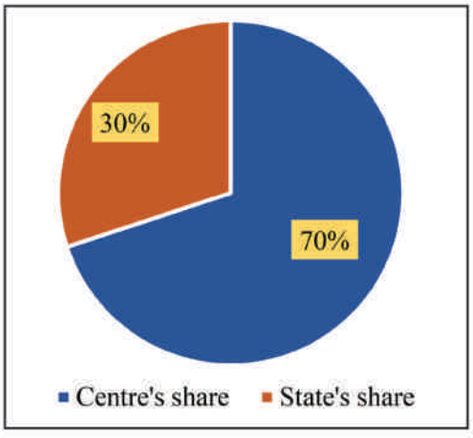
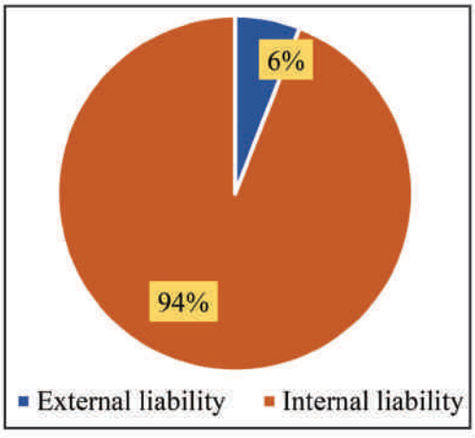


Figure 20: Composition of Central Govt. debt



POLICY IMPLICATIONS

- Covid-19 pandemic has created a significant negative shock todemand. The various costs of financial distress that firms face even before potential bankruptcycombined withpossible firm bankruptcies in a choked bankruptcy system, on the one hand, and the possibilitythat jobs lost during the lockdown may not get fully retrieved, on the other hand, create thepossibility of economic hysteresis that must be avoided at all costs.
- The World EconomicOutlook (October 2020) edition highlights this in the case of India. To eliminatethe possibility of growth being impacted in the medium to long run, the Government has beenextremely pro-active in launching several seminal reforms.
- However, their impact will manifestin the medium to long-term. To ensure that the economy remains in good health to avail the fullbenefit of these significant reforms, the "economic bridge" to the medium and long-term has tobe created.
- Only an active fiscal policy – one that recognises that the risks from doing too littleare much more than the risks from doing too much – can ensure that this "economic bridge" iswell laid out.
- During economic crises, a well-designed expansionary fiscal policy stance can contributeto better economic outcomes in two ways. First, it can boost potential growth with multi-yearpublic investment packages that raise productivity. The multi-year nature of public investmentwould contribute to credibly lifting growth expectations. With the National InfrastructurePipeline (NIP) already laying out the agenda for ambitious public spending, fiscal policycatering to funding NIP in the first few years can boost growth and thereby be self-financing.
- At a time of excessive risk aversion in the private sector, whichis characteristic of any economic crisis, risk taking via public investment can catalyse privateinvestment and unleash a virtuous circle. It will crowd in private investment, rather than crowdit out.
- Second, there is a risk of the Indian economy falling into a low wage-growth trap, as has happened in Japan during the last two decades. Implementing the NIP via front-ended fiscalspending could generate higher-paying jobs and boost productivity.

WAY FORWARD

- The Survey's effort is thus to provide theintellectual anchor for the government to be more relaxed about debt during a time of economiccrisis such as the one we are witnessing.
- Thus, the Survey's call for a more active, countercyclicalfiscal policy is not a call for fiscal irresponsibility. It is a call to break the intellectualanchoring that has created an asymmetric bias against fiscal policy. Once growth picks up in asustainable manner, it will be the time for fiscal consolidation. But, for now, fiscal policy willhave to remain centre-stage to support growth in the foreseeable future.

03 Does India's Sovereign Credit Rating reflect its fundamentals No!

PREMISE

- India's sovereign credit ratings do not reflect its fundamentals. Within its sovereign creditratings cohort – countries rated between A+/A1 and BBB-/Baa3 for S&P/ Moody's –India is a clear outlier on several parameters, i.e. it is rated significantly lower thanmandated by the effect on the sovereign rating of the parameter. These include GDPgrowth rate, inflation, general government debt (as per cent of GDP), cyclically adjustedprimary balance (as per cent of potential GDP), current account balance (as per centof GDP), political stability, rule of law, control of corruption, investor protection, easeof doing business, short-term external debt (as per cent of reserves), reserve adequacyratio and sovereign default history. This outlier status remains true not only now but alsoduring the last two decades.

INTRODUCTION

- Never in the history of sovereign credit ratings has the fifth largest economy in the world been rated as the lowest rung of the investment grade (BBB-/Baa3). Reflecting the economic size and thereby the ability to repay debt, the fifth largest economy has been predominantly rated AAA. China and India are the only exceptions to this rule – China was rated A-/A2 in 2005 and now India is rated BBB-/Baa3.
- Credit ratings map the probability of default and therefore reflect the willingness and ability of borrower to meet its obligations. India's willingness to pay is unquestionably demonstrated through its zero sovereign default history.
- India's ability to pay can be gauged not only by the extremely low foreign currency denominated debt of the sovereign but also by the comfortable size of its foreign exchange reserves that can pay for the short term debt of the private sector as well as the entire stock of India's sovereign and non-sovereign external debt.
- India's forex reserves can cover an additional 2.8 standard deviation negative event, i.e. an event that can be expected to manifest with a probability of less than 0.1 per cent after meeting all short-term debt.
- As ratings do not capture India's fundamentals, it comes as no surprise that pastepisodes of sovereign credit rating changes for India have not had major adverseimpact on select indicators such as Sensex return, foreign exchange rate and yield ongovernment securities. Past episodes of rating changes have no or weak correlation withmacroeconomic indicators.
- Despite ratings not reflecting fundamentals, they can however be pro-cyclical and canaffect equity and debt FPI flows of developing countries, causing damage and worseningcrisis. It is therefore imperative that sovereign credit ratings methodology be made moretransparent, less subjective and better attuned to reflect economies' fundamentals.

What are Sovereign Credit Ratings?

- Sovereign credit ratings seek to quantify issuers' ability to meet debt obligations. When favourable, these can facilitate countries access to global capital markets and foreign investment.
- Sovereign credit ratings broadly rate countries as either investment grade or speculative grade, with the latter projected to have a higher likelihood of default on borrowings. The threshold of Investment grade is considered to be BBB- for S&P and Fitch and Baa3 for Moody's.

Credit Rating Scale Comparison

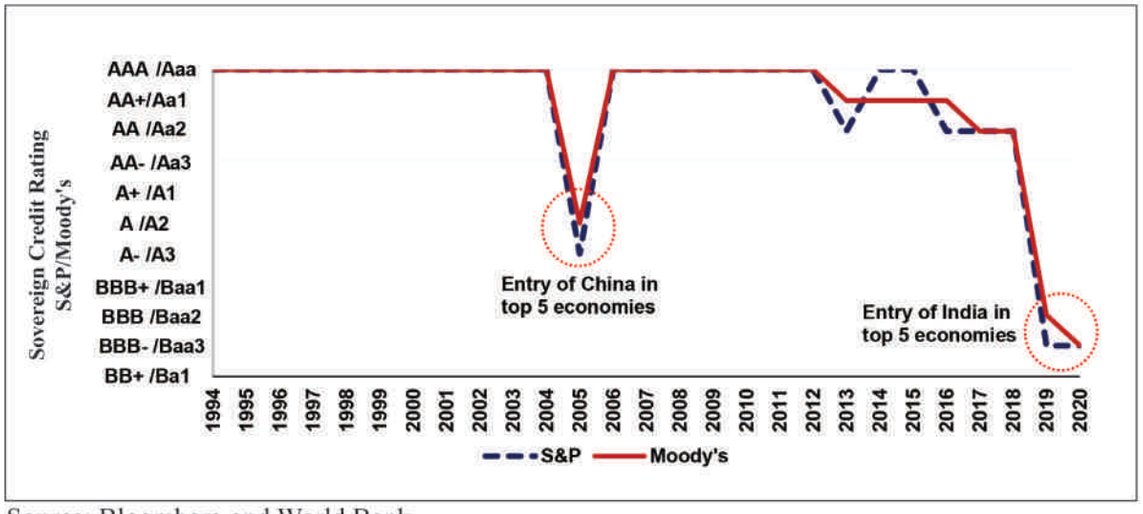
Interpretation	Fitch and S&P	Moody's
Highest quality High quality	AAA	Aaa
	AA+	Aa1
	AA	Aa2
	AA–	Aa3

Strong payment capacity	A+ A A–	A1 A2 A3
Adequate payment capacity	BBB+ BBB BBB–	Baa1 Baa2 Baa3
Likely to fulfill obligations, on going uncertainty	BB+ BB BB–	Ba1 Ba2 Ba3
High-risk obligations	B+ B B–	B1 B2 B3
Vulnerable to default	CCC+ CCC CCC–	Caa1 Caa2 Caa3
Near or in bankruptcy or default	CC C D	Ca C D

THE BIAS AGAINST EMERGING GIANTS IN SOVEREIGN CREDIT RATINGS

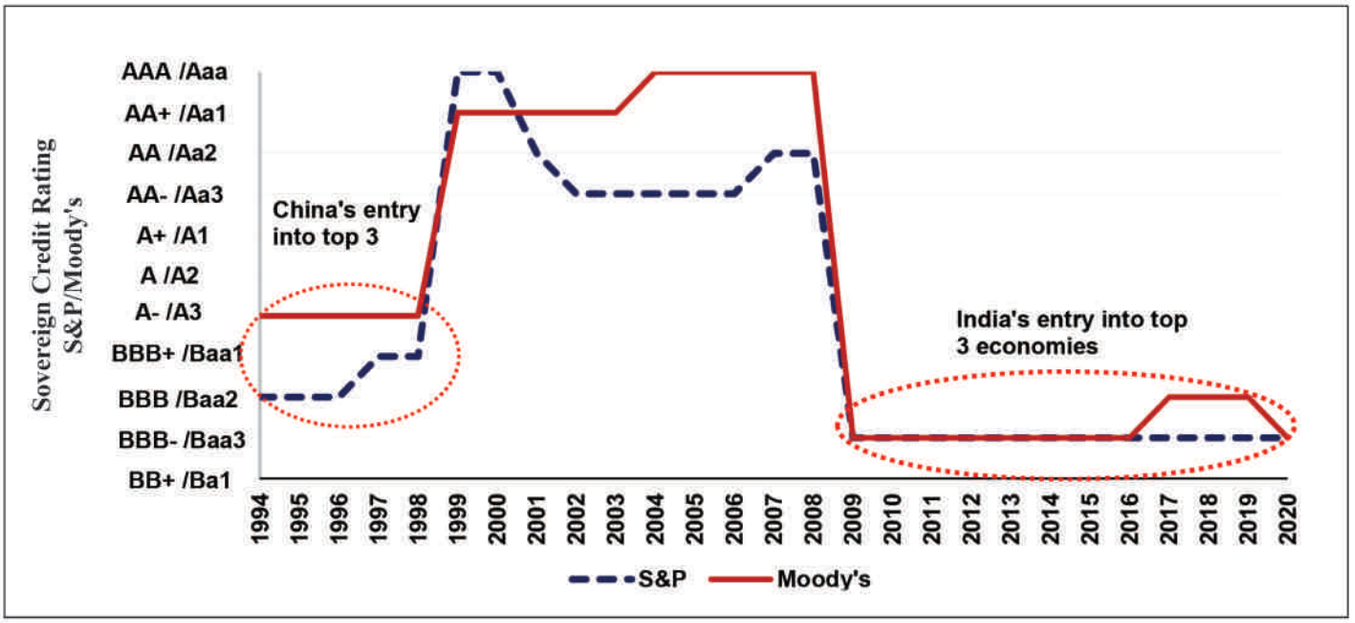
- Since 1994, the only times that the sovereign credit ratings of the fifth largest economy in current US$ terms has precipitously declined, has been when emerging giants China and India have come to occupy the position.
- The sovereign credit rating of the fifth largest economy (current US$) by two credit ratings agencies (CRAs) declined steeply in 2005 following China's entry into the top five economies. Similarly, the sovereign credit rating of the fifth largest economy (current US$) by two CRAs declined steeply in 2019 following India's entry into the top five economies.
- A similar trend is seen in PPP current international $ terms. Since 1994, the only times that the sovereign credit ratings of the third largest economy in PPP terms has steeply declined, has been when emerging giants China and India have become the third largest economy. The sovereign credit rating of the third largest economy (PPP) declined sharply in 1994 by two CRAs, following China's entry into the top three economies. Similarly, the sovereign credit rating of the third largest economy (PPP) declined sharply in 2009 by two CRAs, following India's entry into the top three economies.

Figure 1: Sovereign Credit Rating of Fifth Largest Economy (Current US $)



Source: Bloomberg and World Bank

Figure 2: Sovereign Credit Rating of Third Largest Economy (PPP Current International $)



Source: Bloomberg and World Bank

INDIA'S SOVEREIGN CREDIT RATINGS

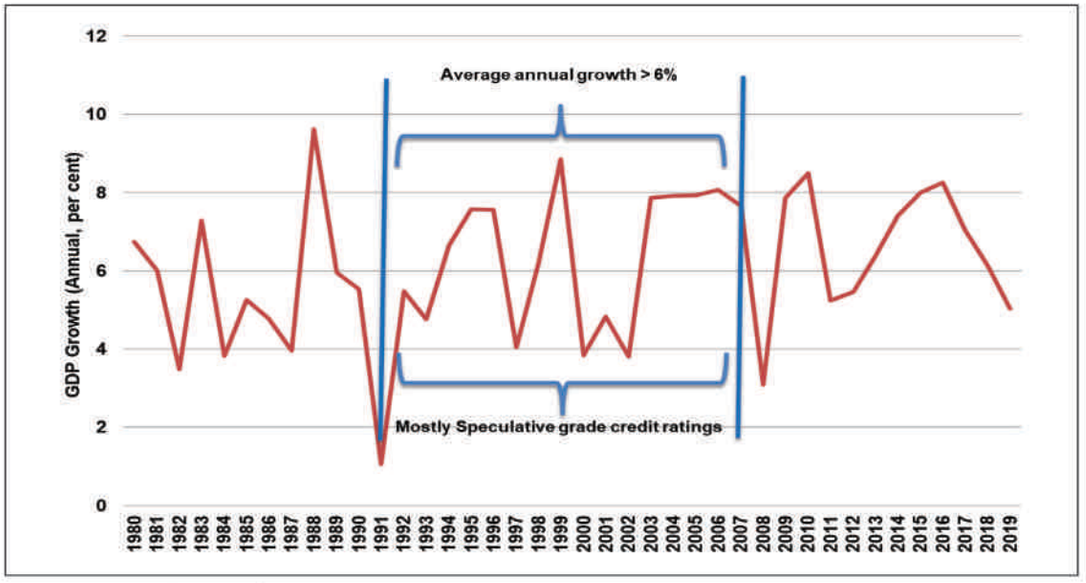
- There is a large academic literature that highlights bias and subjectivity in sovereign credit ratings, especially against countries with lower ratings.
- Do the fundamentals that supposedly drive sovereign credit ratings rationalise this historical anomaly of India's low ratings?

Table 1: India's Sovereign Credit Rating (1998-2020)

Date	S&P	Moody's	Fitch
June 1998		Ba2*	
October 1998	BB*		
March 2000			BB+*
November 2001			BB*
February 2003		Ba1*	
January 2004			BB+*
January 2004		Baa3	
February 2005	BB+*		
August 2006			BBB-
January 2007	BBB-		
November 2017		Baa2	
June 2020		Baa3	

*Speculative Grade; Green highlights ratings upgrade; Red highlights ratings downgrade, Black indicates first rating
Source: Compiled from S&P Global, Fitch and Moody's

Figure 4: India's GDP Growth Annual (Per cent) (1990-2020)



Source: MoSPI and RBI

- Ferri, Liu, and Stiglitz (1999) suggested that CRAs aggravated the East Asian crisis by first failing to predict its emergence and thereafter becoming excessively conservative. CRAs downgraded East Asian crisis countries more than what would have been justified by these countries' worsening economic fundamentals. This adversely affected the supply of international capital to these countries.
- De Moor, Luitel, Sercu and Vanpée (2018) found that the subjective component of S&P, Moody's and Fitch ratings tends to be large, especially for low-rated countries. Through their study of 23 developed and 80 emerging economies during 1995-2014, they observed that for the lowest-rated countries, the subjective component of sovereign credit ratings led to a downward adjustment of the objective rating by up to five notches while for the highest-rated countries, it led to an upward adjustment by one to four notches. They also found that this subjective component was uniform across credit rating agencies and varied mildly over time without following clear trends.
- Tennant and Tracey (2016) observed scope for bias in sovereign credit ratings regarding choice of determinants and weights assigned to them, which is further enhanced given their opacity and subjectivity. Their study of 132 countries during 1997-2011 highlighted distinctions between ratings actions taken for high income and lower-middle and low income countries, as well as between regional grouping of poor countries.
- It may be seen that sovereign credit ratings of the fifth largest economy incurrent US$ terms and that of the third largest economy in PPP $, dip sharply with the entry ofChina and India in this category.

EFFECT OF SOVEREIGN CREDIT RATING CHANGES ON SELECTINDICATORS

- Changes in sovereign credit ratings can affect economies. From 1998 till date, India has witnessed four instances of a sovereign credit ratings downgrade and seven instances of a sovereign credit ratings upgrade. As ratings do not captureIndia's fundamentals, it comes as no surprise that past episodes of sovereign credit rating changes for India have not had major adverse impact on select indicators such as Sensex return, foreign exchange rate and yield on government securities.
- We examine the effect of changes in India's sovereign credit ratings during 1998-2018 on select indicators – stock market return, foreign exchange rate, yield on government securities and foreign portfolio investment flows.
- The potential effects of credit ratings changes are examined over three time periods:
  - **Short Term:** This analysis is based on the occurrence of a ratings change (downgrade/upgrade)on day "T=0", and examines the average change in select indicators during a period of ten workingdays preceding and succeeding the event. In other words, assuming that a credit ratings change takesplace on day "T", we examine the average change in indicators during "T-10" and "T+10" days.

- **Medium Term:** This analysis is based on the occurrence of a ratings change (downgrade/upgrade) in month "T=0", and examines the average change in select indicators during a period ofsix months preceding and succeeding the event. In other words, assuming that a credit ratings changetakes place in month "T", this section examines the average change in indicators during "T-6" and"T+6" months.
- **Long Term:** This analysis is based on the occurrence of a ratings change (downgrade/upgrade)in year "T=0", and examines the average change in select indicators during a period of one yearpreceding and succeeding the event. In other words, assuming that a credit ratings change takes placein year "T", this section examines the average change in indicators during "T-1" and "T+1" years.
- We also examine the effect of India's threshold sovereign credit ratings changes on select indicators. Threshold changes are defined as sovereign rating changes from investment grade to speculative grade and vice versa.

Table 2: Summary of Average Changes in Select Indicators during India's Sovereign Credit Rating Downgrades (1998-2018)

Indicator	During/Post event	Short Term			Medium Term			Long Term		
Sensex return	During event	-1.14%			-3.73%			34%		
	Post event	0.38%			0.5%			26%		
Exchange Rate	During event	-0.01%			1.3%			9%		
	Post event	-0.01%			0.2%			2%		
G Sec Yield		5 yr	10 yr	Spread	5 yr	10 yr	Spread	5 yr	10 yr	Spread
	During event	-	-	-	-1.4%	-3.3%	-22%	-	-	-
	Post event	-	-	-	0.1%	-0.3%	1%	-	-	-
FPI Flows		Equity		Debt	Equity	Debt		Equity		Debt
	During event	-		-	-	-		-67%		-289%
	Post event	-		-	-	-		-759%		-114%

Note: Green indicates positive economic outcome, Red indicates negative economic outcome

- It may be seen that ratings downgrade, on average, do not appear to have strong negative correlation with Sensex return and exchange rate (INR/USD) in the short, medium and long term. G-Sec yields and spread, on average, do not appear to be negatively correlated with ratings downgrades in the medium term. Rating downgrades, on average, appear to have a negative correlation with FPI (Equity and Debt) in the long term.

Table 3: Summary of Average Changes in Select Indicators during India's Sovereign Credit Rating Upgrades (1998-2018)

Indicator	During/Post event	Short Term			Medium Term			Long Term		
Sensex return	During event	-0.7%			2%			36%		
	Post event	0.2%			1.8%			13%		
Exchange Rate	During event	-0.05%			-0.29%			-1.5%		
	Post event	-0.03%			-0.36%			-2.3%		
G Sec Yield		5 yr	10 yr	Spread	5 yr	10 yr	Spread	5 yr	10 yr	Spread
	During event	-	-	-	0.2%	-0.5%	-5%	-	-	-
	Post event	-	-	-	0.6%	0.7%	5%	-	-	-
FPI Flows		Equity		Debt	Equity	Debt		Equity		Debt
	During event	-		-	-	-		264%		286%
	Post event	-		-	-	-		303%		578%

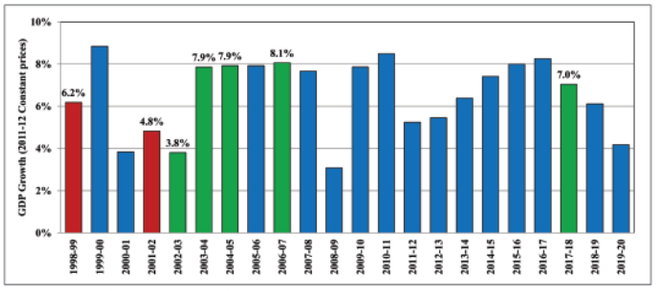
Note: Green indicates positive economic outcome, Red indicates negative economic outcome

- India's sovereign credit ratings upgrade between 1998-2018. In the short run, during India's sovereign credit rating upgrades, Sensex return on average fell by around 0.7 per cent over the previous day, and grew at 0.2 per cent over the next two weeks. Exchange rate (INR/USD), on average, appreciated by around 0.05 per cent over the previous day during the rating upgrade, and appreciated by 0.03 per cent over the next two weeks.
- Over the medium term, during India's sovereign credit ratings upgrade, Sensex return on average rose by around two per cent over the previous month and grew at an average rate of 1.8 per cent over the next six months. Exchange rate (INR/USD), on average, appreciated by around 0.3 per cent over the previous month during the rating upgrade, and appreciated by 0.4 per cent over the next 6 months. During ratings upgrade, yield on G-Sec (5 year), on average, increasedby 0.2 per cent over the previous month, and grew at 0.6 per cent over the next six months. Yield on G-Sec (10 year), on average, fell by 0.5 per cent over the previous month, and grew at an average rate of 0.7 per cent over the next six months. Spread (RHS), on average, declined by five per cent over the previous month, and grew at an average rate of five per cent over the next six months.
- In the long term, during India's sovereign credit ratings upgrade, Sensex return on average rose by around 36 per cent over the previous year and grew at an average rate of 13 per cent in the next year. Exchange rate (INR/USD), on average, appreciated by around 1.5 per cent over the previous year during the rating upgrade, and appreciated by two per cent in the next year. FPI Equity, on average, increased by 264 per cent over the previous year during the rating upgrade, and grew by 303 per cent the next year.
- India witnessed one instance of credit rating downgrade from the investment grade to speculative grade during the period 1998-2018. This coincided with the period of international sanctions following the Pokhran nuclear tests in 1998. India witnessed three instances of credit ratings upgrade from the speculative grade to the investment grade. These were in mid 2000s, as testament to India's higher economic growth prospects and strong fundamentals.

MACROECONOMIC INDICATORS AS DETERMINANTS OFSOVEREIGN CREDIT RATING CHANGES

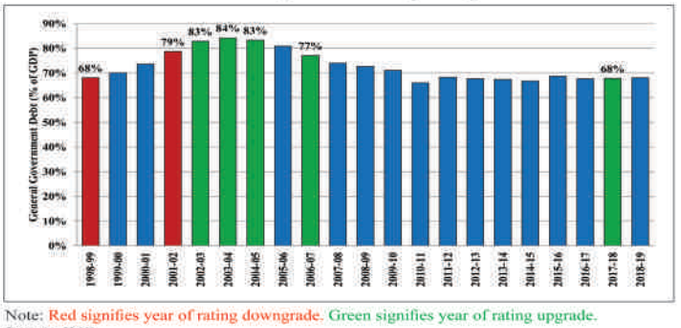
- We further examine the correlation between select fiscal and macro-economic indicatorsof India and episodes of sovereign credit ratings changes. Past episodes of rating changes haveno or weak correlation with macroeconomic indicators.
- Figure shows India's general government debt (as per cent of GDP) in relation to sovereign credit ratings changes during 1998-2019. Most sovereign credit rating upgrades occurred in years that witnessed higher or similar level of general government debt (as per cent of GDP) as the previous year. Another figure shows India's overall debt (as per cent of GDP) in relation to sovereign credit ratings changes during 1998-2019. Most credit ratings upgrades occurred in years that witnessed higher overall debt as compared to the previous year.
- Similarly the given figure shows India's GDP Growth (at constant 2011-12 prices) in relation to sovereign credit rating changes during 1998-2020. There is no clear pattern between changes in GDP growth and sovereign credit rating changes.
- The given figure shows, India's Fiscal Deficit (as per cent of GDP) for Central and State Governments in relation to sovereign credit ratings changes during 1998-2020. All sovereign credit ratings upgrades occurred in years that witnessed lower fiscal deficit as compared to the previous year.

Figure 36: India's GDP Growth (2011-12 Constant Prices) and Sovereign Credit Rating Changes



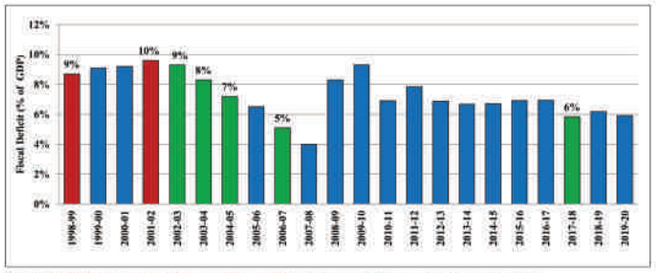
Note: Red signifies year of rating downgrade. Green signifies year of rating upgrade.
Source: MoSPI and RBI

Figure 38: India's General Government Debt (as % of GDP) and Sovereign Credit Rating Changes



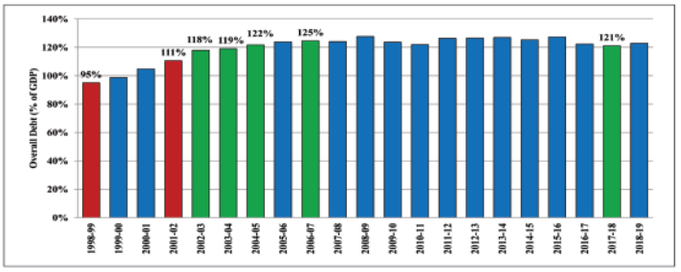
Note: Red signifies year of rating downgrade. Green signifies year of rating upgrade.
Source: IMF

Figure 37: India's Fiscal Deficit (as per cent of GDP) and Sovereign Credit Rating Changes



Note: Red signifies year of rating downgrade. Green signifies year of rating upgrade.
Source: RBI

Figure 39: India's Overall Debt (as per cent of GDP) and Sovereign Credit Rating Changes



Note: Red signifies year of rating downgrade. Green signifies year of rating upgrade.
Source: IMF

POLICY IMPLICATIONS

- The Survey questioned whether India's sovereign credit ratings reflect its fundamentals,and found evidence of a systemic under-assessment of India's fundamentals as reflected in itslow ratings over a period of at least two decades.
- India's fiscal policy must, therefore, not remainbeholden to such a noisy/biased measure of India's fundamentals and should instead reflectGurudev Rabindranath Thakur's sentiment of a mind without fear.
- In other words, India's fiscalpolicy should be guided by considerations of growth and development rather than be restrainedby biased and subjective sovereign credit ratings.
- While sovereign credit ratings do not reflect the Indian economy's fundamentals, noisy,opaque and biased credit ratings damage FPI flows.

Way Forward

- Sovereign credit ratings methodologymust be amended to reflect economies' ability and willingness to pay their debt obligations bybecoming more transparent and less subjective.
- Developing economies must come together toaddress this bias and subjectivity inherent in sovereign credit ratings methodology to preventexacerbation of crises in future.
- The pro-cyclical nature of credit ratings and its potential adverse impact on economies,especially low-rated developing economies must be expeditiously addressed.
- India has alreadyraised the issue of pro-cyclicality of credit ratings in G20. In response, the Financial Stability Board(FSB) is now focusing on assessing the pro-cyclicality of credit rating downgrades.

04 Inequality and Growth: Conflict or Convergence?

INTRODUCTION

- The relationship between inequality and socio-economic outcomes, on the one hand, and economic growth and socio-economic outcomes, on the other hand, is different in India from that observed in advanced economies.
- By examining the correlation of inequality and per-capita income with a range of socio- economic indicators, including health, education, life expectancy, infant mortality, birth and death rates, fertility rates, crime, drug usage and mental health, the Survey highlights that both economic growth – as reflected in the income per capita at the state level –and inequality have similar relationships with socio-economic indicators.
- The Economic Survey 2019-20 argued that ethical wealth creation – by combining the invisible hand of markets with the hand of trust – provides the way forward for India to develop economically.
- Higher inequality leads to adverse socio-economic outcomes but income per capita, a measure that reflects the impact of economic growth, has little impact.
- Some commentary, especially in advanced economies post the Global Financial Crisis, argues that inequality is no accident but an essential feature of capitalism. Such commentaries, thus, highlight a potential conflict between economic growth and inequality.
- The significant reduction in poverty that high economic growth has delivered in India and China presents the most striking challenge to this notion of conflict between economic growth and inequality.

POLICY TRADE-OFFS

- Choices in economic policy always present inherent trade-offs. Resolving these trade-offs in a manner that suits the specific economic context of the day is, therefore, critical to lay out clear policy objectives.
- The advanced economies may choose to focus on alleviating inequality given their stage of development, their potential rate of economic growth and the absolute levels of poverty that they face. Thus, they may resolve the trade-off between growth and inequality by leaning towards alleviating inequality.
- However, despite facing the same trade-off, the policy objective of focusing on inequality may not apply in the Indian context given the differences in the stage of development, India's higher potential rate of economic growth and the higher absolute levels of poverty.
- Convergence or Conflict : Does inequality and growth conflict or converge in the Indian context in an effort to identify the correct policy objective for India? Both economic growth and inequality have similar relationships with socio-economic indicators.

CASE STUDY: CHINA

- China has made exceptional strides in reducing its extreme poverty rates since 1970s.
- The head count ratio of poverty has reduced by 94 per cent from 1980 to 2015 in rural China. By the official poverty line, which is about 21 per cent higher than the line that is set at USD 1.9 per day (2011 PPP), since 1980, the country has made remarkable progress in reducing poverty.
- The huge fall in poverty came from the poorest quintile increasing their annual income over a long time, while the rise in inequality stemmed from top quintile increasing their income much faster than their poor counterparts.
- World Bank research argues that benefits of China's sustained economic growth have really trickled down. Accelerating industrialization and urbanization in a country of over one billion people has transformed a large number of the agricultural surplus labor in the countryside into urban employment in China.
- Between 1978 and 2015, the number of people in nonfarm jobs as a percentage of total employment increased from 29 per cent to 70 per cent. This change also occurred in poor areas and to poor households. Between 2002 and the end of 2012, earnings from wage and salaries as a percentage of total household income rose from 26 per cent to 43 per cent for rural households in the bottom 20 percentile, at a rate that was roughly comparable to the national average.

- Evidently, low-income rural households have benefitted proportionally from the changes in the country's employment pattern engendered by the dual process of industrialization and urbanization.
- This was also aided by a good system of equal land ownership reforms, social development programs in rural areas since 2000 (including universal compulsory education up to grade 9, rural medical cooperative system, social pension system for rural residents, and a minimum living allowance scheme) and targeted poverty reduction programs, in place nationally since 1986. China is now on road to end extreme poverty by 2030.

QUEST FOR 'PERFECT EQUALITY'

- Inequality and income per capita do not diverge in their relationship with socio-economic outcomes in India, so now it is worth asking : is perfect equality optimal?
- In most cases, inequality of opportunity is much more objectionable than inequality of outcomes, as individuals' opportunities are influenced by endowments that are related to parents and other adults, peers, and a variety of chance occurrences throughout their lifetimes.
- Note that perfect equalisation of outcomes ex-post, i.e., after the efforts have been exerted to obtain those outcomes, can reduce individuals' incentives for work, innovation and wealth creation.
- Social welfare function depends on not just the size of the pie but also how it is distributed.

INEQUALITY OR POVERTY?

- Inequality refers to the degree of dispersion in the distribution of assets, income or consumption.
- Poverty refers to the assets, income or consumption of those at the bottom of the distribution. Poverty could be conceptualised in relative terms or in absolute terms. People feel themselves to be poor, and think others to be poor if they have substantially less than what is commonplace among others in their society. Poverty, in this view, is relative deprivation. (Brady 2003; Iceland 2003). If the poverty is conceptualized in relative terms, there is no need to distinguish it from inequality. A relative measure of poverty is indeed a measure of inequality. On the other hand, if poverty is conceptualized in an absolute sense, that is, focusing on the absolute levels of assets, income or consumption of those at the low end of the distribution, then increases in inequality may be accompanied by reduction in poverty.
- According to John Rawls, that the most reasonable way to decide upon a fair distributive principle is to imagine that you must make this decision knowing you will be born into the world but not knowing anything about what your assets and characteristics intelligence, personality traits, parents, neighbourhood, gender, skin colour, etc. will be. Rawls referred to this hypothetical scenario as the "original position." He suggested that in such a situation a rational person would choose a distributive principle requiring that any increase in inequality increase the income of those at the bottom.
- As long as the poor have "adequate" incomes, an increase in the incomes of the rich need not benefit the poor to be considered just. The results of such experiments suggest that (absolute) poverty should be of greater concern than inequality.
- Of course, it is possible that if the incomes of the rich pull too far away from the rest of society, growing frustration may lead to rising crime, withdrawal from civic engagement, and loss of social cohesion (Krugman 2002).
- At the level of development that India is currently in, the focus on poverty alleviation through growth must be central to India's economic strategy.

LESSONS FOR INDIA

- For a developing country such as India, where the growth potential is high and the scope for poverty reduction is also significant, a policy that lifts the poor out of poverty by expanding the overall pie is preferable as redistribution is only feasible if the size of the economic pie grows rapidly.

RELATIVE IMPACT OF ECONOMIC GROWTH AND INEQUALITY ON POVERTY IN INDIA

- Poverty alleviation through growth must remain the economic focus for India, this section examines whether income per capita or inequality impacts poverty the most in India.

- The correlations between income and poverty and inequality and poverty in the Indian states is estimated. To analyse the relationship between income and poverty, per capita NSDP (actual series and spliced series) and the official head count ratio are plotted. The data for four years (1993, 1999, 2004 and 2011) suggests an overall strong negative relationship, implying that the states with greater income or high per capita NSDP experienced low rates of poverty and vice versa. However, such strong relationship is absent between inequality and poverty.
- World Bank (2000) find that India could achieve sustained decline in poverty during 1970s-1990s only when the GDP growth picked up from 3.5 per cent in the initial years. Also, rise in the growth of mean consumption was responsible for approximately 87 per cent of the cumulative decline in poverty, while redistribution contributed to only 13 per cent. Similarly, Kraay (2004) uses the evidence from 80 countries to demonstrate that in medium to long run, growth in average incomes contributed to 66-90 per cent of the variations in changes in poverty. Another study, highlights that economic growth had a bigger impact on reducing poverty.
- The findings reinforce previous studies on the empirical relation between growth and poverty in India (see Nayyar (2005)). More recently, analysing six decades of data from 1957 to 2012 for India, experts find that growth reduced poverty, and their association has acquired more strength after the 1991 reforms. They also find that the pattern of growth has changed significantly after 1991. Poverty is concentrating more and more in urban areas, as now one-in-three poor is living in urban areas, which was about one-in-eight in the early 1950s. In the post-liberalisation period urban growth and non-agricultural growth has emerged as a major driver of national poverty reduction including rural poverty.
- Every finding and research gave the same result that, growth leads to poverty reduction.

CONCLUSION

- Unlike in advanced economies, in India economic growth and inequality converge in terms of their effects on socio-economic indicators.
- Economic growth has a far greater impact on poverty alleviation than inequality.
- Given India's stage of development, India must continue to focus on economic growth to lift the poor out of poverty by expanding the overall pie.
- The given policy focus does not imply that redistributive objectives are unimportant, but that redistribution is only feasible in a developing economy if the size of the economic pie grows.
- In sum, for a developing country such as India, where the growth potential is high and the scope for poverty reduction is also significant, the focus must continue on growing the size of the economic pie rapidly at least for the foreseeable future.

05 Healthcare takes Centre Stage, Finally!

INTRODUCTION

- The health of a nation depends critically on its citizens having access to an equitable, affordable and accountable healthcare system. Health affects domestic economic growth directly through labour productivity and the economic burden of illnesses (WHO 2004). Increasing life expectancy from 50 to 70 years (a 40 per cent increase) could raise the economic growth rate by 1.4 percentage points per year (WHO 2004).
- Increased prioritization of healthcare in the central and state budgets is important as it crucially impacts how much protection citizens get against financial hardships due to outof- pocket payments made for healthcare (WHO 2010). OOP for health increase the risk of vulnerable groups slipping into poverty because of catastrophic health expenditures (O'Donnell et al. 2007; Berki 1986; van Doorslaer et al. 2006).
- In fact, an increase in government healthcare spending over a decade in varied countries such as China, Indonesia, Philippines, Pakistan and Thailand significantly decreased the out-ofpocket expenditures of its citizens (Smith et al, 2020).

GIVEN SIGNIFICANT MARKET FAILURES, HEALTHCARE NEEDS CAREFUL SYSTEM DESIGN

- Healthcare systems do not self-organise using the force of free markets because of three key inherent and unchanging characteristics (Arrow, 1963): (i) uncertainty/variability of demand; (ii) information asymmetry; and (iii) hyperbolic tendencies. Hence, any active system design of healthcare must be mindful of these inherent characteristics.

Uncertainty/variability of demand

- The need for health care is driven often by factors that cannot be controlled or predicted. This is also coupled with the nature of demand, which is inelastic especially for emergency care. Given this uncertainty and variability at the individual level, pooling of healthcare expenditures via health insurance can help to reduce healthcare risk at the macroeconomic level.

Information asymmetry

- In healthcare markets, Arrow (1963) explained that buyers of information (patients) rarely know the value of the information until after it is purchased and sometimes never at all. For example, when individuals avail of a healthcare service like dermatology (i.e., skin care), they may be able to readily evaluate the outcome. Therefore, for such services, low-quality providers will have to reduce their price to remain competitive. In contrast, patients who must undergo open-heart surgery may find it very difficult to evaluate its quality and have to therefore rely on the reputation of the hospital/doctor as a proxy for the quality. For some services such as preventive care and/or mental health, patients may never know for sure whether their provider did a good job.
- As Akerlof (1970) predicts, when little information is available on the quality of a product prior to purchase, and the quality of the product is uncertain, quality deteriorates to the lowest level in an unregulated market. While reputation can partially mitigate this market failure, the design of healthcare systems must account for this market failure, which can otherwise lead to loss of consumer faith and resultant under-investment in healthcare.

HYPERBOLIC TENDENCIES

- People tend to indulge in risky behavior that may not be in their self-interest. Examples include smoking, eating unhealthy food, delay in seeking care, not wearing masks or keeping social distancing in the context of the pandemic. Such individual behavior may not only be suboptimal for the individual but also create negative externalities for the entire healthcare system through higher costs and poorer outcomes. Typically, consumers tend to demand primary care less than the economically optimal levels as the price elasticity for this product/service is very high. For instance, among TB patients in Delhi who initially visited a qualified practitioner in 2012, the average length of time from when TB symptoms first appeared to when they reached a DOTS facility was 5.2 months (Kapoor et al, 2012). Similarly, India

has very low rate of screening for cancers among women in the age bracket of 15-49 years at 22 per cent for cervical cancer, 10 per cent for breast cancer and 12 per cent for oral cancer when compared to 62 per cent, 59 per cent and 16 per cent respectively in OECD Countries (NFHS 4 and OECD 2015). In fact, the privately optimal preference for primary care may be so low that individuals may have to even be paid to use adequate primary care. Individuals also under-estimate health risks and may, therefore, not purchase adequate health insurance.

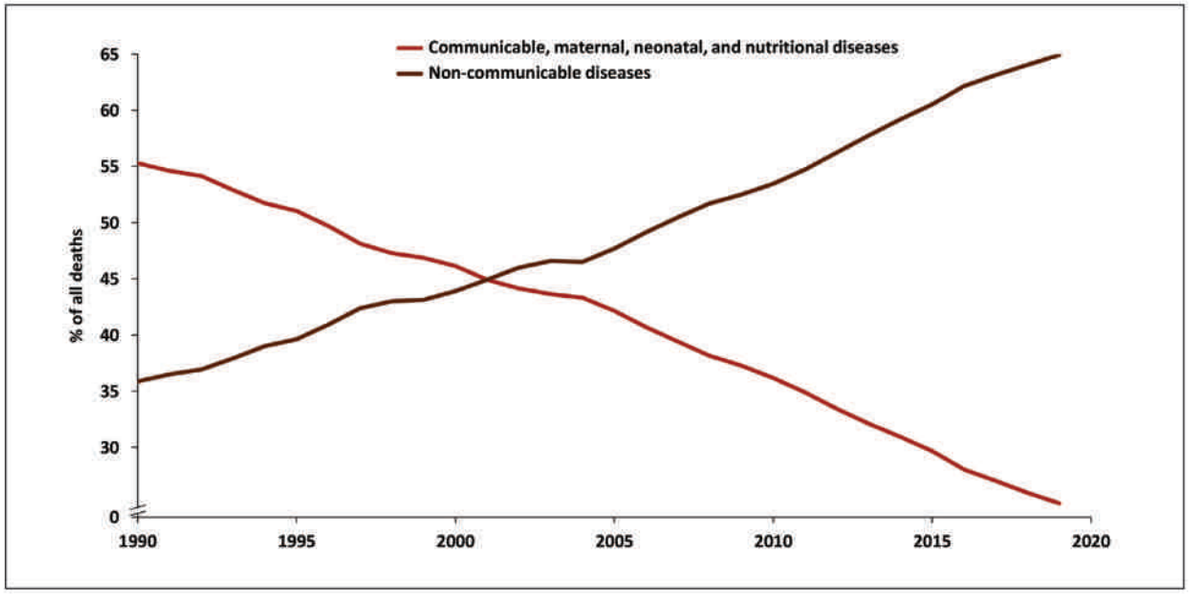
NEED FOR SYSTEM DESIGN IN HEALTHCARE

- Given these market failures, a free market where individual consumers purchase services from providers on their own while paying at the point of service leads to severely sub-optimal outcomes including demand that can be influenced and induced by suppliers, over-seeking of hospitalization and under-seeking of primary care/public health when compared to economically optimal levels, and catastrophic out-of-pocket spending in part due to the low preference for health insurance. Therefore, most well-functioning health systems are structured as oligopolies purchasing from oligopsonys instead of individual consumers purchasing from individual providers. The structure of the market has substantial implications for long term trajectory of the health system. Countries with more fragmented health systems tend to have lower performance as reflected in higher costs, lower efficiency, and poor quality. Therefore, in addition to providing healthcare services and financing healthcare, a key role for the government is to actively shape the structure of the healthcare market.

COVID-19 AND INDIA'S HEALTHC ARE POLIC Y

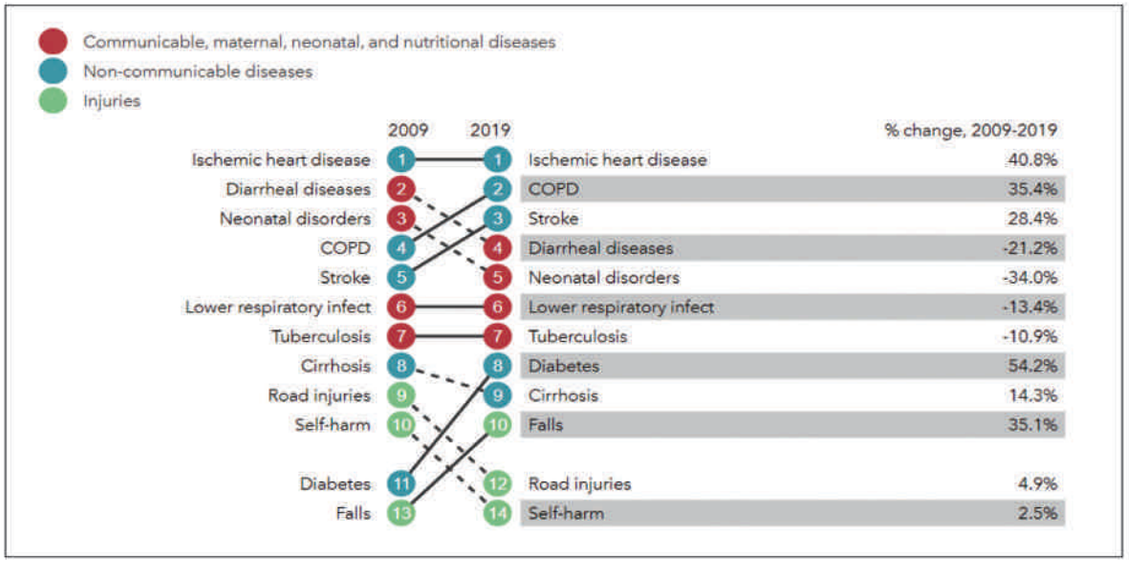
- Following the Covid-19 pandemic, a key portfolio decision that healthcare policy must make is about the relative importance placed on communicable versus non-communicable diseases. The Covid-19 pandemic has spread worldwide because it is a communicable disease. The previous such pandemic occurred more than a century back when the Spanish Flu pandemic devastated the world in 1918. As pandemics represent rare events, healthcare policy can become a victim of "saliency bias", which involves over-weighting recent phenomena. 71 per cent of global deaths and about 65 per cent of deaths in India are caused by non-communicable diseases (NCDs) (Figure 4, Panel a). Between 1990 and 2016, the contribution of NCDs increased 37 per cent to 61 per cent of all deaths (National Health Portal, n.d.). Further, preventing communicable diseases requires focus on better sanitation and drinking water, which the Swachh Bharat and the Har Ghar Jal Abhiyan campaigns are focusing on.

Figure 4 (Panel a): Proportion of communicable and non-communicable diseases in India



Source: Global Burden of Diseases (2019)

Figure 4 (Panel b): NCD's: one among top 10 reasons for deaths



Source: Institute for Health Metrics and Evaluation

Indian Healthcare currently

- Despite improvements in healthcare access and quality (healthcare access and quality scored at 41.2 in 2016, up from 24.7 in 1990), India continues to underperform in comparison to other Low and Lower Middle Income (LMIC) countries. On quality and access of healthcare, India was ranked 145th out of 180 countries (Global Burden of Disease Study 2016). Only few sub-Saharan countries, some pacific islands, Nepal and Pakistan were ranked below India.

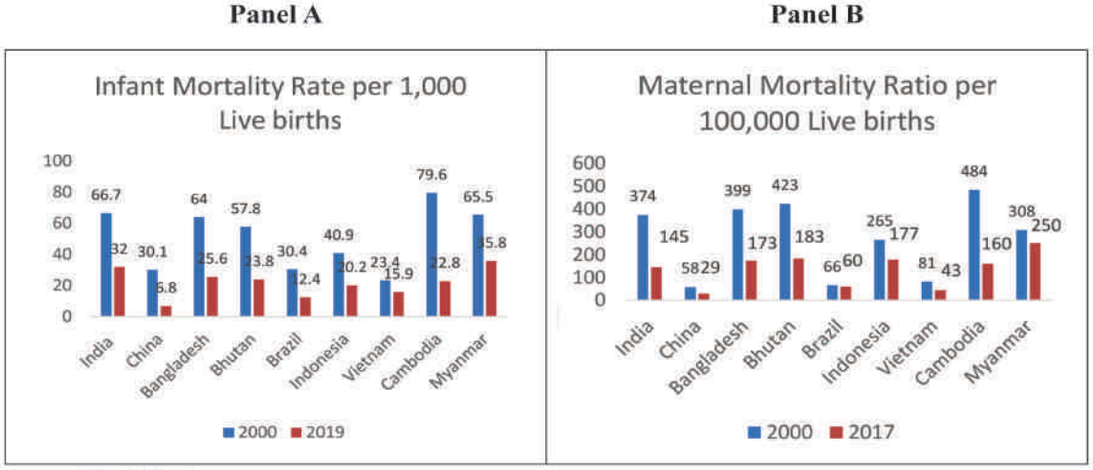
Poor health outcomes

- As seen in Figure 6, despite improvements in MMR and IMR, India still needs to improve significantly on these metrics. Countries such as China, Bangladesh, Bhutan, Cambodia, etc. have improved much more on these metrics than India.

Low access and utilisation

- At 3-4 per cent, the hospitalisation rates in India are among the lowest in the world; the average for middle income countries is 8-9 per cent and 13-17 per cent for OECD countries (OECD Statistics). Given the increasing burden of NCD, lower life expectancy, higher MMR and IMR, the low hospitalisation rates are unlikely to reflect a more healthy population as compared to middle income or OECD countries. Thus, the low hospitalisation rates reflect lower access and utilisation of healthcare in India.

Figure 6: IMR and MMR in India and other countries

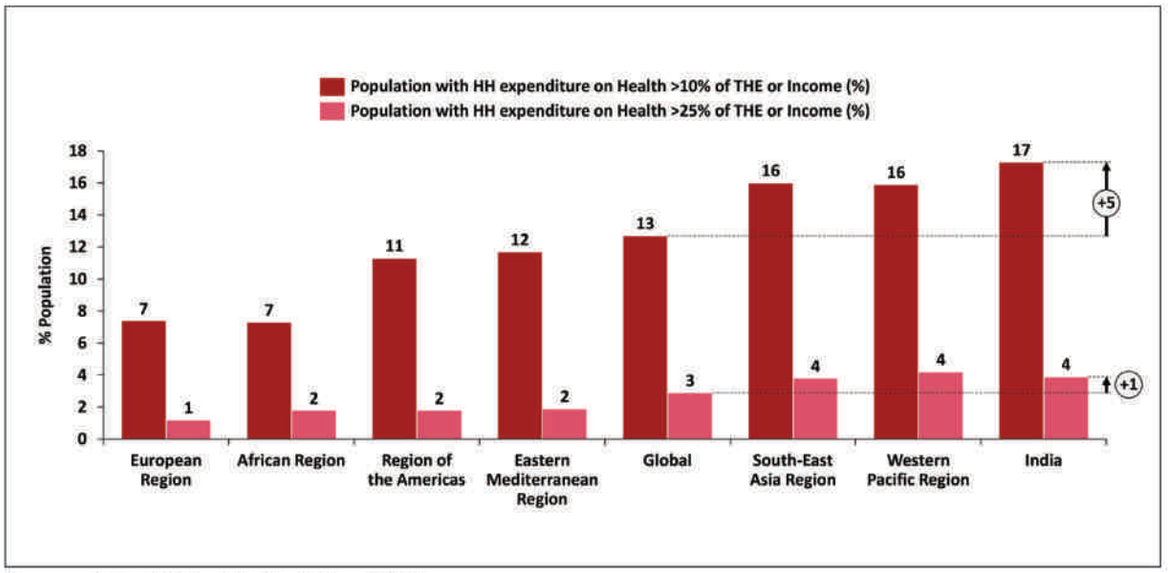


Source: World Bank

High out-of-pocket health exp enditures

- As shown in Figure 7 below, India has one of the highest levels of OOPE in the world.

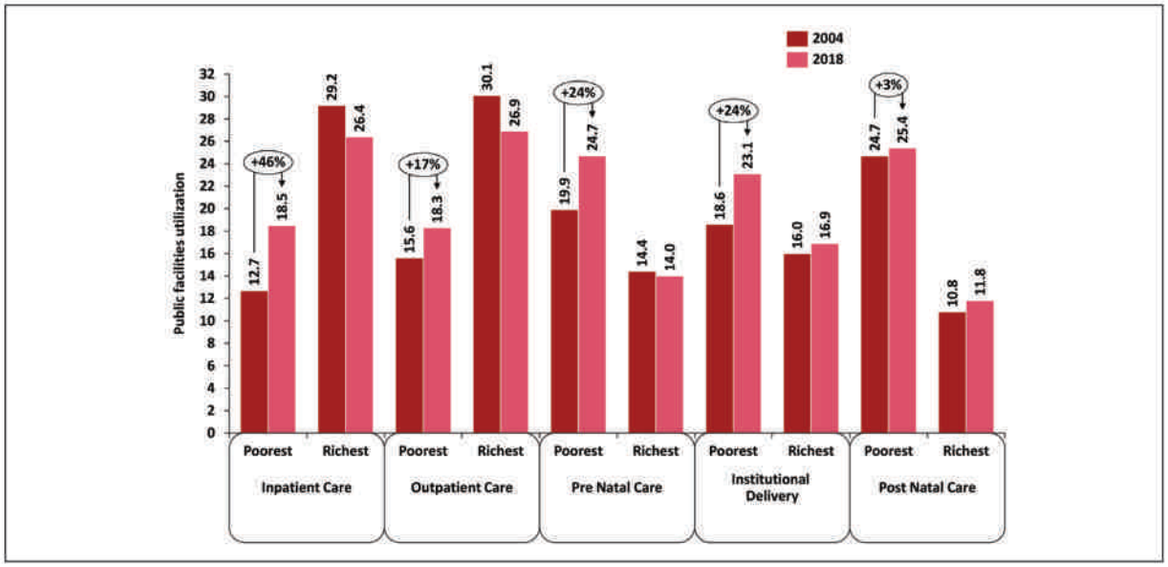
Figure 7: Comparison of Health Expenditure across different regions



Source: World Health Statistics 2020

- However, recent data show that the distribution of the public subsidy has improved in favour of the poor, more clearly in maternity and child healthcare. Earlier studies have argued that public sector-based healthcare has been pro-rich (or aggressive) (Berman et al. 2017). This had resulted in poor households being disproportionately impacted by OOPE and pushed below the poverty line. In recent times, the percentage of the poorest utilising prenatal care through public facilities has increased from 19.9 per cent to 24.7 per cent from 2004 to 2018, and there is a similar increase in the percentage of the poor accessing institutional delivery as well as post-natal care (Figure 9). The poorest utilising inpatient care and outpatient care has increased from 12.7 per cent to 18.5 per cent and from 15.6 per cent to 18.3 per cent. At the same time, both inpatient and outpatient utilisation among the richest dropped from 29.2 per cent to 26.4 per cent and 30.1 per cent to 26.9 per cent, respectively.

Figure 9: Increasing equity in healthcare (2004-18)

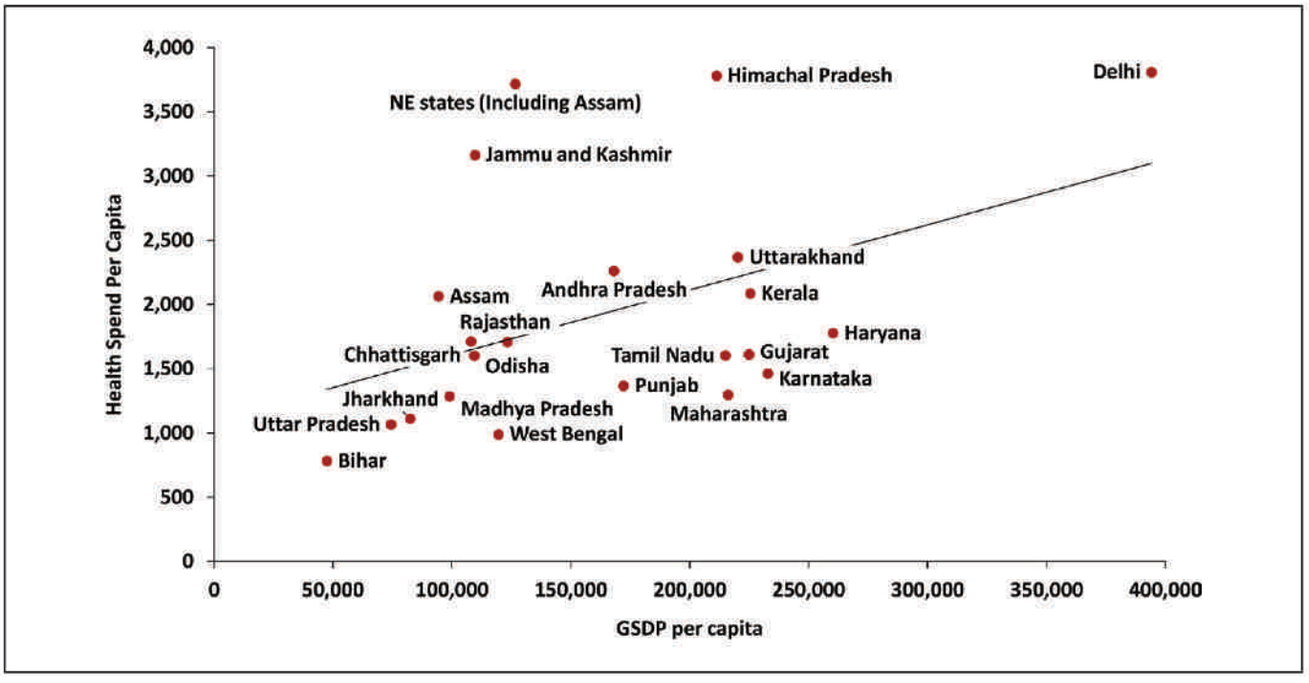


Source: Survey computation based on NSSO (2004) & NSSO (2018)

Low budget allocations for healthcare

- As health is a state subject in India, spending on healthcare by states matters the most when examining government healthcare spending. According to National Health Accounts, 2017, 66 per cent of spending on healthcare is done by the states. India ranks 179th out of 189 countries in prioritization accorded to health in its government budgets (consolidated union & state government).
- The state expenditure on healthcare is highly variable across states and is not fully explained by the income level of the state. Figure 11 illustrates the same: while healthcare spending per capita increases with the GSDP per capita, healthcare spending as a per cent of GSDP decreases with the GSDP per capita. Thus, the richer states are spending a lower proportion of their GSDP on healthcare.

Figure 11: Healthcare spending across different Indian States



- The states that have higher per capita spending have lower out-of-pocket expenditure, which also holds true at global level. Hence, there is need for higher public spending on healthcare to reduce OOP.

Low human resources for health

- Health status of any country crucially depends on the available health infrastructure in general and human resources for health. Several research studies, using cross-country data, have highlighted a positive causal link between the availability of the health workforce in a healthcare system and health outcomes (Jadhav et al, 2019, Choudhury and Mohanty 2020, Anand and Bärnighausen 2004). World Health Organization (WHO) identified an aggregate density of health workers to be 44.5 per 10,000 population and an adequate skill-mix of health workers to achieve composite SDG tracer indicators index by 2030 (WHO 2019). The WHO also specified a lower range of 23 health workers per 10,000 population to achieve 80 per cent of births attended by skilled health professionals.
- Although aggregate human resources for health density in India is close to the lower threshold of 23, the distribution of health workforce across states is lop-sided. Also, the skill mix (doctor/nurse-midwives ratio) is far from adequate. State-level variations in the density of health workers and the skill mix reflects that while Kerala and Jammu and Kashmir have a high density of doctors, states like Punjab, Himachal Pradesh and Chhattisgarh have a larger number of nurses and midwives but a very low density of doctors. Andhra Pradesh, Delhi and Tamil Nadu reflect a better balance of doctors and nurses and midwives (Figure 13 and 14).

Figure 13: Density of doctors and Nurses/Midwives in different Indian states

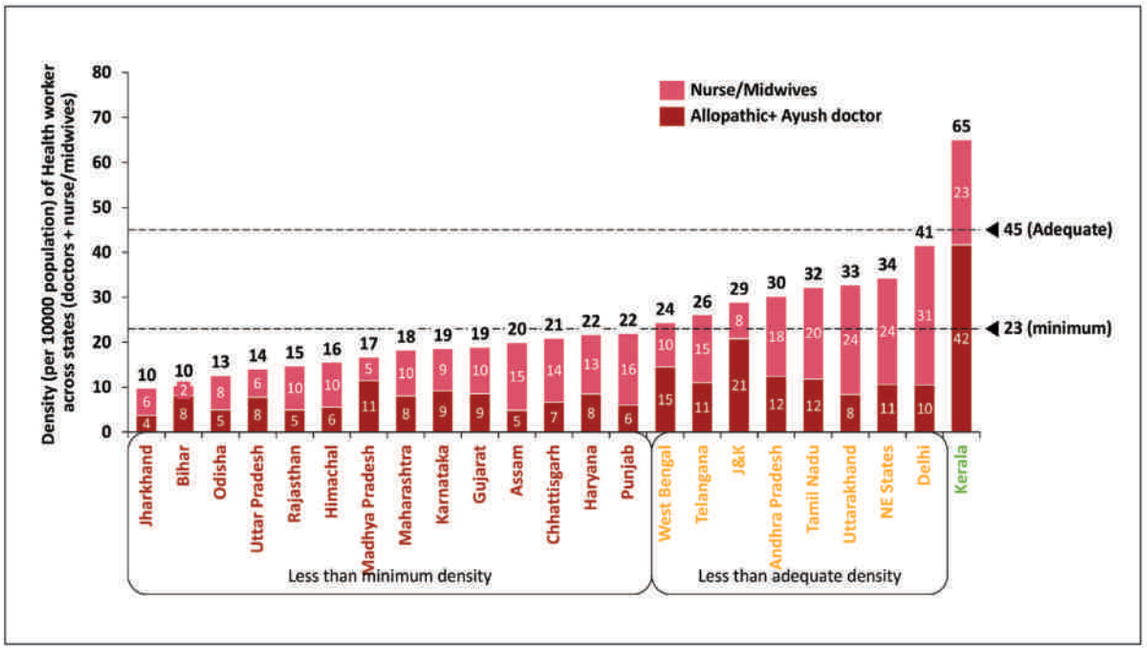
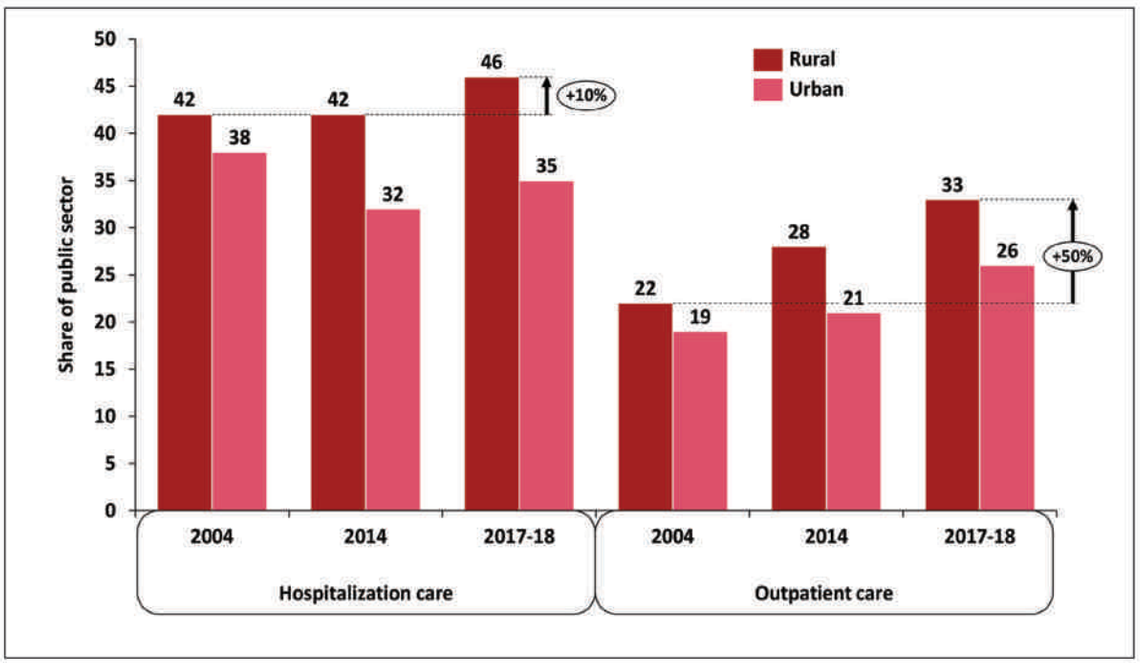


Figure 15: Share (per cent) of public sector in total healthcare, hospitalisation care and outpatient care

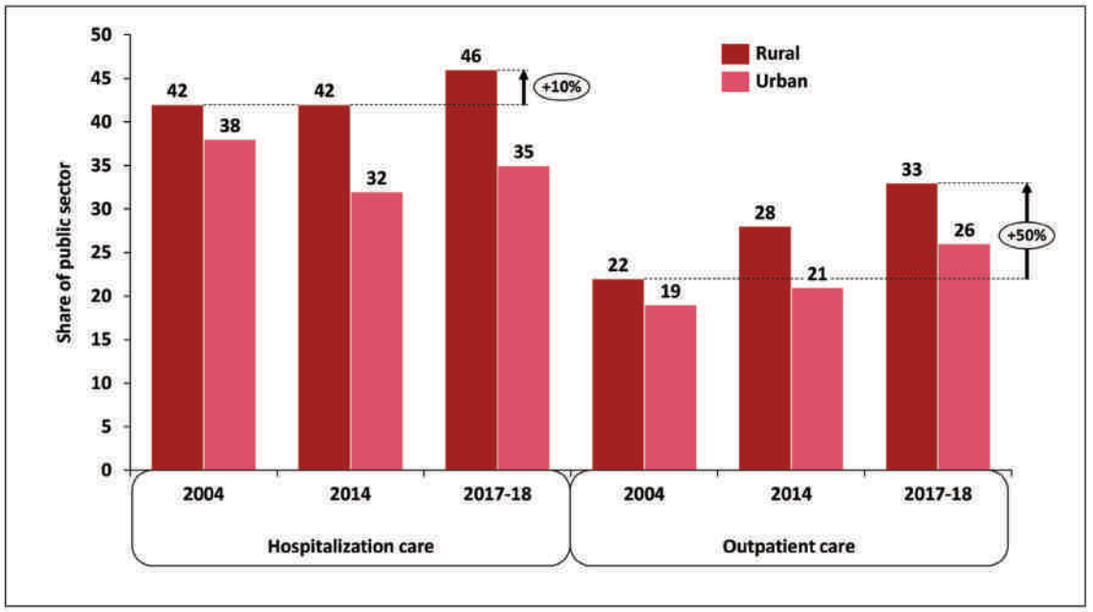


Source: NSSO, various rounds.

UNREGUL ATED PRIVATE ENTERPRISE IN AN IN DUSTRY MARKED BY HIGH LEVEL OF MARKET FAILURE

- While the share of public institutions has increased both in hospital and outpatient cares, the private sector dominates in total healthcare provision in India. Around 74 per cent of outpatient care and 65 per cent of hospitalisation care is provided through the private sector in urban India (Figure 15).

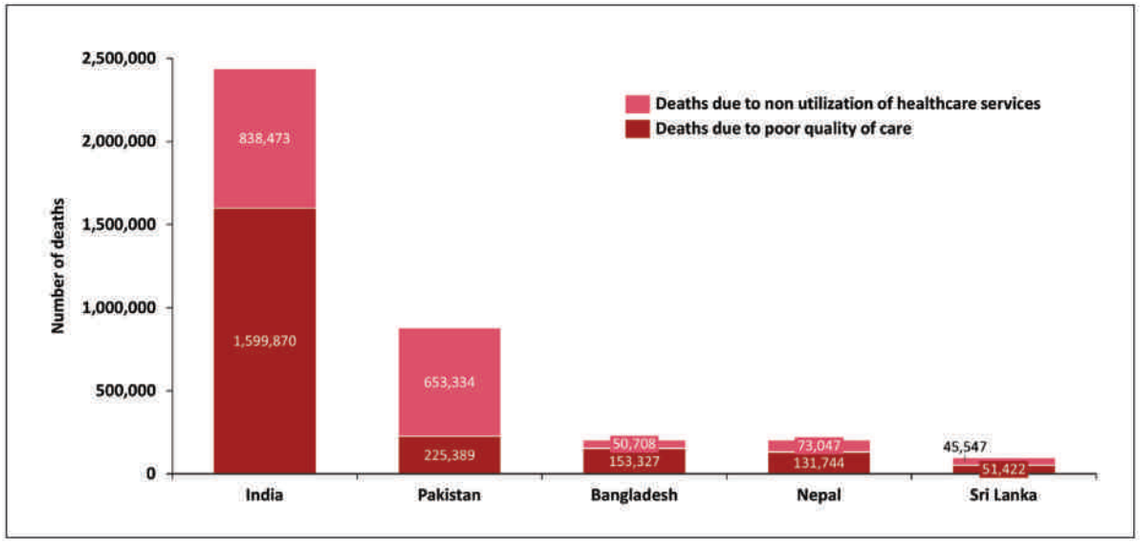
Figure 15: Share (per cent) of public sector in total healthcare, hospitalisation care and outpatient care



Source: NSSO, various rounds.

- The significant market failures that stem from information asymmetries in the healthcare sector were highlighted earlier. Therefore, unregulated private enterprise can create significant negative effects. For instance, Kurk et al. (2018) highlight that a large proportion of deaths in India manifests due to poor quality of healthcare than due to insufficient access; this proportion is significantly higher than neighbouring countries (Figure 16).

Figure 16: Poor care quality leads to more deaths than insufficient access to healthcare



- The problem of asymmetric information in healthcare is also reflected in the substantial variation in costs for treating the same disease between public and private sector. As argued above, the quality of treatment in the private sector does not seem to be markedly better in the private sector when compared to the public sector. Yet, the costs of treatment are not only uniformly higher in the private sector, the differences are humongous for in-patient treatments of severe illnesses such as cancers (3.7x), cardio (6.8x), injuries (5.9x), gastro (6.2x), and respiratory (5.2x) (NSSO data, Figure 18 and 19).

- Given the market failures stemming from significant asymmetric information, an unregulated private healthcare system is clearly sub-optimal compared to a system where policies mitigate the problem of asymmetric information. Parallels can be drawn from banking and financial intermediation – another industry that suffers from significant market failures due to asymmetric information – to design policies for mitigating these market failures.

Figure 18: Substantial variation in costs for treating the same disease between public and private sector (outpatient care)

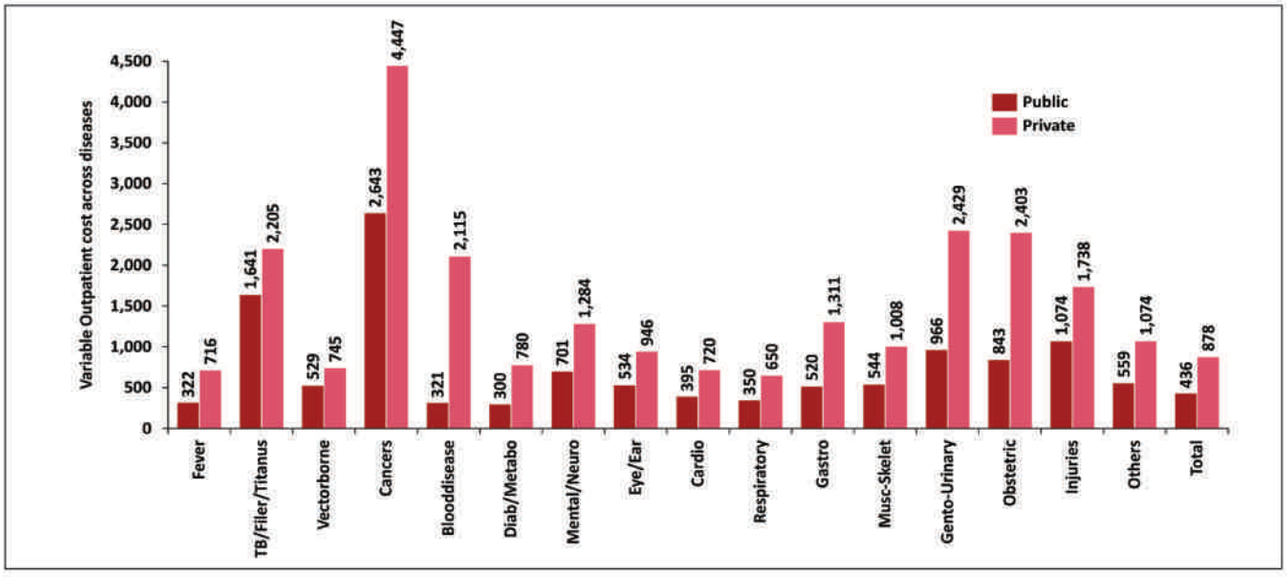
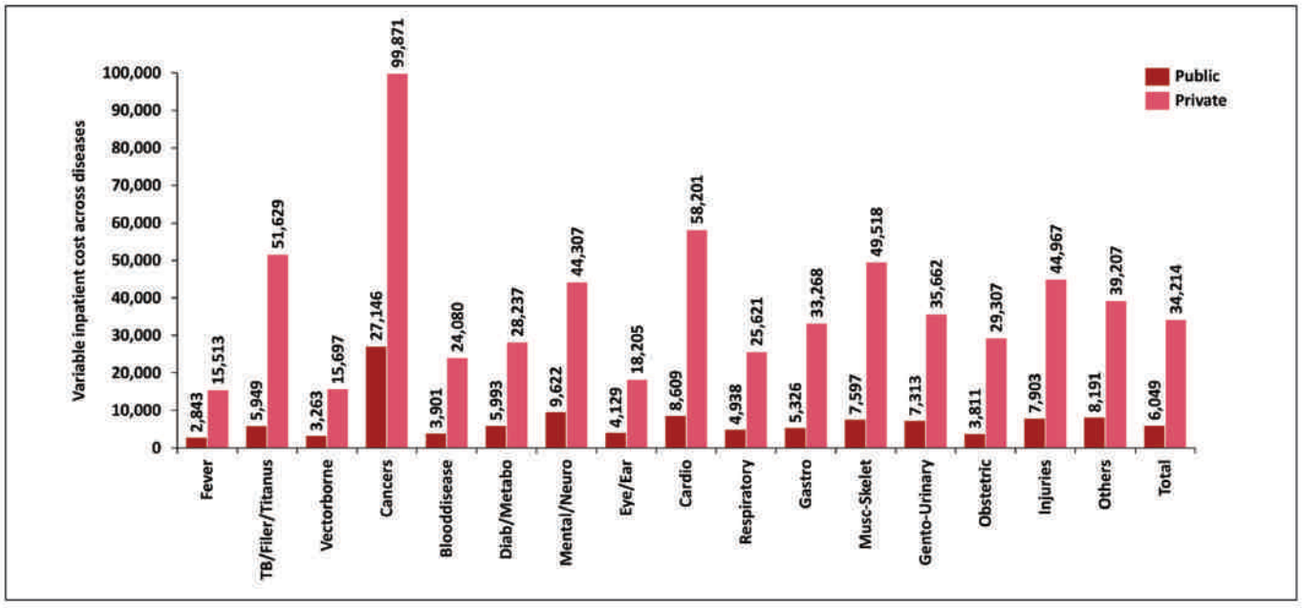


Figure 19: Substantial variation in costs for treating the same disease between public and private sector (Inpatient care)

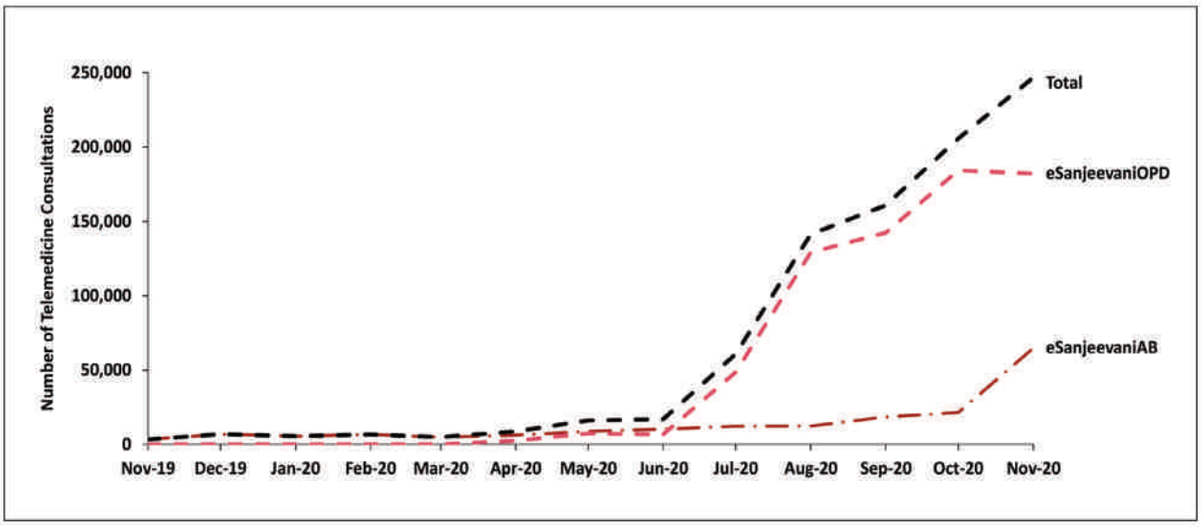


- Finally, given the information asymmetries that make unregulated private enterprise suboptimal in healthcare, a sectoral regulator that undertakes regulation and supervision of the healthcare sector must be seriously considered. This is especially pertinent as regulation has grown in importance as a key lever for governments to affect the quantity, quality, safety and distribution of services in health systems (Clarke 2016).

TELEMEDICINE

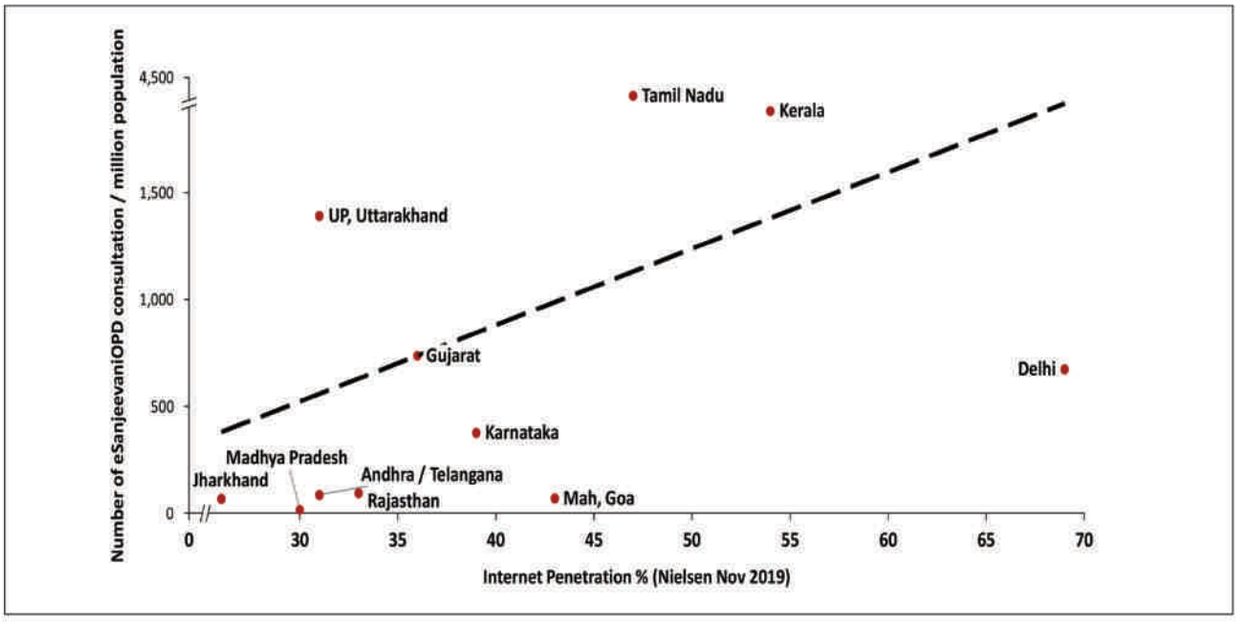
- Impressive growth has been seen in the adoption of telemedicine in India since the outbreak of the COVID-19 pandemic. This coincided with the imposition of lockdown in India and the issuance of the Telemedicine Practice Guidelines 2020 by the Ministry of Health and Family Welfare (MoHFW) on March 25, 2020. eSanjeevani OPD (a patient-to-doctor tele-consultation system) has recorded almost a million consultations since its launch in April 2020, as seen in Figure 22. Similar growth was also reported by Practo, which mentioned a 500 per cent increase in online consultations (varying from 200 to 700 per cent across different specialties) in just three months.

Figure 22: Number of eSanjeevani consultations (November 2019 to November 2020)



Source: PIB Delhi 2020.

Figure 23: Correlation between eSanjeevani consultations reported and Internet penetration in the state



- Figure 23 shows that the number of telemedicine consultations correlates strongly with the Internet penetration in a state. Thus, the success of telemedicine critically hinges on having decent level of health infrastructure and Internet connectivity nationwide. Specifically, investing in Internet access, can lead to greater uptake of telemedicine, which in turn can greatly help reduce geographic disparities in healthcare access and utilization.

CONCLUSIONS AND POLICY SUGGEST IONS

- The recent COVID-19 pandemic has emphasised the importance of healthcare, whereby a healthcare crisis transformed into an economic and social crisis. Considering the same and in striving to achieve the SDG target of Universal Healthcare Coverage, India must take steps to improve healthcare accessibility and affordability in the country. Yet, healthcare policy must not become beholden to "saliency bias", where policy over-weights a recent phenomenon that may represent a six-sigma event. This is especially pertinent given the fact that countries with much higher healthcare investments and concomitant health infrastructure have struggled to contain the pandemic. The next health crisis may not possibly involve a communicable disease. Therefore, India's healthcare policy must continue focusing on its long-term healthcare priorities. Simultaneously, to enable India to respond to pandemics, the health infrastructure must be agile. For instance, every hospital may be equipped so that at least one ward in the hospital can be quickly modified to respond to a national health emergency while caring for the normal diseases in usual times. Research in building such health infrastructure can guide how to build such flexible wards.
- The ongoing COVID-19 pandemic has helped showcase the role of technology-enabled platforms as an alternate distribution channel for remote delivery of healthcare services. These technology-enabled platforms offer a promising new avenue to address India's last-mile healthcare access and delivery challenges. These technology platforms coupled with digitisation and the promise of artificial intelligence at-scale, have led to a drastic uptake in the utilisation of telemedicine for primary care and mental health. Given India's unique last mile challenges, such technology-enabled solutions need to be harnessed to the fullest. As we show, telemedicine depends crucially on internet connectivity and health infrastructure. Therefore, both Central and the State governments need to invest in telemedicine on a mission mode to complement the government's digital health mission and thereby enable greater access to the masses.
- As a bulk of the healthcare in India is provided by the private sector, it is critical for policymakers to mitigate information asymmetry in healthcare, which creates market failures and thereby renders unregulated private healthcare sub-optimal. Therefore, information utilities that help mitigate the information asymmetry can be very useful in enhancing overall welfare. Similarly, data from the National Digital health mission can be utilised even within the framework of data privacy with the aid of artificial intelligence and machine learning algorithms to mitigate information asymmetry with respect to the patients.
- With limited visibility into patients' medical records and no standardised treatment protocols, insurance companies have a risk of adverse selection at the time of policy issuance and a risk of moral hazard at the time of claims. To safeguard against this risks, insurance companies resort to high premiums and restriction of services covered in the insurance policy. Addressing this information asymmetry can help lower premiums, enable the offering of better products and help increase the insurance penetration in the country.

06 Process Reforms: Enabling decision-making under Uncertainty

CONTEXT

- International comparisons show that the problems of India's administrative processes derive less from lack of compliance to processes or regulatory standards, but from over-regulation. Economic Survey 2020-2021 has highlighted this issue of over-regulation by illustrating through a study of time and procedures taken for a company to undergo voluntary liquidation in India. Even when there is no dispute/ litigation and all paperwork is complete, it takes 1570 days to be stuck off from the records. This is an order of magnitude longer than what it takes in other countries.

INTRODUCTION

- It is not possible to have complete regulations in a world which has uncertainty as it is not possible to account for all possible outcomes. The evidence, however, shows that India over-regulates the economy. This results in regulations being ineffective even with relatively good compliance with process.
- The Economic Survey 2020-2021 argues that the root cause of the problem of over-regulation is an approach that attempts to account for every possible outcome. This is illustrated by a study of the time and procedures needed to voluntarily close a company in India, even when there is no outstanding dispute or litigation.
- Both economic theory and evidence shows that in an uncertain and complex world, it is not possible to write regulations that account for all possible outcomes. This makes discretion unavoidable in decision-making. The attempt to reduce discretion by having ever more complex regulations, however, results in even more non-transparent discretion. The solution is to simplify regulations and invest in greater supervision which, by definition, implies willingness to allow some discretion.
- This is due to the inadequate appreciation of the difference between 'Regulation' and 'Supervision', on the one hand, and the inevitability of incomplete regulations, on the other hand. Real-world regulation is inevitably incomplete because of the combination of:
  - Bounded rationality due to "unknown unknowns",
  - Complexity involved in framing "complete" contracts across all possible contingencies, and
  - The difficulty for a third party to verify decisions.
- This makes some discretion unavoidable in decision making. The evidence shows that over-regulation, not simpler regulation, leads to opaque decision making.
- Discretion, however, needs to be balanced with transparency, systems of ex-ante accountability and ex-post resolution mechanisms. The experience with GeM portal for public procurement illustrates how transparency not only reduces purchase prices but also provides the honest decision maker with a clean process.
- The problem is that policymakers, by default, tend to favour prescriptive regulation over supervision. Unlike supervision, regulation can be easily measured.

REGULATORY EFFECTIVENESS

- The 'World Rule of Law Index' published by the World Justice Project provides cross country comparison on various aspects of regulatory enforcement.
- The index has various sub-categories, which capture compliance to due processes, effectiveness, timelines, etc.
- In 2020, India's rank is 45 out of 128 countries in the category of 'Due process is respected in administrative proceedings' (proxy for following due process).
- In contrast, in the category 'Government regulations are effectively enforced' (proxy for regulatory quality/effectiveness), the country's rank is 104.
- India stands at 89th rank in 'Administrative Proceedings are conducted without unreasonable delay' (proxy for timeliness) and 107th in 'Administrative Proceedings are applied and enforced without improper influence' (proxy for rent seeking).

Table 1: India's rank in various categories of regulatory enforcement

	2015	2020
Regulatory Enforcement overall rank	69	74
Government regulations are effectively enforced	87	104
Government regulations are applied and enforced without improper influence	74	107
Administrative proceedings are conducted without unreasonable delay	75	89
Due process is respected in administrative proceedings	72	45
Number of Countries	102	128

Source: World Justice Project

Table 2: Comparison of regulatory standards and regulatory enforcement in 2020

Rank	US	UK	Singapore	Canada	Brazil	Russia	China	South Africa	India
Regulatory Enforcement	20	13	3	11	60	73	67	45	74
Government regulations are effectively enforced	20	11	5	12	62	47	63	92	104
Government regulations are applied and enforced without improper influence	16	9	4	8	64	83	63	59	107
Administrative proceedings are conducted without unreasonable delay	33	13	1	17	124	24	23	48	89
Due process is respected in administrative proceedings	18	12	7	5	55	97	98	25	45

Source: World Justice Project (2020)

- This shows that, contrary to the popular belief, India is relatively good at complying with processes, but lag in regulatory effectiveness.
- In fact, India's performance has improved significantly in following due process in administrative proceedings, with its rank improving from 72 in 2015 (out of 102 countries) to 45 in 2020 (out of 128 countries). In contrast, it has deteriorated over time on certain other parameters. This makes it clear that having regulations and enforcing process is one thing, whereas their effectiveness is another.
- The index shows that United Kingdom, United States, Singapore and Canada are placed much better than India in case of both, following due process and regulatory effectiveness. However, the gap between India and these counties is much wider in regulatory effectiveness than in due processes being followed. Similarly, India is placed better than other BRICS countries (barring South Africa) in terms of respecting due process, but, worse than them in the effectiveness of those standards.
- World Bank's Regulatory Quality Index shows that despite improvement in India's regulatory quality since 2013, it is still much lower than UK, US, Singapore, Japan etc.
- Similarly, the World Bank's Ease of Doing Business (EoDB) report (2020) shows that despite making huge strides in the overall EoDB rank, India still lags behind in the sub-categories 'Starting a business' and 'Registering Property' where the country's rank is 136 and 154 respectively.
- The report points out that this is due to the high number of procedures required to legally start and formally operate a company as well as the time and cost consumed to complete each procedure

Case Study: Time Taken Between Decision for Closing the Company and Actual Closure

- A study by Quality Council of India (done for Economic Survey) shows that the time taken from point of decision of closure to actually the company getting struck off from the Registrar of Companies is 1570 days (i.e., 4.3 years), even if all paperwork is in place and the company is not involved in any litigation or dispute.
- This is the best possible case of a routine activity.
- Interestingly, out of the total time taken, about 1035 days are taken for clearances by Income Tax, Provident Fund, GST departments and in taking back security refunds from various departments.
- In contrast, voluntary liquidation takes about 12 months in Singapore, 12-24 months in Germany and 15 months in UK.
- In Germany, for very large and active companies, it takes 2-4 years.
- Given the likelihood of disputes and litigation, for the comparable large cases it may take up to a decade in India.

THE INEVITABILITY OF INCOMPLETE REGULATIONS

- The problem of over-regulation stems from not recognizing the inevitability of incomplete contracts and regulations in a world of uncertainty.
- Real world contracts are inherently incomplete because of three key reasons that reinforce one another's influence.
  - Herbert Simon has highlighted in the Nobel-prize winning work, humans are boundedly rational because the future comprises of "unknown unknowns." Note that radical uncertainty of "unknown unknowns" is fundamentally different from the notion of risk as defined by Frank Knight.
  - Another Noble-prize winning work on highlights, complexity in framing contracts arises from the difficulties involved in anticipating and specifying all obligations for all parties in full across all possible contingencies. In fact, with radical uncertainty, it is impossible to know the possible characteristics of all the future states of the world. Therefore, writing complete contracts that will efficiently fit every future situation is inherently impossible in the real world.
  - Due to above two features, a third party may be able to observe outcomes ex-post but cannot verify ex-ante decisions unambiguously.
- In a complex and uncertain world, moreover, the actual outcomes or situations do not fit in the neat boxes assumed in the regulation; hence the supervisor has to exercise some judgment. There is a widespread belief, however, that ever more detailed regulations reduce discretion. On the contrary, complex rules and regulations create more discretion because of the multiple waysin which they can be interpreted.
- A complex, uncertain world makes discretion inevitable where over-regulation, not simpler regulation, leads to excessive and opaque discretion.

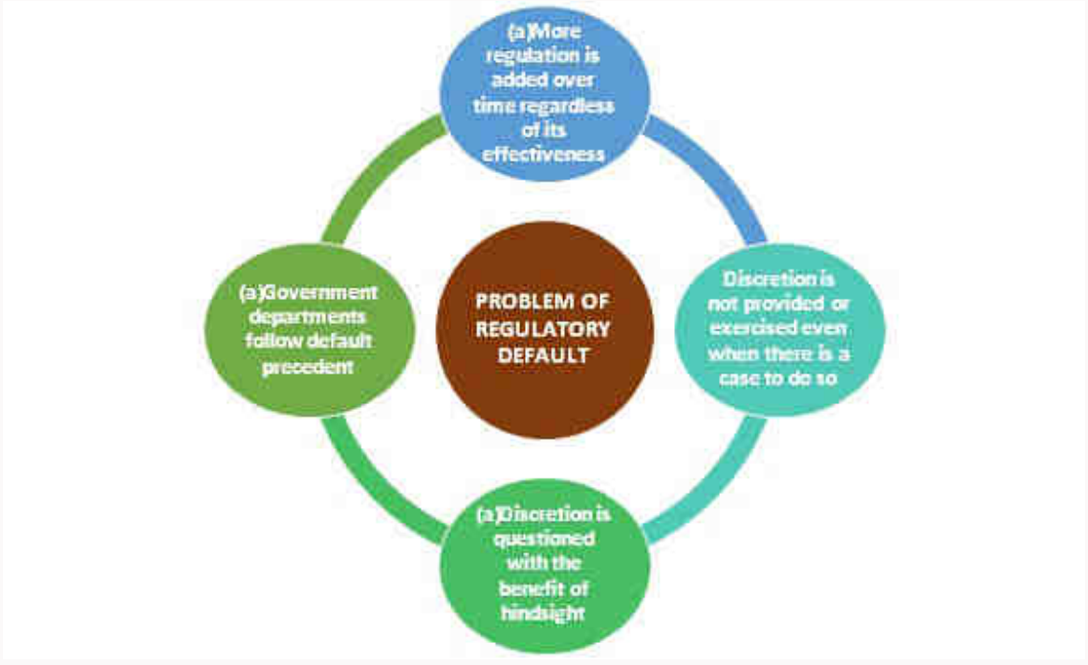
Case Study: Dodd-Frank Actin United States

- Dodd-Frank Act enacted post the Global Financial Crisis in United States, which spanned 848 pages and mandated 390 new rules.
- It was a well-intentioned attempt to fix what went wrong in the years leading up to 2008 crisis. One might think that this left little room for regulators to use their discretion. In fact, what happened was quite the contrary.
- Petrou (2012) argued that Dodd-Frank created a new kind of risk that she labelled "complexity risk." For instance, the legislation requires bank boards to be responsible for 184 additional activities, which may be unnecessary — or even impossible.
- This reveals that having more stringent regulation may actually mean that exercise of discretion on the ground is more, not less.

- Employing third-party supervision cannot substitute the process of simplifying regulation to lower opaque discretion because the verifiability of efforts and actions by any third party is minimal when contracts are incomplete.

PROBLEM OF REGULATORY DEFAULT

- The question that arises is how can we allow for discretion such that is not misused and leads to effective supervision.
- There is a need to create simple regulation and complement the same by providing flexibility and discretion to the supervisor. However, if the legal and institutional frameworks do not explicitly limit mushrooming of regulations, policymakers may naturally drift towards more regulation, even if it is sub-optimal for the economy.
- While analyzing the principal-agent problem, Holstorm & Milgrom (1979) argue that multi-dimensional tasks are ubiquitous in the world and agents have to divide their time among various duties. In such cases, agents choose the tasks whose outcomes are measurable.
  - For instance, if there is an incentive pay for teachers based on their students' test scores, then teachers will focus on the narrowly defined basic skills that are tested on standardised tests and not on the various aspects of student learning.
  - In effect, they will focus on what can be effectively measured.
- Similarly, as regulation can be easily measured while supervision cannot be measured easily, regulators and decision-makers would prefer to substitute supervision with more and more regulation.
- After all, regulations provide criteria or checklists, making it easier for regulators to follow and reduce their accountability later on.
- On the other hand, it is difficult to quantify the amount and quality of supervision.
- Naturally, policymakers by default tend to favour prescriptive regulation.
- This creates a perverse incentive to keep adding more top-down regulations regardless of their effectiveness.



(a) More regulation is added over time regardless of its effectiveness

(b) Discretion is not provided or exercised even when there is a case to do so

a. Since regulations are defined, they are easy to measure ex-ante. Bureaucracies will naturally tend to substitute supervision with mechanical regulations and will not exercise discretion even when it is available.

b. As an illustration, take the case of public procurement. As per the General Financial Rules (GFRs) guidelines, the Lowest Cost Method, or commonly known as 'L1' principle is the most prevalent bidding method used for Goods/ Works and Non-Consultancy services.

c. There is a general agreement that solely relying on L1 does not work well and various organisations have advocated the need for reforming the current procurement system over the last few years. Central Vigilance Commission in its concept note 'Alternative Procurement Strategy for Award of Works and Goods Contract' noted that although L1 may still hold good for procurement of routine works, goods and non-consulting services; but not for high impact and technologically complex procurements.

d. Quality Council of India (QCI) conducted a study on highway development sector and found that the vendors who were all awarded contracts on the basis of competitive bidding vary widely in terms of quality of work and performance which was not covered under existing bid evaluation system. The report suggested incorporating Performance Rating in Competitive Bidding to provide a quality premium to superior bidder rather than simply awarding the contract to L1 bidder and gave a formula to calculate total score as the summation of financial score and performance rating score.

e. NITI Aayog in the concept paper 'Indian Public Procurement: Alternative Strategies and Way Forward' argue that L1 is not suitable in all the scenarios and came up with a variety of alternatives to use in the procurement process.

f. In fact, the report also mentions that new procurement frameworks of multilaterals like World Bank, Asian Development Bank, Japan International Cooperation Agency have suitable alternative strategies for selecting bidders pointing towards needs for change and reforms in current times. They have moved from 'one size fits all' to 'fit to purpose' approach and incorporated various alternatives such as Value for Money, Rated Criteria to consider non-price attributes etc in the procurement methods.

g. Despite so many organizations recommending a need for allowing more discretion in the bidding process on account of technical and quality based parameters, we still mostly use L1. The L1 system persists because of the regulatory default problem. No decision maker wants to exercise discretion for the fear of future questioning. This criteria may appear simple and quantifiable, however, in a complex world where it may not be possible to define everything in the pre-procurement process, it is advisable to leave some discretion in the hands of administrators along with maintaining enough transparency and active supervision.

(c) Discretion is questioned with the benefit of hindsight

a. Discretion exercised ex-ante in the Initial Public Offering (IPO) of publicly listed companies often gets questioned with the benefit of hindsight when the IPO is oversubscribed and/or the first day gain is large. However, the market value of an unlisted entity is unknown. Even after employing the best of valuation techniques, effort, and resources, the actual value of an entity is uncertain until it is traded in the market.

b. In cases when government entities go public and the prices go up after the stocks are listed on the market, it is realised that the assets were worth a lot more. Commentators then with 'Hindsight Bias' remark that the assets were sold too cheap.

c. However, it is only after the prices are listed and stocks are traded in secondary market, the actual valuation is known.

d. It is important to note that this is not unique to the public sector undertakings but happens in the private sector as well. Not only are various IPOs over-subscribed but the close price on the day of listing is significantly different from the IPO price.

(d) Government departments follow default precedent

a. Government departments take actions either to tick off boxes in checklist of regulation or follow the default precedent. Thus, we see routine appeals made by the government departments against unfavourable judgements in higher courts or tribunals in order to reduce any questioning later on.

b. In India, there is a multi-layered system of resolving any dispute in tax-related matters. After scrutiny, the Department or assesses have the option of approaching the Commissioner of Income Tax-Appeals (CIT-A), the Income Tax Appellate Tribunals (ITAT), the High Courts (HC) and finally the Supreme Court of India (SC) in case of disputes in Direct Taxes.

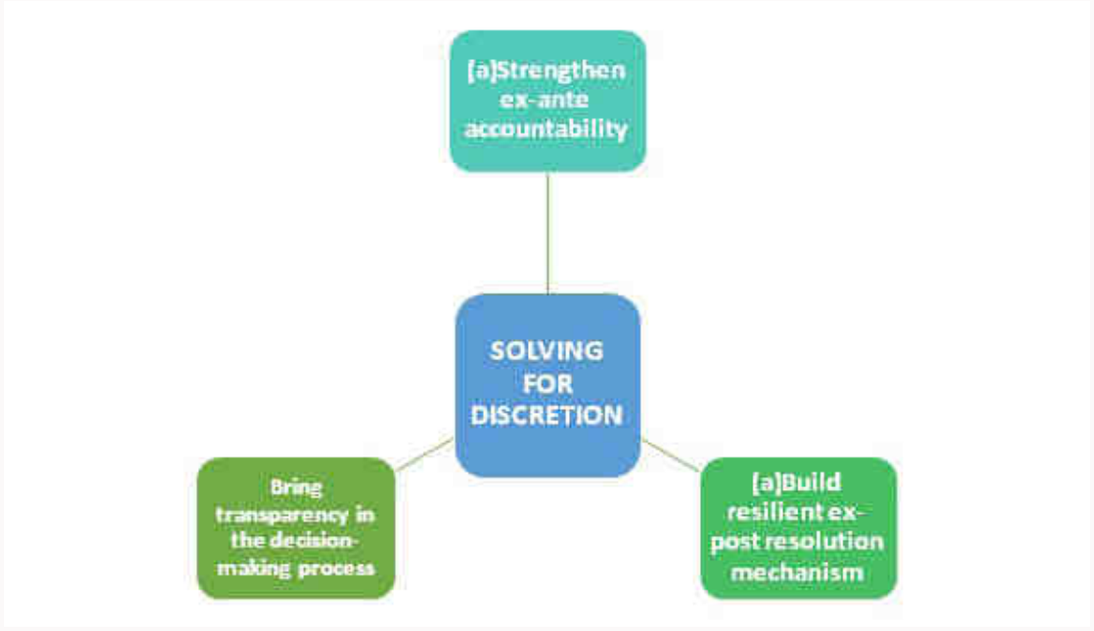
Table 5: Petition rate and Success rate of the direct taxes (in per cent)

Court/ Tribunal	Petition rate	Success Rate
Supreme Court	87	27
High Court	83	13
ITAT	88*	27

Source: Economic Survey 2017-18 calculations
Note: *Provisonal Estimates

c. Even though the success rate of litigation that the government enters in is very low, there is a tendency among the policymakers to appeal to the higher authority.

SOLVING FOR DISCRETION



(a) Strengthen ex-ante accountability

a. The property rights literature based on incomplete contracts argues for the strengthening of governance in institutions by vesting more power in boards and then holding them accountable ex-ante.

b. Instead of relying too much on ex-post audits, which anyway suffer from hindsight bias, ex-ante accountability needs to be entrusted with the boards of institutions.

c. In most common law countries, there is a case law derived doctrine of Business Judgment Rule.

d. The rule states that boards are presumed to act in good faith and protects companies from frivolous lawsuits by assuming that, unless proved otherwise, management is acting in the interests of shareholders.

e. It exists in India as well, however not exactly codified in the same language. But there is a great deal of apprehension that it is not taken into account in audits and post-facto investigations.

(b) Bring transparency in the decision-making process

a. Transparency, apart from having intrinsic value, is appreciated because it promotes trust in public institutions and makes market efficient. The discretion in the system needs to be balanced with the transparency in decision making.

b. The benefits of transparency can be seen from the recent reform in public procurement. The Government in 2016 had set up a dedicated e-market known as Government e-Marketplace (GeM) for different goods & services procured or sold by Government/PSUs.

c. Anecdotal evidence suggests that prior to GeM, government procurement prices were much higher than the prices prevailing in the market and there were constant complaints about inefficiency and rent seeking. As the GeM website mentions, use of this e-marketplace has resulted in a substantial reduction in prices in comparison to the tender, rate contract and direct purchase rates that were used previously. The average prices on GeM are lower by at least 15-20 per cent than previously, and in some cases even up to 56 per cent.

d. Being an open platform, the alert citizens can continue to monitor it real time.

(c) Build resilient ex-post resolution mechanism

a. When outcomes are uncertain, it is important to have a resilient ex-post resolution mechanism. Despite having all regulations in place and best efforts to deal with effective supervision ex-ante, devising a robust ex-post resolution mechanism is imperative.

b. there is a need for efficient legal systems (i.e., courts and institutions) such as Insolvency and Bankruptcy Code (IBC), Debt Recovery Tribunals etc. However, the court system remains the single most important way for ex-post resolution.

c. As per the World Bank' Ease of Doing Business report (2020), it takes 1445 days to resolve a commercial contract in India as compared to 589.6 days in OECD high income countries and 120 days in Singapore. The report also shows that the cost of litigation in India is around 31 per cent of the claim value. This is significantly higher than in OECD countries (21 per cent) and Bhutan (0.1 per cent).

d. The performance of India is enforcement of contracts is also seen in its ranking in World Rule of Law Index for 2020, where India ranks 69 out of 128 countries. Our performance is the worst in the category 'Civil Justice not subject to unreasonable delay' where we are placed at rank 123 falling just behind Venezuela, Guatemala, Peru, Bangladesh and Columbia.

e. The legal system is required not to fix ex-ante issues in the system but to be used as an ex-post dispute resolution mechanism. This is just as true for government decision makers who may find their decisions questioned later.

DIRECTION OF ADMINISTRATIVE PROCESS REFORMS

- The ultimate source of supervision is public scrutiny and public leadership. Since it is not possible for the public to scrutinize everything, the focus should be on a strong but limited state, rather than weak and all-pervasive state. This is in line with government's idea of 'Minimum Government and Maximum Governance'.
- Since Independence, a plethora of autonomous bodies had proliferated. There is a need to prune them consistently not just from a cost perspective but in order to maintain transparency, accountability and efficient supervision.
- There is a case for enacting Transparency of Rules Act to end any asymmetry of information regarding rules and regulations faced by a citizen.
  - The reform solves for the problem that rules frequently change and often the citizen has to follow a long paper trail of circulars and notifications to know the current requirements.
  - Under this act, all departments will need to mandatorily place all citizen-facing rules on their website.
  - Officials will not be able to impose any rule not explicitly mentioned on the website clearly.
  - Further, all laws, rules and regulations will have to be presented as an updated, unified whole at all times.
  - This will bring transparency and simplify the understanding of regulations.

Steps in Right Direction: Examples

- Labour falls under the Concurrent List of the Constitution, therefore both Parliament and state legislatures can make laws regulating labour. There were over 100 state and 40 central laws regulating various aspects of labour such as the resolution of industrial disputes, working conditions, social security and wages, making the landscape of labour regulation very complex. To rectify this, Government merged the existing 29 central labour laws into 4 labour codes. The Code on wages was passed in July 2019.

- In September 2020, three bills (i) Industrial Relations Code, 2020, (ii) Code on Occupational Safety, Health & Working Conditions Bill, 2020 (iii) Social Security Code, 2020 were passed in the parliament.
- Government approved merger of four of its film media units, namely Films Division, Directorate of Film Festivals, National Film Archives of India, and Children's Film Society, India into the National Film Development Corporation (NFDC) Ltd.

Way Forward

- There is no substitute for active supervision and discretion. Specifically, ex-ante regulation cannot substitute for ex-post supervision; in fact, more ex-ante regulation only serves to dilute the quality of ex-post supervision by fostering opaque discretion.
- Way towards effective supervision is to incorporate transparency into the decision-making process.
- An effective enforcement system should be able to distinguish the negative outcomes arising due to uncertainties from outright frauds. There is a need for reforms in the legal system in the country as been argued by various Economic Surveys in the past.

07 Regulatory Forbearance: An Emergency Medicine, Not Staple Diet!

INTRODUCTION

- To address the economic challenges posed by the Covid-19 pandemic, financial regulators across the world have adopted regulatory forbearance. India is no exception. Emergency measures such as forbearance prevent spillover of the failures in the financial sector to the real sector, thereby avoiding a deepening of the crisis. Therefore, as emergency medicine, forbearance occupies a legitimate place in a policy maker's toolkit; see Box 1 for an explanation of the economic rationale for forbearance. However, caution must be exercised so that emergency medicine does not become a staple diet because borrowers and banks can easily get addicted to such palliatives. When emergency medicine becomes a staple diet, the negative side effects may not only be large but may also last for a while. Therefore, carefully examining and understanding the implications of previous forbearance episodes is relevant to guide future policy. In 2008, anticipating the global financial crisis, RBI introduced the policy of regulatory forbearance. It relaxed the norms for restructuring stressed assets - downgrading the asset to non-performing status was no longer mandatory and required no additional provisioning.

Economic Rationale for Forbearance

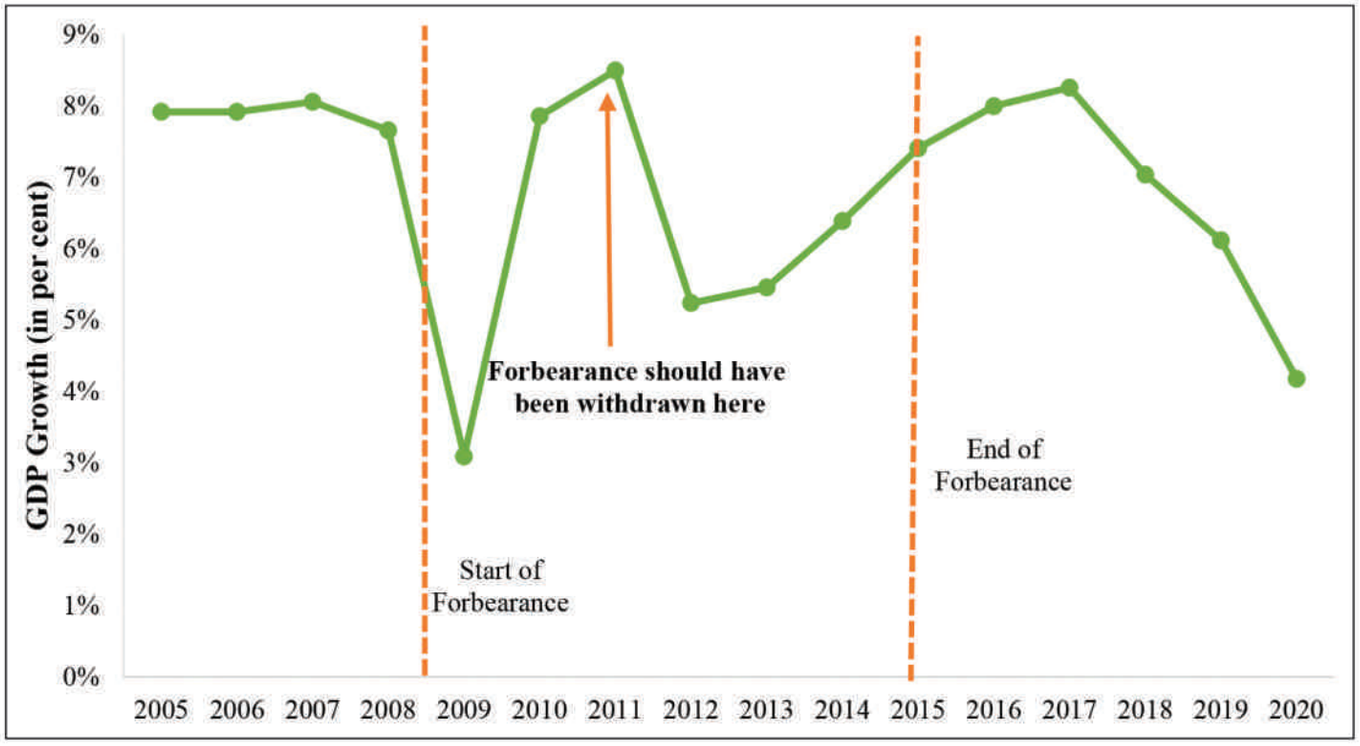
The following illustration describes banks' choices while dealing with a stressed asset with and without forbearance. In this context, we must keep in mind that when a bank creates additional provisions to account for loan losses, the bank's profits decline and thereby lead to a reduction in the bank's equity capital. Therefore, the incentives to provision for bad loans gets significantly impacted by regulatory forbearance.

Without Forbearance	With Forbearance
1. If the project is viable, the bank would restructure the asset and downgrade it to a Non-Performing Asset (NPA) and provision for the same.	1. If the project is viable, the bank would restructure the asset. As restructured assets do not require the same level of provisioning as NPAs, inadequate provisions are made.
2. If the project is unviable, the bank would not restructure the loan and declare the asset as non-performing. Crucially, banks do not gain by restructuring	2. Capital-starved banks now have an incentive to restructure even unviable projects to reduce provisioning and avoid the consequent hit on capital.

THE ORIGINAL SIN: THE SEVEN-YEAR FORBEARANCE!

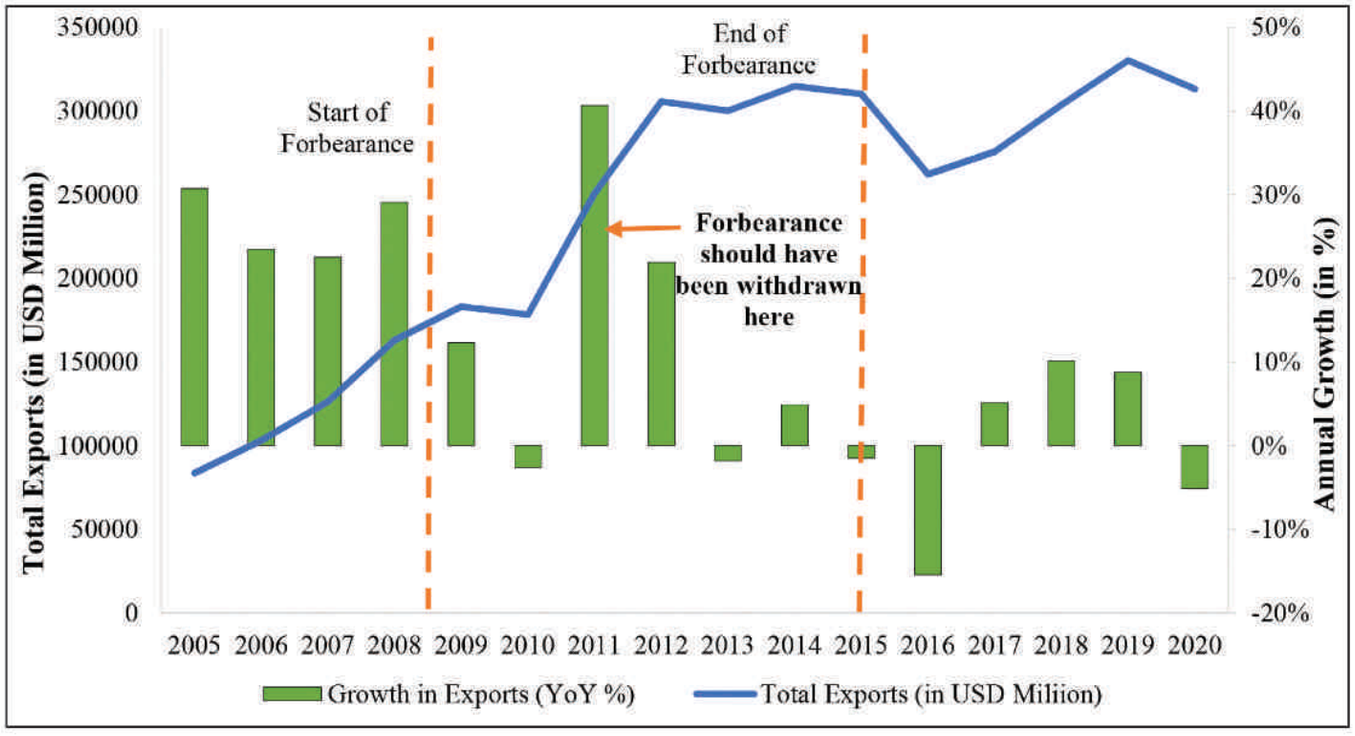
- The forbearance policies had desired short-term economic effects. GDP growth recovered from a low of 3.1% in FY2009 to 8.5% within two years, as shown in Figure 1. There was a marked improvement in other economic indicators ranging from exports to the Index of Industrial Production (IIP), as highlighted in Figures 2 and 3. Figure 4 shows that the growth in total revenue of listed firms also recovered from a low of 4.88% during the crisis to a high of over 20% in 2011. As shown in Figure 5, growth in bank credit, which had fallen from 22.3% in FY2008 to 16.9% in FY2010, recovered quickly to 21.5% in FY2011. The time was therefore ripe to withdraw the forbearance; after all the emergency medicine had worked in restoring the health of the economy. However, the central bank decided to continue with the same. The forbearance continued for five more years till 2015, even when its withdrawal was recommended – a clear case of emergency medicine that was chosen to be made into a staple diet.

Figure 1: Growth rate of Real GDP



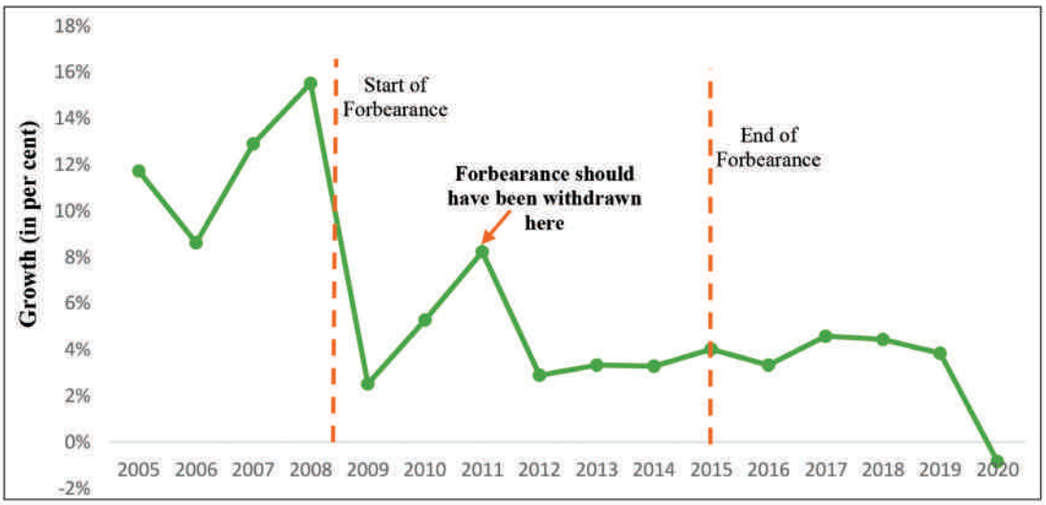
Source: NSO

Figure 2: Growth in Exports



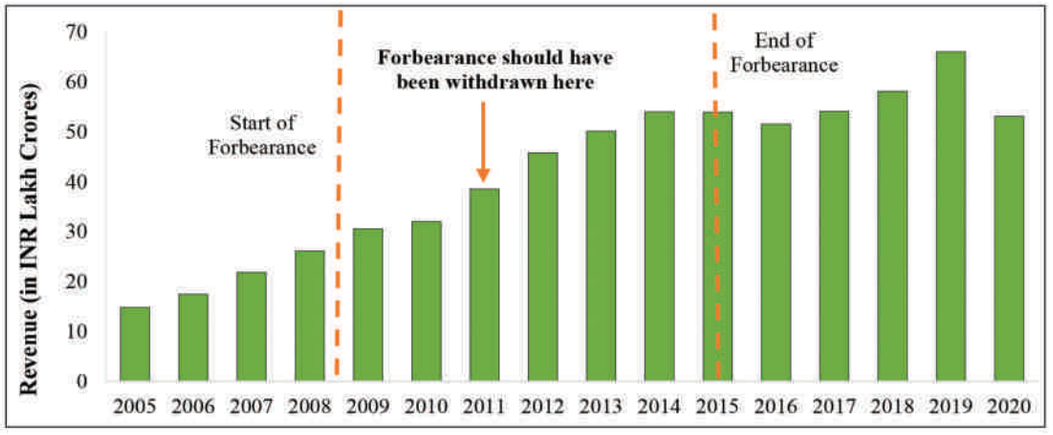
Source: Department of Commerce

Figure 3: Growth in Industrial Production (IIP)



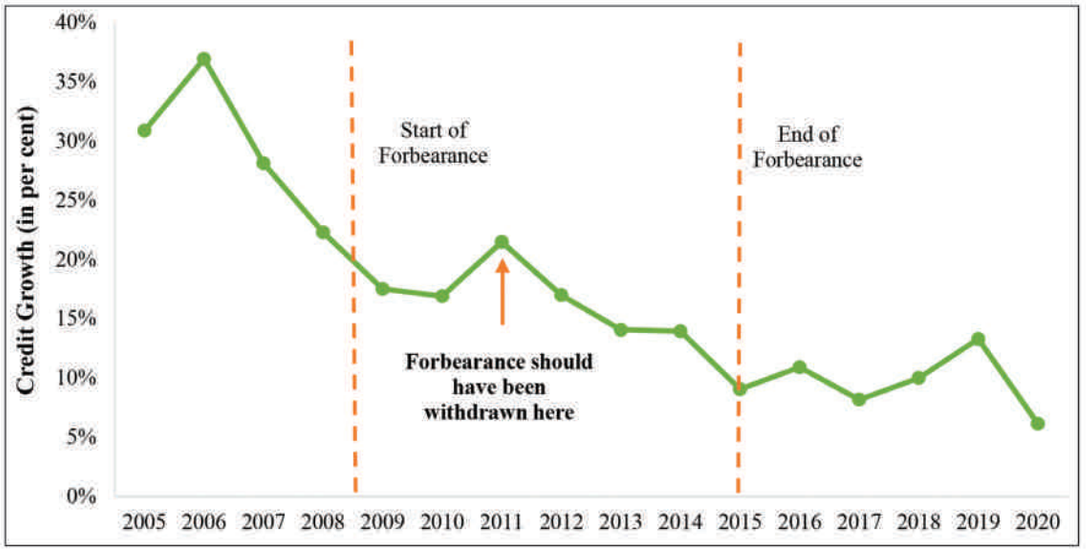
Source: NSO

Figure 4: Firms Revenues as a proxy for borrowers' health



Source: Ministry of Corporate Affairs

Figure 5: Growth in Outstanding Credit of Banks



Source: RBI Table on Annual Account of SCBs

- The P. J. Nayak Committee (2014), constituted by RBI, highlighted in its report submitted in May 2014 the twin concerns stemming from the forbearance regime: ever-greening of loans by classifying NPAs as restructured assets and the resultant undercapitalization of banks. For instance, it stated, "the existing tier-I capital for public sector banks is overstated because of the regulatory forbearance which RBI provides on restructured assets. Without forbearance these assets would be categorized as NPAs, the restructuring being a response to likely imminent default. As a consequence, provisioning would rise, and tier-I capital would fall." (pp. 27) Thus, in essence, many banks were undercapitalized during the forbearance period. The report had estimated that if regulatory forbearance were withdrawn immediately in May 2014 and a prudent 70% provision cover were provided for restructured assets, tier-1 capital of the public sector banks would be written down by INR 2.78 lakh crores.
- Once the forbearance policy was discontinued in 2015, RBI conducted an Asset Quality Review to know the exact amount of bad loans present in the banking system. As a result, banks' disclosed NPAs increased significantly from 2014-15 to 2015-16. In the absence of forbearance, banks preferred disclosing NPAs to the restructuring of loans. Thus, the roots of the present banking crisis go back to the prolonged forbearance policies followed between 2008 and 2015.

COST OF EXTENDED FORBEARANCE VERSUS EARLY RESOLUTION OF BANKING CRISES: INTERNATIONAL EVIDENCE

- The pattern of evolution of non-performing loans over time across G20 countries provides valuable insights on the costs of extended forbearance versus early resolution of banking crises. For this purpose, the year in which a country reached its peak NPA after the global financial crisis is identified. The countries that reached their peak NPA during 2009 and 2010 (2009-2010) are called "Early Resolvers". These countries were likely early enough to recognize the bad loan problem and take the necessary steps to address it. Their share of non-performing loans started declining after 2009-10. These include countries like the United States, which immediately recognized toxic assets and launched a recapitalization program.
- In contrast, "Late Resolvers" correspond to the countries that reached their peak NPAs in 2015-19, i.e. up to a decade post the crisis. As shown in the case of India, where a prolonged policy of regulatory forbearance allowed banks to delay recognition of actual NPAs, a delay in taking actions to recognize and resolve bad loans may have caused the NPAs to culminate many years after the crisis. Some important patterns between the "Early Resolvers" and the "Late Resolvers" present interesting insights.
- First, as seen in Table 2 the "Late Resolvers" ended up with much higher peak NPAs than the "Early Resolvers." In fact, on average, NPAs for the late resolvers were more than thrice that for the early resolvers. Second, and more crucially, the impact on GDP growth for the late resolvers (-1.7% on average) was significantly worse than that for the early resolvers (-0.8% on average).

Table 2: NPA ratio of countries and when that peaked after the Global Financial Crisis

Early Resolvers (2009-2010)		Late Resolvers (2015-2019)	
	Peak NPA as % of assets		Peak NPA as % of assets
Brazil	4.21	Argentina	5.75
Canada	1.27	China	2.40
Germany	3.31	India	9.98
Indonesia	3.29	Italy	18.06
Saudi Arabia	3.29	Portugal	17.48
South Africa	5.94	Russia	10.12
United States	4.96	Turkey	5.02
Australia	2.15		
South Korea	0.59		
Average	3.22	Average	9.83

Source: IMF

ADVERSE IMPACT OF FORBEARANCE ON BANK PERFORMANCE AND LENDING

Undercapitalization of Banks

- Banks are in the business of converting illiquid loans into liquid liabilities (Diamond and Dibvyg, 1983). In other words, while banks issue deposits repayable on demand or after a specific period, they lend to projects with long gestation periods. Therefore, they face risks both from (i) the mismatch in timing of their inflows and unexpected outflows (referred to as liquidity mismatch) and (ii) also due to unexpected surge in borrower default. Normal defaults and regular outflows are usually priced in and provided for within the regular asset-liability management (ALM) framework. Capital provides a cushion that helps banks navigate through times of abnormal depositor withdrawals and increased losses on the lending portfolio.
- A policy of prolonged forbearance has the effect of overstating the actual capital and creating a false sense of security. Consider a bank with a capital adequacy ratio of 12% before forbearance. Assume that during the crisis, the bank restructures 10% of its books. Absent forbearance, the bank would make provisions for such restructurings, and the capital would be reduced to the extent of such provisioning. To operate further, the bank will have to meet the regulatory threshold by raising fresh capital. However, with forbearance, the bank can restructure troubled loans and still report the capital adequacy ratio at 12%. Viewed differently, forbearance lets undercapitalized banks operate without raising capital. Inadequate capital is similar to owners not having adequate skin in the game. A long literature in finance, starting from Myers (1976), has discussed the implications of inadequate "skin in the game" among the incumbents running any organization.
- Several implications follow. First, since equity capital is privately expensive to the owners of banks, the banks may use the forbearance window to withdraw their capital. For instance, in the illustration above, the bank can keep reporting healthy capital figures while the true numbers, without forbearance, might actually be lower than the regulatory threshold. If forbearance is continued for an extended period, the bank may consider the capital above the regulatory minimum as "excess" and start repaying capital to the incumbent owners as dividends (Mannil, Nishesh, and Tantri, 2020). Thus, the usual pecking order of finance (Myers (1977), Modigliani & Miller (1958)), where debt is repaid before equity, gets reversed. Eventually, when forbearance gets withdrawn, either depositors or the taxpayers are called upon to foot the bill. The phenomenon described above transpired in the Indian banking sector during forbearance. Banks that benefited more from forbearance increased their dividend payments to incumbent management, including the government.

Lending to Zombie Firms

- As noted above, reduction in the capital is akin to reduced "skin in the game." It distorts the incentives of the bank owners and incumbent management. With less of their own money at stake, banks become increasingly risk-seeking (Diamond and Rajan, 2011).
- Chari, Jain, and Kulkarni (2019) document that regulatory forbearance led to an increase in lending to low-solvency and low-liquidity firms. Precisely, the forbearance period witnessed an increase in lending to unproductive firms, popularly referred to as "zombies". Zombies are typically identified using the interest coverage ratio, the ratio of a firm's profit after tax to its total interest expense. Firms with an interest coverage ratio lower than one are unable to meet their interest obligations from their income and are categorized as zombies.

Ever-greening of Loans

- There is another motive for undercapitalized banks to engage in lending to poor quality firms: to protect their already depleted capital. One way of ever-greening loans is lending a new loan to a borrower on the verge of default, near the repayment date of an existing loan, to facilitate its repayment (Tantri, 2020). Such transactions go undetected as banks are not required to disclose them, unlike restructurings that warrant disclosures.
- To further disguise their lending to distressed borrowers, banks may direct credit to other healthy firms in the business group to which those borrowers belong. Therefore, it is important to consider a business group as a whole, instead of individual firms, for a more robust estimate of zombie lending. A business group is classified as a zombie if the interest coverage ratio of the entire group is less than one.

Weakening of Corporate Governance in Borrowers benefitting from forbearance

- As highlighted in the previous section, the forbearance regime witnessed a significant increase in credit supply to corporates with poor operating metrics and a simultaneous decrease in their investment-to-debt ratio. This suggests that

the increased credit supply was not used productively by firms. Chopra, Nishesh, and Tantri (2020) show that this credit was instead diverted for the private benefit of the incumbent management. They argue that the incumbent managers' ability to get loans restructured under the forbearance policy strengthened their influence within the firm. Getting a loan restructured involved negotiations with the bankers who had discretion in selecting cases for restructuring. In an era of relaxed provisioning norms, firm managers formally or informally connected with bankers could persuade them to restructure loans, plausibly even unviable ones. This ability made the incumbent management's influence stronger. It became difficult for the firm's board to overthrow such managers even if they were otherwise inefficient. The increased influence of the incumbent management resulted in the weakening of the firms' governance which, in turn, had detrimental consequences in the longer run.

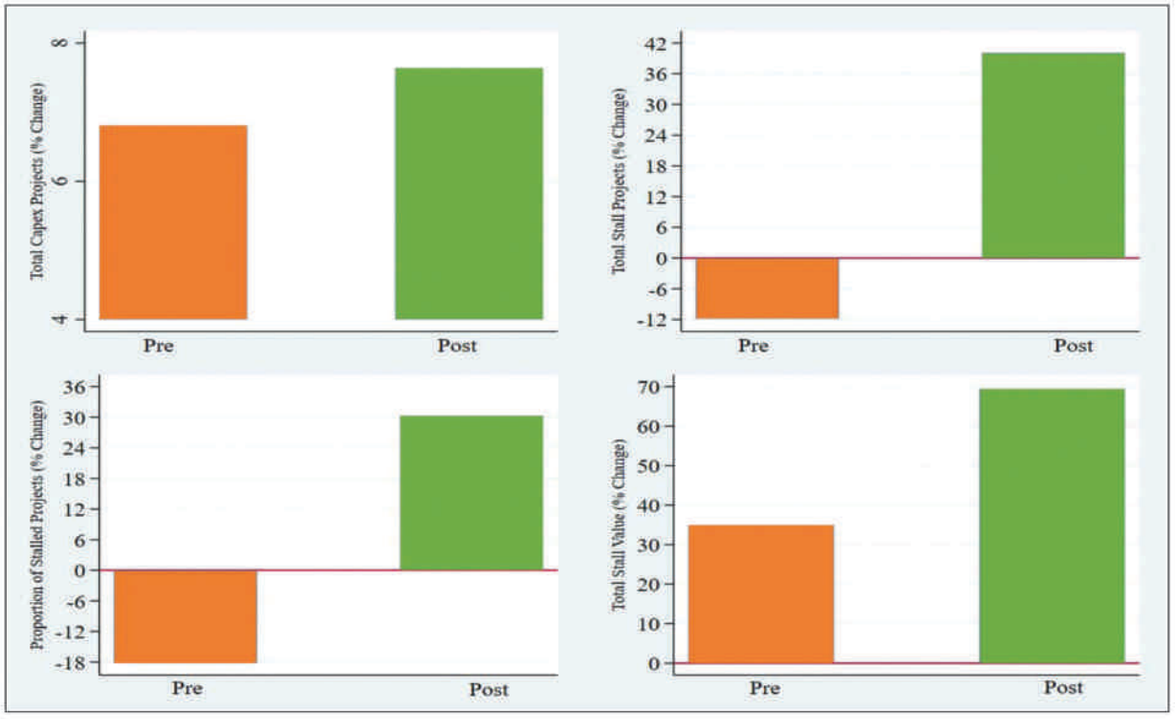
Deterioration in the Quality of the Board

- The institution of independent directors on the board is a robust mechanism to maintain checks and balances at the board level. Given that promoters are the controlling shareholders in most Indian firms, the non-promoter directors are specifically required to uphold the interests of minority shareholders. They are supposed to act as watchdogs against the likelihood of firms' management indulging in unhealthy practices such as expropriation of resources or investments in value-destroying projects that may personally benefit the promoters. Therefore, a decline in the proportion of non-promoter directors implies a weakening of governance among firms.

Inefficient allocation of capital by borrowers that benefited from forbearance

- Aided by poor governance, beneficiary firms under the forbearance regime also seem to have misallocated capital in unviable projects. As shown in figure 17, the total capex projects increased only modestly for firms restructured both during the forbearance regime and before. However, there was a much higher rise in the number, proportion, and rupee value of stalled projects for restructured firms in the forbearance window. Total stalled projects (as a proportion of all capex projects) increased by 40% (30%) during forbearance, while the same witnessed a decline of 12% (18%) pre-forbearance. In other words, in the pre-forbearance period, firms likely re-initiated stalled projects when injected credit through restructuring, whereas firms in the forbearance window witnessed additional stalling, indicating a possible misuse of increased credit supply.

Figure 17: Misallocation of Credit during Forbearance – Evidence from Capital Expenditure of Firms Benefitting from Restructuring



Source: MCA (for restructured loans) and CMIE Prowess for the composition of boards
Pre: Average percentage change two years after and before for firms restructured during 2002-2006
Post: Average percentage change two years after and before for firms restructured during 2009-2015

Mis-appropriation of resources in borrowers that benefited from forbearance

- Another likely consequence of strong management influence and declining governance is the increase in private benefits being redirected to the firms' management. In the Indian context, related party transactions (RPTs) are often utilized to camouflage the expropriation of firm resources. Incumbent management can force the firm to engage in related party transactions with entities connected to key managerial personnel.

Increased defaults by borrowers benefitting from forbearance

- In conclusion, the prolonged forbearance policy meant to address grievances of crisishit borrowers led to unintended negative consequences for the firms in the long run. The internal governance of the firms weakened, misappropriation of resources increased, and their fundamentals deteriorated. On a macroeconomic front, under the forbearance window, a higher share of restructured firms within an industry was also associated with a decrease in the entry of new firms in the industry.

BANK CLEAN-UP WITHOUT ADEQUATE CAPITALIZATION

- Finally, after continuing forbearance for seven years, the RBI decided to bite the bullet and withdrew regulatory forbearance starting from April 2015. The RBI also decided to conduct a detailed Asset Quality Review (AQR) to know the true status of banks' NPAs. However, as Chopra, Subramanian, and Tantri (2020) document, the AQR exacerbated the problem as it neither mandated capital raising by banks nor provided a capital backstop even though it was certain that banks' capital would be adversely impacted following the AQR.
- Economic theory highlights that two contrasting outcomes were possible with such an AQR. In the optimistic view, the AQR was expected to lead to a reduction in information asymmetry. The critical assumption – as hypothesized in Diamond and Rajan, 2011– was that the resultant cleaner bank balance sheets would help banks to raise more private capital on their own, thereby improving the quality of financial intermediation. Along these lines, the RBI's view was that the program was a "deep surgery" that would lead to healthy bank balance sheets (Rajan, 2016).
- However, a more sobering outcome could have been expected from an application of the impact of asymmetric information problems on the likelihood of capital raising. Myers and Majluf (1984) predict that firms in distress would have no incentive to raise equity voluntarily as managers – who know more about the firm's fundamentals than investors – fear dilution of the value of equity. Therefore, absent a policy for either mandatory capital raising or capital backstop, incumbent shareholders and managers of banks – who would invariably know more about the bank's fundamentals than the regulator or investors – have no incentive to raise equity capital. Implicit government guarantees further dis-incentivize capital raising (Admati and Hellwig, 2014). As a result, under-capitalized banks may again resort to risk-shifting and zombie lending, thereby severely exacerbating the problem. The adverse impact could then spill over to the real economy through good borrowers and projects being denied credit. The resultant drop in the investment rate of the economy could then lead to the slowdown of economic growth. Chopra, Subramanian, and Tantri (2020) provide careful evidence that this is precisely what transpired following the AQR.

The crucial difference vis-à-vis bank clean-ups in the rest of the world

- In this context, it is crucial to understand that India's AQR differed from the typical bank clean-ups carried out in other major economies such as Japan, the European Union, and the U.S. in two key aspects. First, the clean-up was undertaken when the country was not undergoing an economic crisis. Given the economic stability, RBI assumed that markets would supply the required capital to banks once their books are cleaner. Second, there was neither a forced recapitalization of the banks nor was an explicit capital backstop provided for. RBI initiated the AQR under the presumption that the extent of additional loan provisioning required due to the clean-up would not generate needs for a severe recapitalization of the banks.

The inadequate clean-up of bank balance sheets

- In reality, the AQR exercise significantly under-estimated the full extent of NPAs as well as the resultant capital infusion that was required to ensure that the bank balance sheets indeed become healthy. In terms of additional (gross) NPAs, public sector banks added about INR 5.65 lakh crores from FY2016 to the end of FY2019. To put this amount in perspective, the additional NPAs translated to about 7.9% of the total tax revenue over this period.

- Kashyap, Mahapatro, and Tantri (2020) argue that the AQR was mostly restricted to targeting bad lending through restructuring, rather than identifying subtle ever-greening activities. Notice that loan restructuring warrants a disclosure whereas fresh lending does not. Therefore, rather than restructuring, banks could have easily lent a new loan to an existing borrower on the verge of default. To further camouflage their incentives, they could have disguised the payment in the form of fresh lending to a network of related parties of the actual firm in distress.
- The recent events at Yes Bank and Lakshmi Vilas Bank corroborate that the AQR did not capture ever-greening carried out in ways other than formal restructuring. Table 6 reports the Gross NPA ratio of Yes Bank Ltd. and Lakshmi Vilas Bank. Had the AQR exercise detected evergreening, the increase in their reported NPAs should have been in the initial years of the AQR. Our analysis clearly shows that most of the non-performing loans were lent and restructured during the forbearance phase. Hence, the RBI audit missed some severe cases of ever-greening by these banks. The fact that both these banks had to be rescued by the regulator also goes against RBI's assumption that the private banks should have been able to raise the required capital after the clean-up.

Table 6: Gross NPA of Yes Bank and Lakshmi Vilas Bank

	Yes Bank Ltd.	Lakshmi Vilas Bank Ltd.
FY2016	0.76	1.97
FY2017	1.52	2.67
FY2018	1.28	9.98
FY2019	3.22	15.30
FY2020	16.80	25.39
Q2FY2021 (Unaudited)	16.90	24.45

Source: Annual Reports

- If the AQR had correctly identified all the hidden bad quality assets on banks' books, all the increase in NPAs and the necessary provisioning would have concluded by the stated

Under-estimation of required bank capital

- The actual capital required by public sector banks significantly exceeded the amount that the RBI seems to have estimated before the AQR. In the first year of the AQR, the total capital infused into public sector banks was INR 25,000 crores with an intended plan of infusing INR 45,000 crore in the next three years under Mission Indradhanush. However, by the end of FY2019, i.e. four years after the inception of the AQR, the government had infused INR 2.5 lakh crores in the public sector banks. The addition of capital amounted to 44.24% of the added (gross) NPAs.

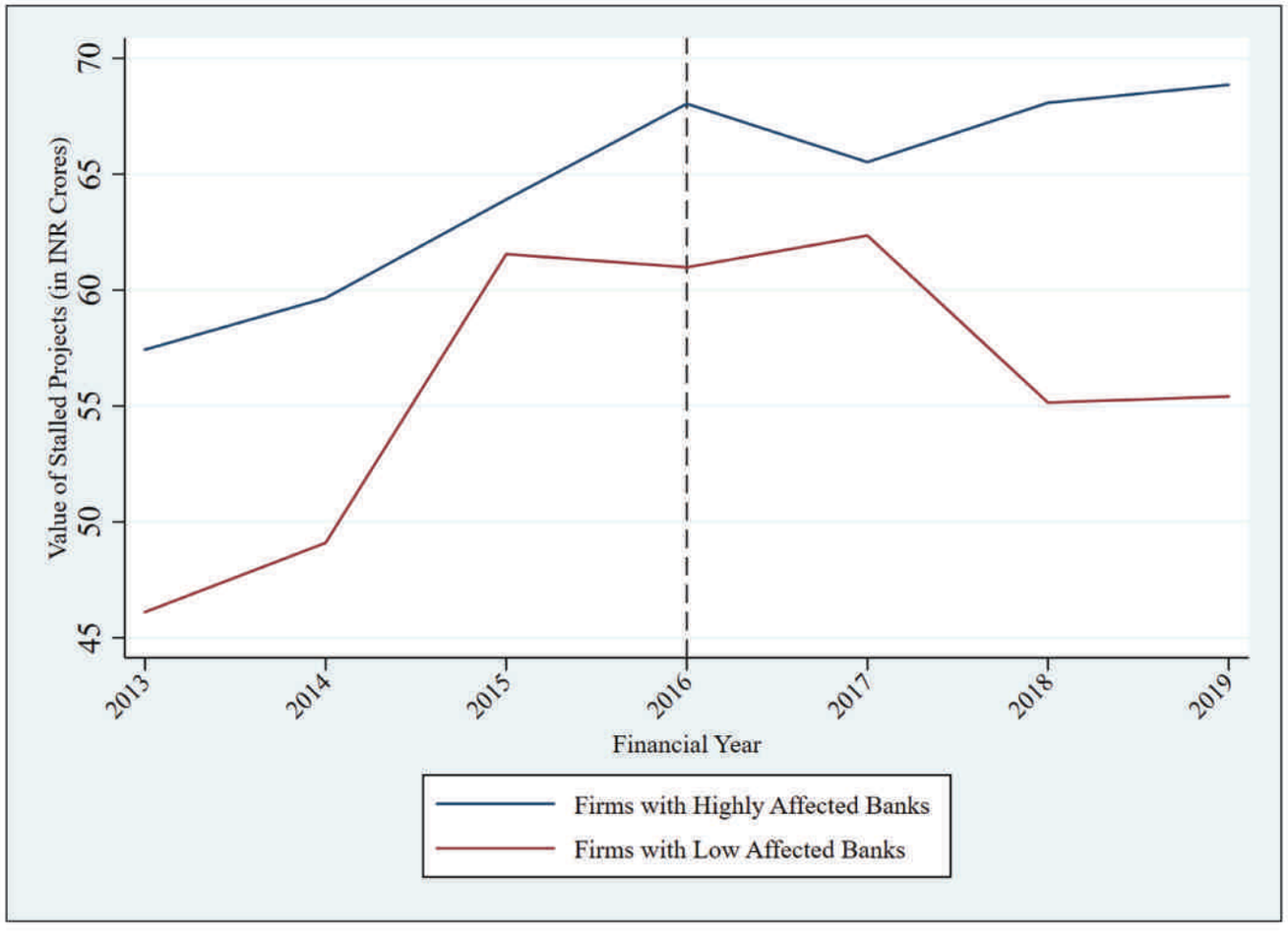
Adverse impact on lending

- As the banks were unable to raise adequate fresh capital after the clean-up, their lending reduced.

Decline in Firm's Capital Investment

- Banks' tightening of credit supply negatively impacts healthy borrowers as it forces firms to cut down on their investments and capital expenditures. Thus, the likelihood of stalling of ongoing projects increases. Figure 28 plots the value of stalled projects for firms. There is a significant increase in the value of stalled projects following the AQR for firms exposed to banks affected by the AQR when compared to firms that engaged with unaffected banks. Chopra, Subramanian, and Tantri (2020) find that the firms more exposed to the AQR- affected banks could not entirely replace their credit supply from other financial institutions. Thus, these firms became financially constrained and reduced their capital expenditures, leading to ongoing projects being stalled.

Figure 28: Capital Investment of Firms – Value of Stalled Projects



Source: CMIE Prowess

- In sum, the clean-up of bank balance sheets undertaken under the AQR exacerbated the problems created by the prolonged period of forbearance. In terms of lending, being undercapitalized, banks reduced lending to good borrowers while increasing lending to zombie borrowers. For firms, the reduction in the supply of bank credit reduced their ability to invest. Chopra, Subramanian, and Tantri (2020) compare the AQR with other clean-up programs and point towards the necessity of having an explicit recapitalization program, forced or otherwise, before entering such clean-ups.

IMPLICATIONS FOR THE CURRENT FORBEARANCE REGIME

- The extensive, careful analysis of the regulatory forbearance and the resulting banking crisis offers key learnings for the current regime of regulatory forbearance following the Covid crisis. Finally:

  (a) Remember that forbearance represents emergency medicine that should be discontinued at the first opportunity when the economy exhibits recovery, not a staple diet that gets continued for years. Therefore, policymakers should lay out thresholds of economic recovery at which such measures will be withdrawn. These thresholds should be communicated to the banks in advance so that they can prepare for the same. Prolonged forbearance is likely to sow the seeds of a much deeper crisis. As well, forbearance should be accompanied by restrictions on zombie lending to ensure a healthy borrowing culture.

  (b) The asset quality review must account for all the creative ways in which banks can evergreen their loans. In this context, it must be emphasized that advance warning signals that do not serve their purpose of flagging concerns may create a false sense of security. The banking regulator needs to be more equipped in the early detection of fault lines and must expand the toolkit of ex-ante remedial measures.

(c) A clean-up unaccompanied by mandatory capital infusion exacerbates bad lending practices. Expecting banks to get recapitalized on their own on account of economic recovery may not be prudent. Therefore, a clean-up exercise should be accompanied by mandatory recapitalization based on a thorough evaluation of the capital requirements post an asset quality review.

(d) Apart from re-capitalizing banks, it is important to enhance the quality of their governance. Ever-greening of loans by banks as well as zombie lending is symptomatic of poor governance, suggesting that bank boards are "asleep at the wheel" and auditors are not performing their required role as the first line of defence. Therefore, to avoid evergreening and zombie lending following the current round of forbearance banks should have fully empowered, capable boards. Sound governance is a key metric to ensure that banks do not engage in distortionary lending post capital infusion. The regulator may consider penalties on bank auditors if ever-greening is discovered as part of the toolkit of ex-ante measures. This would thereby create incentives for the auditor to conduct the financial oversight more diligently.

(e) Finally, the legal infrastructure for the recovery of loans needs to be strengthened de facto. The Insolvency and Bankruptcy Code (IBC) has provided the de jure powers to creditors to impose penalties on defaulters. However, the judicial infrastructure for the implementation of IBC – comprised of Debt recovery tribunals, National Company Law Tribunals, and the appellate tribunals must be strengthened substantially.

08 Innovation: Trending Up but Needs Thrust, Especially from the Private Sector

CONTEXT

- India entered the top 50 innovating countries for the first time in 2020 since the inceptionof the Global Innovation Index in 2007, by improving its rank from 81 in 2015 to 48in 2020. India ranks first in Central and South Asia, and third amongst lower middle incomegroup economies.
- For India to become an innovation leader, it needs greater thrust on innovation. India'saspiration must be to compete on innovation with the top ten economies. India's grossdomestic expenditure on R&D (GERD) is lowest amongst other largest economies.
- The government sector contributes a disproportionate large share in total GERD atthree times the average of other largest economies. However, the business sector'scontribution to GERD is amongst the lowest. The Economic Survey 2020-2021 emphasizes on the importance of private sector participation in R&D and innovation.

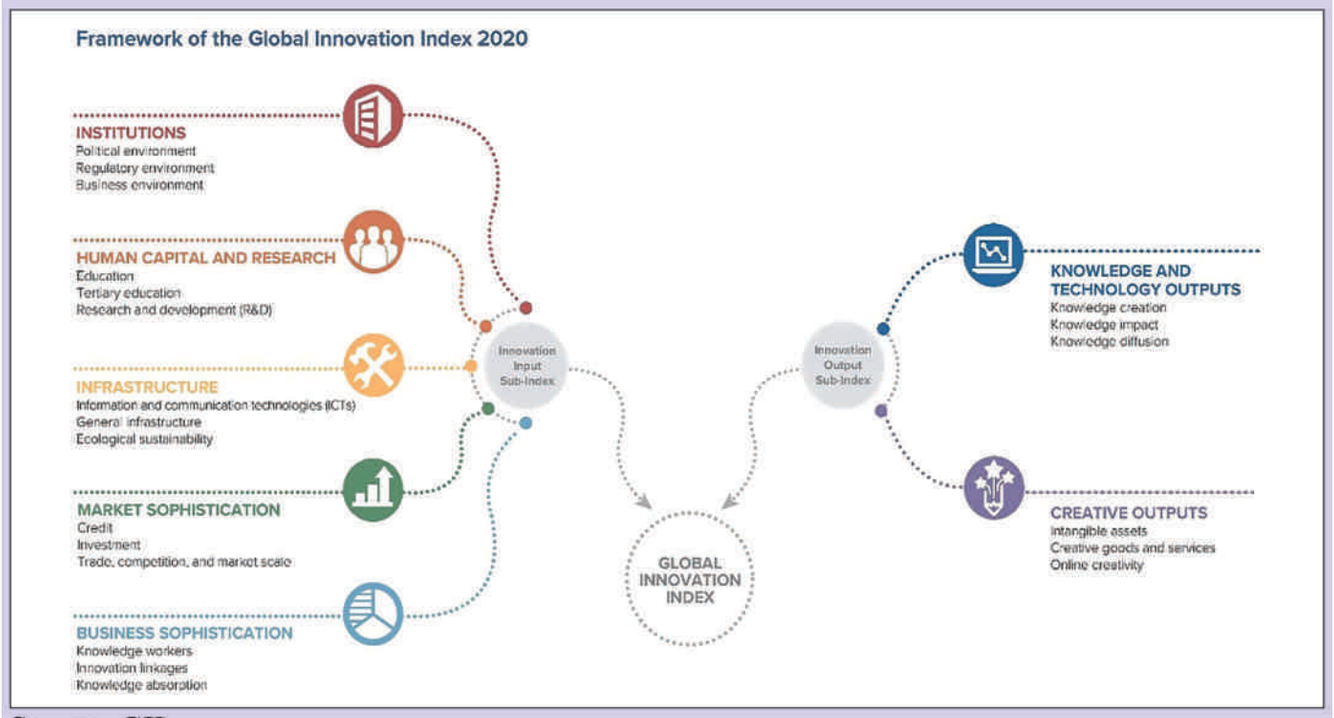
INTRODUCTION

- India entered the top 50 innovating countries for the first time in 2020 since the inceptionof the Global Innovation Index (GII) in 2007, by improving its rank from 81 in 2015 to48 in 2020.
- India ranks first in Central and South Asia, and third amongst lower middle-incomegroup economies. Among the seven pillars of the GII, India ranks 27th in knowledge andtechnology outputs (KTO); 31st in market sophistication; 55th in business sophistication;60th in human capital and research (HCR); 61st in institutions; 64th in creative output; and75th in infrastructure. Among sub-pillars, India ranks tenth in knowledge diffusion and 15thin trade, commerce and market scale. Among parameters, India ranks first in ICT servicesexports; third in domestic market scale (PPP); ninth in government's online services;ninth in growth rate of productivity; 12th in science and engineering graduates; 13th inease of protecting minority investors; 15th in e-participation; 16th in average expenditureof top three global R&D companies; and 19th in market capitalisation.
- India's ranking on innovation outputs improved from 69 in 2015 to 45 in 2020. Itsranking on KTO almost halved from 49 in 2015 to 27 in 2020 while ranking on creativeoutputs improved from 95 in 2015 to 64 in 2020. India's innovation input sub-indexranking improved from 100 in 2015 to 57 in 2020. This improvement was led by businesssophistication, where ranking improved from 116 in 2015 to 55 in 2020.
- India's rankingon Institutions improved from 104 in 2015 to 61 in 2020. Its ranking on HCR improvedfrom 103 in 2015 to 60 in 2020. Its ranking on market sophistication improved from 72in 2015 to 31 in 2020. India's ranking on infrastructure improved from 87 in 2015 to 75in 2020.
- The business sector in India contributes much less to gross expenditure on R&D (about 37 per cent) when compared to businesses in each of the top ten economies (68 per cent on average). This is despite the fact the tax incentives for R&D were more liberal in India when compared to those in the top ten economies.
- The Government does a disproportionate amount of heavy-lifting on R&D by contributing 56 per cent of the gross expenditure on R&D, which is three times the average contributed by governments in the top ten economies.
- Yet, India's gross expenditure on R&D at 0.65 per cent of GDP is much lower than that of the top 10 economies (1.5-3 per cent of GDP) primarily because of the disproportionately lower contribution from the business sector.
- Indian government sector contributes the highest share of total R&D personnel (36 per cent) and researchers (23 per cent) amongst the top ten economies (nine per cent on average). Indian business sector's contribution to the total R&D personnel (30 per cent) and researchers (34 percent) in the country is the second lowest amongst the top ten economies (over 50 percent on average).

- Indian residents contribute only 36 per cent of patents filed in India ascompared to 62 per cent on average in the top ten economies.
- Indian firms also performbelow expectation on innovation for their level of access to equity finance, which is themost crucial for innovation.

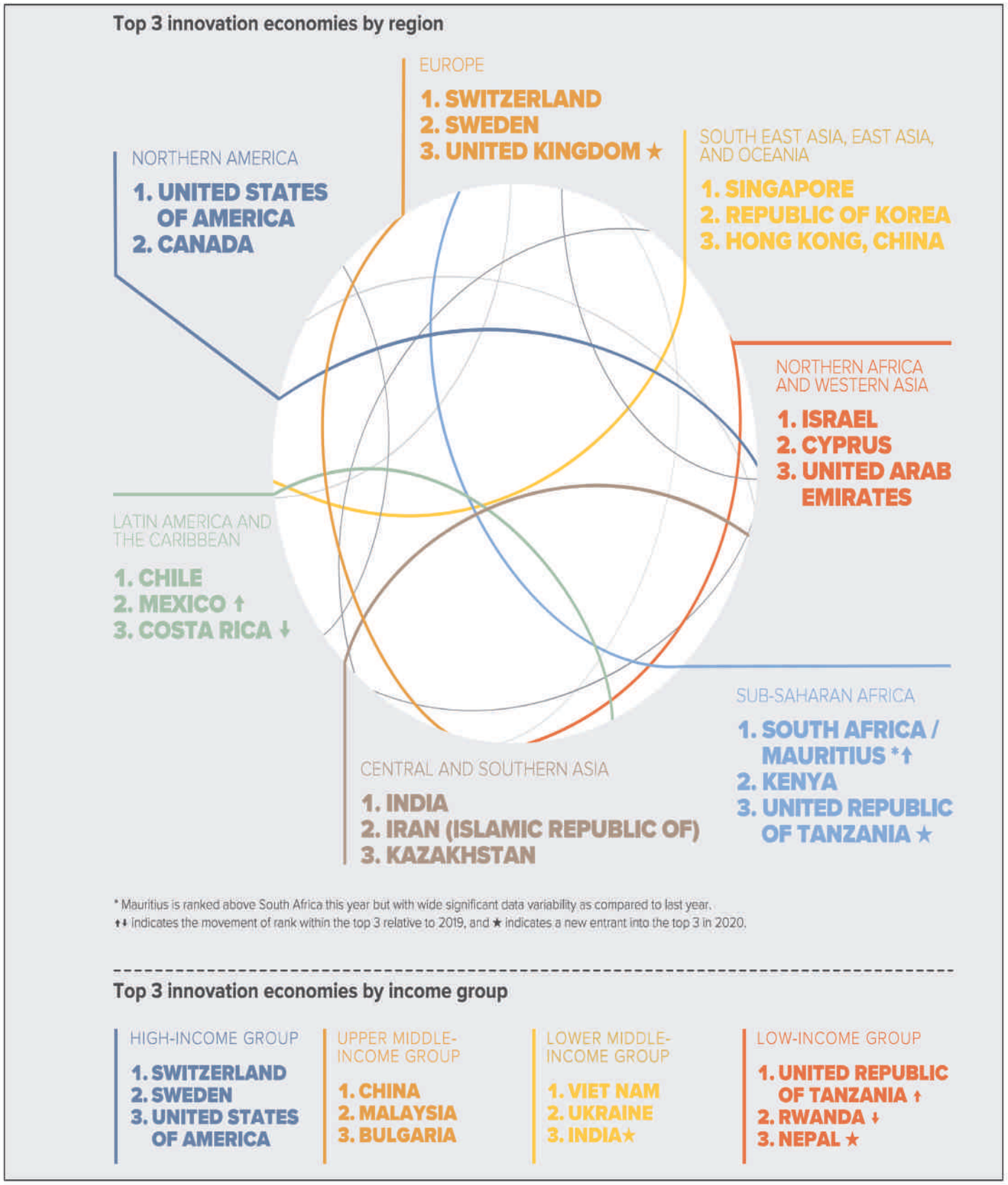
The Global Innovation Index (GII)

- The GII is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. It seeks to assist economies in evaluating their innovation performance.
- GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each consisting of three sub-pillars, further divided into a total of 80 indicators.
  - The Innovation Input sub-index has five pillars: (i) Institutions; (ii) Human Capital and Research; (iii) Infrastructure; (iv) Market Sophistication; and (v) Business Sophistication.
  - The Innovation Output Sub-Index has two pillars (i) Knowledge and Technological outputs and (ii) Creative outputs. GII was first conceptualised in 2007.
- The Innovation Input sub-index and the Innovation Output Sub-Index have equal weight in calculating the overall GII.



Source: GII

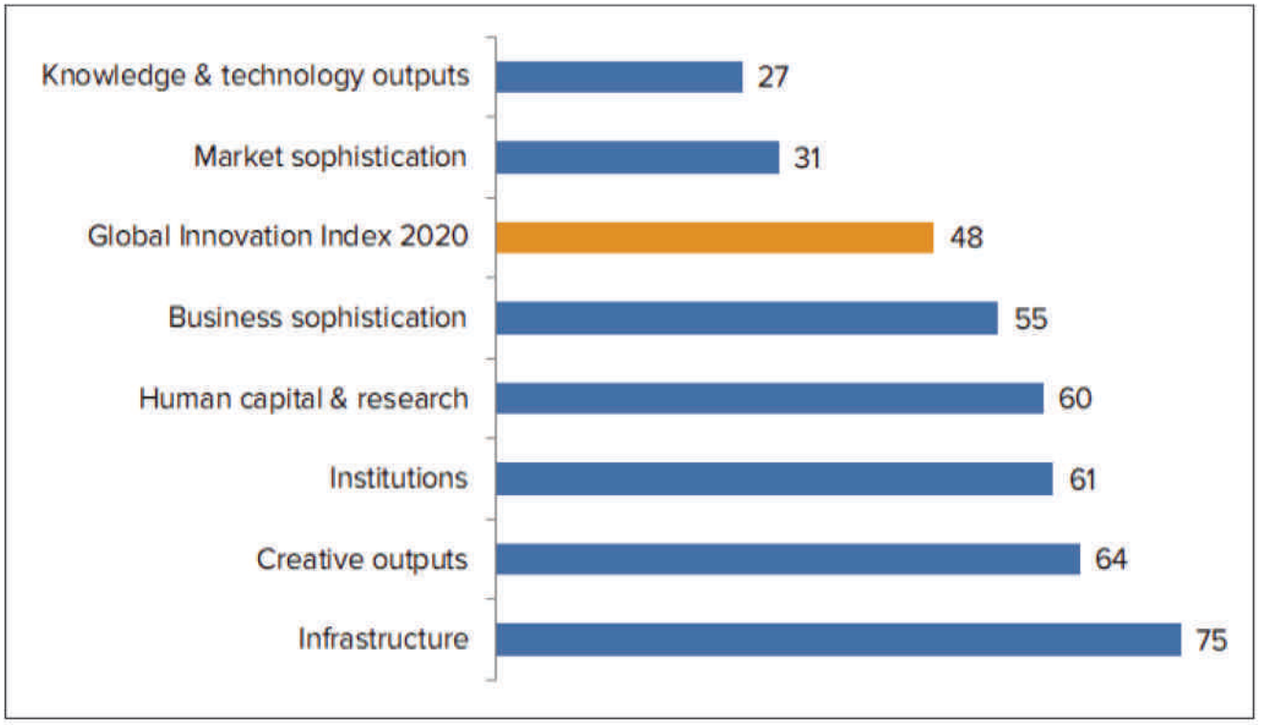
- GII 2020 includes 131 countries/economies, which represent 93.5 per cent of the world's population and 97.4 per cent of the world's GDP in purchasing power parity current international dollars.
- India ranks 48th amongst 131 countries in terms of its innovation performance as measured using the Global Innovation Index (GII) 2020.
- India ranks 45th and 57th on the output and input sub-indices respectively. India entered the top 50 innovating countries for the first time since the inception of the index in 2007. Along with three other economies – Vietnam, Republic of Moldova and Kenya, India has the rare distinction of being an innovation achiever for ten consecutive years.
- India performed particularly well regionally and in its income category, ranking first in the GII rankings in Central and South Asia, and third amongst lower middle-income group economies. India performed above expectation for its level of development in terms of innovation.



Source: GII 2020 Report

- India performed best on the knowledge & technology outputs (KTO) pillar (rank 27) followed by Market Sophistication pillar (rank 31). India performed lowest on the Infrastructure pillar (rank 75).

Figure 4: India's performance on pillars of the Global Innovation Index 2020 (rank)



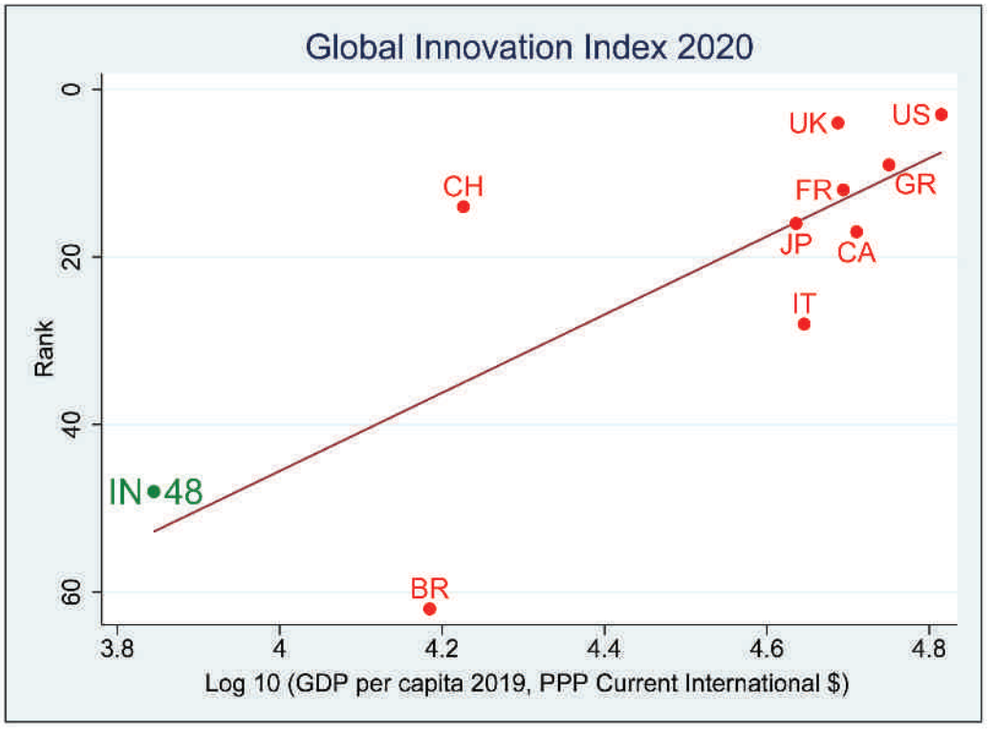
Source: GII 2020 Report

- India's performance in innovation outputs is driven by its competencies. India ranks tenth in the Knowledge Diffusion sub-pillar of the KTO pillar. India's first rank in the Information and Communications Technology (ICT) services exports as per cent of total trade shows its leadership in the global ICT services industry. India ranks ninth in terms of productivity growth (growth rate of GDP PPP per worker). It is ranked 21st for citable documents as well as cultural and creative services exports. India has the distinction of ranking 31st in global brand value by producing many more valuable brands than expected for its income level.
- India has performed impressively in innovation inputs such as domestic market scale (rank three) facilitating its overall rank of 15 in the Trade, Competition and Market Scale sub-pillar. Other leading innovation inputs for India include government's online service (rank nine), graduates in science and engineering (rank 12), ease of protecting minority investors (rank 13), e-participation (rank 15), average exports of top three global R&D companies (rank 16) and average score of top 3 universities in the QS university rankings (rank 22).

INDIA'S INNOVATION PERFORMANCE VIS-À-VIS TOP TEN ECONOMIES

- India is currently the fifth largest economy in terms of GDP current US$ while it is the third largest in terms of GDP PPP current international $. Although India has performed above expectation on innovation w.r.t. its level of development, India lags behind most other large economies (top ten in terms of GDP current US$) on most indicators of innovation.
- Although India performs in line with its level of development, India ranks second lowest, after Brazil, on the overall GII. Countries such as China and the UK rank much higher than expected for their level of development.
- This trend continues in innovation outputs and innovation inputs. Performance on innovation outputs of the ten largest economies (GDP current US$. Although India performs as per expectations for its level of development, India is ranked second lowest, after Brazil, on innovation outputs. Figure 16 shows performance on innovation inputs of the ten largest economies (GDP current US$). India performs in line with its level of development but ranks second lowest, after Brazil, on innovation inputs amongst the top ten economies.

Figure 14: Performance of Top 10 Economies on GII



Source: The World Bank and GII database

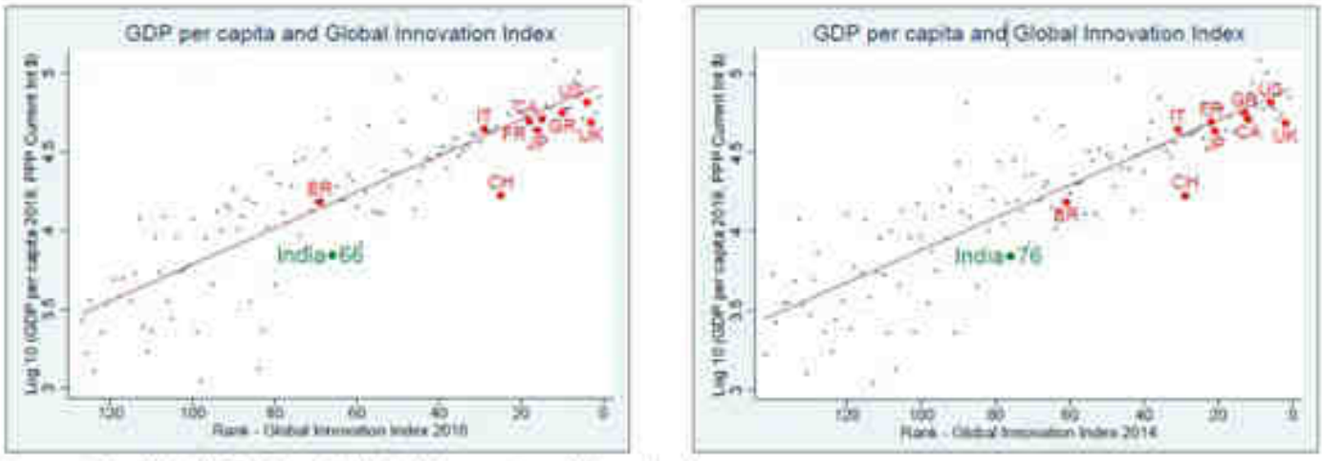
Note: Highest possible rank is 1. Figure shows India's innovation rank. US = USA, CH = China, JP = Japan, GR = Germany, IN=INDIA, UK = United Kingdom, FR = France, IT = Italy, BR = Brazil and CA = Canada.

WHY INNOVATION MATTERS

- The importance of technological progress in economic growth began with the Solow model (Solow 1956), which highlighted that output per worker mainly depends on savings, population growth and technological progress.
- This model was empirically extended by Barro (1991); Barro and Sala-i-Martin (1991, 1992), and Mankiw, Romer and Weil (1992), identifying technological progress as the key determinant of long-term economic growth.
- While the Solow model treats technological progress as exogenous, the new growth theory endogenises technological progress and suggests several determinants of the same. These include human capital (Lucas, 1988); search for new ideas by profit-oriented researchers (Romer, 1990); infrastructure (Aschauer 1989); and improving quality of existing products (Grossman and Helpman 1991; Aghion and Howitt 1992).
- Endogenous growth has also been explained using the Shumpeterian model of creative destruction, where innovative products brought to the market by entrants lead to replacement/destruction of the old ones produced by the incumbents (Aghion, Akcigit, & Howitt, 2013).
- Research showed that small enterprise R&D activities brought large returns to the national economy through new technologies (Comin, 2004).
- More recently, studies have focused on patenting and economic growth (Westmore, 2013; Acharya and Subramanian, 2009, Acharya et al. 2013).
- Studies have also established a relationship between entrepreneurship innovation and economic growth (Galindo & Méndez, 2014). An increase of 10 per cent in R&D investment has been associated with productivity gains ranging from 1.1 per cent to 1.4 per cent (Donselaar and Koopmans, 2016).

Figure 1: Positive Correlation between GDP per capita (2019) and Past Innovation

A) Innovation (2016) **B) Innovation (2014)**



Source: The World Bank and Global Innovation Index database
Note: Highest possible rank is 1. Figure shows India's innovation rank. US = USA, CH = China, JP = Japan, GR = Germany, UK = United Kingdom, FR = France, IT = Italy, BR = Brazil and CA = Canada.

- The positive correlation between past innovation performance and current GDP per capitacan be examined empirically. The given figure shows the positive correlation between past innovationperformance (three-years ago in 2016 and five years ago in 2014) with GDP per capita in PPP terms (2019) across countries. It may be seen that India has performed below expectation for its past innovation performance in terms of recent GDP per capita.

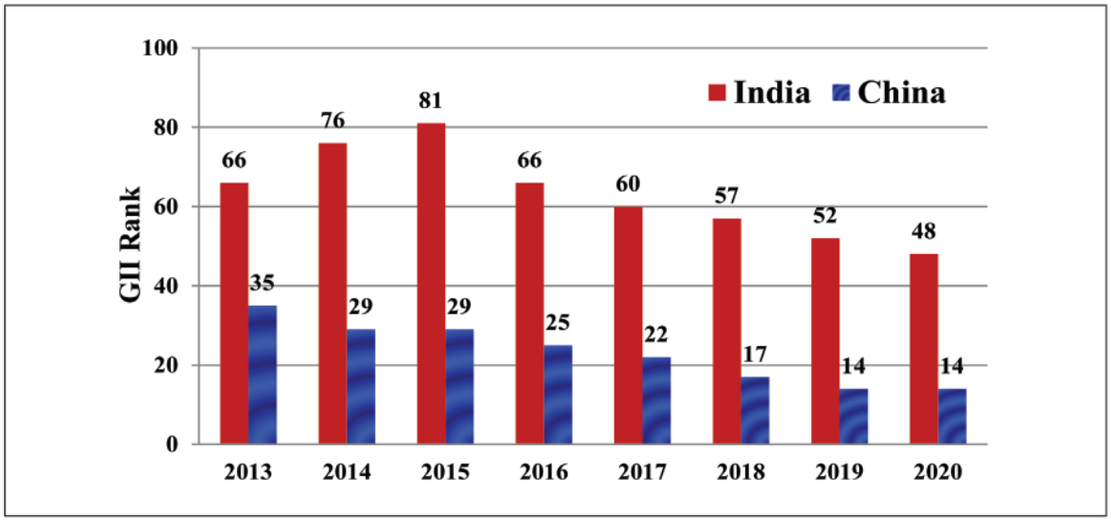
Lesson for India: R&D Roadmap of China

- In January 2006, China initiated a 15-year "Medium to Long Term Plan (MLP) for the Development of Science and Technology". MLP called for China to become an "innovation-oriented society" by the year 2020, and a world leader in science and technology (S&T) by 2050. It committed China to developing capabilities for "indigenous innovation" and to leapfrog into leading positions in new science-based industries by the end of the plan period. The MLP of China used R&D as an important instrument for development of S&T ecosystem.
- MLP – A Snapshot
  - Duration: 15 years: 2006 to 2020
  - Goals
    - China to become an "innovation-oriented society"
    - A world leader in S&T by 2050
    - Developing capabilities for "indigenous innovation" and to leapfrog into leading positions in new science-based industries
  - Targets and Instruments
    - Gross domestic expenditure on R&D (GERD) as a percentage of GDP to increase from 1.35 per cent in 2005 to 2.5 per cent by 2020
    - Raise contributions to economic growth from technological advance to more than 60 per cent
    - Limit dependence on imported technology to no more than 30 per cent
    - China to become one of the top five countries in the world in the number of invention patents granted to Chinese citizens
    - Chinese-authored scientific papers to become among the world's most cited

TRENDS IN INDIA'S INOVATION PERFORMANCE

- India has consistently improved on GII from rank 81 in 2015 to rank 48. While India has performed impressively, there is scope for much more improvement. To put things into perspective, China has improved its rank from 29 to 14 during the same period. China embarked on an ambitious R&D roadmap to become an innovation-oriented economy.

Figure 24: GII Performance (2013-20)



Source: GII database

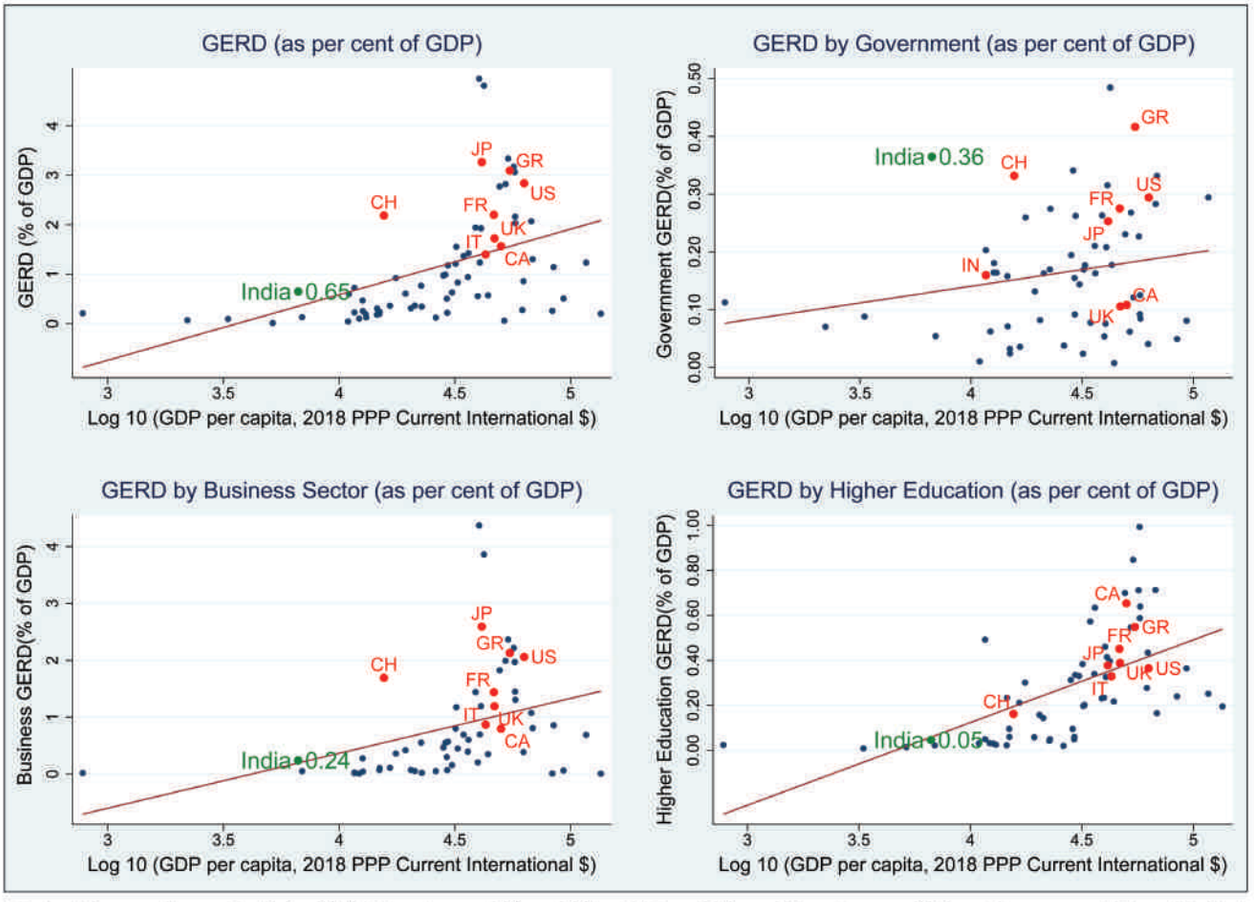
- India's GII rankings have been led by its performance in innovation outputs. India has consistently improved on innovation outputs from rank 69 in 2015 to rank 45 in 2020. Meanwhile, China has improved its rank from 21 in 2015 to six in 2020.
- India has consistently improved on innovation inputs, from rank 100 in 2015 to rank 57 in 2020. China has improved from rank 41 in 2015 to rank 26 in 2020. The year 2016 marked a sharp improvement in India's performance in the innovation input sub-index on account of improvement in HCR, market sophistication and business sophistication performance.
- Amongst output pillars, India has significantly improved on KTO pillar since 2014, almost halving its rank from 50 in 2014 to 27 in 2020. China's performance slightly worsened, with its rank declining from 2 in 2014 to 7 in 2020 on KTO. India has consistently performed better in the knowledge diffusion sub-pillar as compared to knowledge creation and impact.
- On creative outputs pillar, India's rank improved from 95 in 2015 to 64 in 2020. Meanwhile, China's rank improved from 54 in 2015 to 12 in 2020. India has been performing better in creative goods & services sub-pillar than intangible assets and online creativity sub-pillars.
- India has significantly improved in the HCR pillar over time from rank 103 in 2015 to 60 in 2020. China improved from rank 31 in 2015 to rank 21 in 2020. India's improvement in HCR pillar can be attributed to improvements in tertiary education sub-pillar. India has been performing poorly in the primary and secondary education pillar – making it an area requiring focussed attention.
- 8.37 On the infrastructure pillar, India's rank improved from 89 in 2013 to 75 in 2020 while China's rank improved from 44 to 36 during this period. India has been performing poorly on the ecological sustainability sub-pillar, leading to slow improvement on the infrastructure pillar.
- India's rank has improved considerably on market sophistication pillar from 72 in 2015 to 31 in 2020. China's rank has improved from 59 in 2015 to 19 in 2020.The introduction of domestic market scale as a parameter in market sophistication in 2016, led to India's rank improving from 72 in 2015 to 33 in 2016. Since then, India has consistently performed well in the trade, competition and market scale sub-pillar.
- India's rank improved significantly on the business sophistication pillar from 116 in 2015 to 55 in 2020. China's rank improved from 31 in 2015 to 7 in 2016, thereafter declining to 15 in 2020. India's business sophistication rank improved sharply from 116 in 2015 to 57 in 2016 on account of changed indicators in knowledge absorption sub-pillar and

improvement in knowledge workers sub-pillar. In 2020, innovation linkage was overtaken by knowledge absorption as the best performing business sophistication sub-pillar for India. This improvement is a positive sign and can be expected to feed into further improvements. India has consistently lagged behind on the knowledge workers sub-pillar, making it an area warranting focussed attention.

R&D EXPENDITURE IN INDIA

- Research & Development (R&D) investment is a key input in innovation. Given figure shows, Gross domestic expenditure on R&D (GERD) as per cent of GDP in relation to the level of development measured by GDP per capita on PPP basis. Although India's GERD is in line with expectation for its level of development, there is much scope for improvement.
- Other top ten economies such as USA, China, Japan, Germany and France have higher than expected GERD for their level of development. India's business sector and higher education sector contribution to GERD as per cent of GDP is in line with its level of development. However, the business sector's GERD in USA, China, Japan and Germany is much higher as expected for their level of development. Higher education sector in Canada and Germany also has larger GERD than their level of development.
- There is positive correlation between the level of development and GERD as per cent of GDP and business sectors' participation in total GERD while government sector's participation in GERD is negatively correlated with development.
- In India, the Government contributes 56 per cent of GERD while this proportion is less than 20 per cent in each of the top ten economies. Yet, India's GERD is much lower than that of the top ten economies because India's business sector contributes a much smaller per cent to total GERD (about 37 per cent) than the business sector in all the other large economies such as China, US, Japan and UK (68 per cent on average). This can be clearly seen because the proportion contributed to GERD by higher education is similar in India as in the top 10 economies.

Figure 34: Total GERD and Sector-wise Contributions to GDP, 2018



Note: Figure shows India's GERD values. US = USA, CH = China, JP = Japan, GR = Germany, UK = United Kingdom, FR = France, IT = Italy and CA = Canada.
Source: The World Bank and UNESCO

INDIA'S PERFORMANCE ON PATENTS AND TRADEMARKS

- The total number of patents filed in India has risen steeply since 1999, mainly on account of increase in patent applications filed by non-residents. While patent applications filed by residents have increased steadily since 1999, they have risen at a much lower rate than patent applications by non-residents.
- Brain Drain Issue:
  - Breschi, Lissoni and Miguelez (2017) estimated that around six per cent of US-resident inventors listed at the European Patent Office in 2009 had an Indian name and surname. This was roughly the same as the Chinese. This more than the French, Germans and Italians combined.
  - Large-scale out-migration of skilled workforce and students from India is not necessarily bad news for India's innovation aspirations. This could potentially result in return of higher-skilled workforce in future. However, this would require an enabling environment that facilitates re-entry into the Indian job-market and high-tech research opportunities.
- Unlike India, Brazil and Canada, other top ten economies (GDP current US$) have a higher share of patent applications by residents than non-residents. Improving resident share in patents should be a matter of priority to make advancements in innovation.
- India's trend of larger resident-share in total trademark applications is similar to that observed across other top ten economies (GDP current US$) except Canada. Larger share of residents in total trademark applications filed in India is a positive sign for advancement in innovation.
- India and Brazil rank much below expectation for their level of equity market development in the overall GII, innovation outputs and innovation inputs amongst the top ten largest economies. Given that most of these large economies are more innovative than India and equity market development facilitates greater high-technology innovation, this potentially indicates that innovation in India needs to become more high-tech intensive.

POLICY IMPLICATIONS

- India needs greater thrust on innovation to catapult itself to a higher growth trajectory andbecome the third largest economy in GDP current US$ in the near future. This requires boostinggross expenditure on R&D from 0.7 per cent of GDP currently, to at least the average level ofGERD in other top ten economies (GDP current US$) of over two per cent.
- It also involvessignificantly scaling up R&D personnel and researchers in the country, especially in the privatesector.
- Despite heavy lifting by the government sector in GERD of almost three times the averageof other top ten economies, India's GERD remains low. Moreover, India's performance oninnovation has been lower than expected for its level of access to equity finance. India's businesssector needs to rise to the occasion and significantly ramp up its gross expenditure on R&D toa level commensurate to India's status as the fifth largest economy in GDP current US$.
- Thisrequires boosting business sector contribution to total GERD from 37 per cent currently, to closeto 68 per cent – the average business contribution in GERD of other top ten economies. Indianbusiness sector's contribution to total R&D personnel and researchers also needs to be scaledup from 30 per cent and 34 per cent per cent respectively to the average level in other top teneconomies (58 per cent and 53 per cent respectively).
- India has had a generous tax incentive structure to boost R&D in the country as comparedto several other top ten economies. However, this did not generate a corresponding level ofprivate participation in GERD in India. Given the low level of contribution to GERD by thebusiness sector despite the generous incentive regime prevailing earlier, businesses in Indiamust focus on innovation to remain competitive in the new economy.
- For India to become an innovation leader, its residents' share in total patent applicationsfiled in the country must rise from the current level of 36 per cent.
- India should focus on improving its performance on institutions and business sophisticationsince higher performance on these dimensions seem to consistently suggest higher innovationoutputs performance. The importance of institutions for innovation s consistentwith an emerging literature that emphasizes the same.

Way Forward

- India must focus on improving its performance on institutions and business sophisticationinnovation inputs. These are expected to result in higher improvement in innovationoutput.
- India must significantly ramp up investment in R&D if it is to achieve its aspiration toemerge as the third largest economy in terms of GDP current US$. Mere reliance on"Jugaad innovation" risks missing the crucial opportunity to innovate our way into thefuture. This requires a major thrust on R&D by the business sector. India's resident firmsmust increase their share in total patents to a level commensurate to our status as the fifthlargest economy in current US$. India must also focus on strengthening institutions andbusiness sophistication to improve its performance on innovation outputs.

09 JAY Ho: Ayushman Bharat's Jan Arogya Yojana (JAY) and Health Outcomes

INTRODUCTION

- As free markets under-provision public goods, a vital role of a government is to provide public goods to its citizens, especially to the vulnerable sections in a society. While the rich can seek private alternatives, lobby for better services, or if need be, move to areas where public goods are better provided for, the poor rarely have such choices (Besley and Ghatak, 2004). Thus, provision of public goods can particularly affect the quality of living of the vulnerable sections in a society. Yet, governments may suffer from the "horizon problem" in a democracy, where the time horizon over which the benefits of public goods reach the electorate may be longer than the electoral cycles (Keefer 2007 and Keefer and Vlaicu 2007). The myopia resulting from the horizon problem may again lead to under-provisioning of public goods. Therefore, the provision of public goods that generate long-term gains to the economy and the society represents a key aspect of governance in a democratic polity.
- As healthcare represents a critical public good, successive governments have committed to achieve universal health coverage (UHC). However, until 2018, UHC remained an elusive dream. In 2018, Government of India approved the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PM-JAY) as a historic step to provide healthcare access to the most vulnerable sections in the country. Beneficiaries included approximately 50 crore individuals across 10.74 crores poor and vulnerable families, which form the bottom 40 per cent of the Indian population. The households were included based on the deprivation and occupational criteria from the Socio-Economic Caste Census 2011 (SECC 2011) for rural and urban areas respectively. The scheme provides for healthcare of up to INR 5 lakh per family per year on a family floater basis, which means that it can be used by one or all members of the family. The scheme provides for secondary and tertiary hospitalization through a network of public and empanelled private healthcare providers. It also provides for three days of pre-hospitalization and 15 days of posthospitalization expenses, places no cap on age and gender, or size of a family and is portable across the country. It covers 1573 procedures including 23 specialties (see Box 1 for details). AB-PM-JAY also aims to set up 150,000 health and wellness centres to provide comprehensive primary health care service to the entire population.
- The evidence provided in this chapter shows strong positive effects of PM-JAY on healthcare outcomes despite the short time since introduction of the programme. First, PMJAY is being used significantly for high frequency and low cost care consisting with the general utilisation of healthcare services. Using the distribution of claims, we find that the distribution is a long-tailed one that peaks in the range of INR 10,000-15,000. The highest number of preauthorization claims received were for procedures that cost in this range. The distribution is heavily right-tailed indicating significantly fewer claims for more expensive procedures.
- Second, general medicine has been the overwhelmingly major clinical specialty used since 2018 with its share continuously growing. It is followed by general surgery, obstetrics and gynaecology. These three categories combine to account for more than half of the claims received on average. Dialysis – high frequency, low cost procedure that is life-saving for patients with renal difficulties – accounts for a large chunk (30 per cent) of the general medicine category claims under PM-JAY.
- Third, the claims for dialysis did not diminish due to Covid-19 or because of the lockdown in March-April 2020 even while we can observe a steep fall in claims under the overall general medicine category during the lockdown. This highlights the users' reliance on PM-JAY for the life-saving dialysis procedure. Thus, the critical, life-saving health procedures such as dialysis seem to have not been severely affected during the Covid-19 pandemic.
- Fourth, general care-seeking as seen in the PM-JAY claims exhibited a V-shaped recovery after falling during the lockdown and has reached the pre-Covid-19 levels in December 2020. 9.7 The final, but the most crucial, analysis in the chapter attempts to estimate the impact of PM-JAY on health outcomes by undertaking a difference-in-difference analysis. We compare the health indicators measured by National Family Health Survey 4 (NFHS 2015-16) and the National Family Health Survey 5 (NFHS 2019-20) to undertake this analysis. As PM-JAY was implemented in 2018,

these two surveys provide before-after data to assess the impact of PMJAY with the NFHS-4 serving as the baseline to compare the changes using NFHS-5. To mitigate the impact of various confounding factors, including but not limited to secular improvements in health indicators across the country, we undertake this analysis by calculating a difference-indifference.

- This analysis is undertaken in two parts. In the first part, we use West Bengal as the state that did not implement PM-JAY and compare the before-after difference in health outcomes to its neighbouring states that have implemented PM-JAY – Bihar, Sikkim and Assam. Apart from all these states being contiguous to each other and therefore being similar on socio-economic dimensions, we show that the baseline characteristics of these two groups of states were similar. In the second part, we repeat the same analysis for all states that did not implement PM-JAY vis-à-vis all states that implemented PM-JAY. Of course, the heterogeneity across the entire group of states in the country is large. The second analysis is less of a like-for-like comparison than the first one. Combining the findings from both these comparisons ensures that the findings are robust not only to a more localised, and therefore, more careful comparison but also to a comparison that spans all the major states in the country. The findings from this analysis are summarised as follows:
  1. The proportion of households that had health insurance increased in Bihar, Assam and Sikkim from 2015-16 to 2019-20 by 89 per cent while it decreased by 12 per cent over the same period in West Bengal. When comparing across all the states over this time period, we find that the proportion of households with health insurance increased by 54 per cent for the states that implemented PM-JAY while falling by 10 per cent in the states that did not adopt PM-JAY. Thus, PM-JAY enhanced health insurance coverage.
  2. From 2015-16 to 2019-20, infant mortality rates declined by 20 per cent for West Bengal and by 28 per cent for the three neighbouring states. Similarly, while Bengal saw a fall of 20 per cent in its Under-5 mortality rate, the neighbours witnessed a 27 per cent reduction. Thus, the neighbouring states witnessed 7-8 per cent greater reduction in these health outcomes.
  3. Modern methods of contraception, female sterilization and pill usage went up by 36 per cent, 22 per cent and 28 per cent respectively in the three neighbouring states while the respective changes for West Bengal were negligible. While West Bengal did not witness any significant decline in unmet need for spacing between consecutive kids, the neighbouring three states recorded a 37 per cent fall.
  4. Various metrics for mother and child care improved more in the three neighbouring states than in West Bengal.
  5. Each of the effects described above (points 2-4) manifested similarly when we compare all states that implemented PM-JAY versus the states that did not.
- Overall, the comparison reflects significant improvements in several health outcomes in states that implemented PM-JAY versus those that did not. As the difference-in-differnce analysis controls for various compounding factors, the Survey infers that PMJAY impacted health outcomes positively.

PM-JAY: STATUS AND PROGRESS SO FAR

- As per the latest annual report of PM-JAY released by the National Health Authority (NHA, 2019), the status of implementation is as follows:
  - 32 states and UTs implement the scheme
  - 13.48 crore E-cards have been issued
  - Treatments worth INR 7,490 crore have been provided (1.55 crores hospital admission)
  - 24,215 hospitals empaneled
  - 1.5 crore users have registered on the scheme's website (mera.pmjay.gov.in)

PUBLIC GOODS, DEMOCRACIES AND GOVERNANCE

- Samuelson (1954) conceptualised certain goods as "public goods" and argued that that "no decentralized pricing system can serve to optimally determine these levels of collective consumption (of the public good)." As public goods are non-rival and non-excludable, market failures predominate in the provision of such goods. The decentralised free

market system that works through prices cannot force consumers to reveal their demand for purely non-excludable goods, and so cannot lead to producers meeting that demand. Also, given their non-rivalry, private producers cannot make the requisite profits to justify investing in such goods. Therefore, public goods may get severely under-produced without intervention by a government.

- Since public goods are not adequately provided for by the markets, they must be supplied by the government. Therefore, provisioning for public goods and ensuring their supply represents one of the most important functions of a government. Access to safe drinking water, sanitation, 0transport, medical care, and schools is essential both as a direct component of well-being as well as inputs into productive capabilities. The presence of strong linkages between public goods provision and economic development accentuates the need for the provision of public good at national, regional and international levels (UNIDO 2008). Governance therefore entails effective delivery of public goods and services to the vulnerable sections of society.

PM-JAY AND COVID-19

- Two key facts are worth noting. First, as we discussed before, dialysis is a common procedure availed under PM-JAY. Its use did not diminish at the onset of Covid-19 or during the lockdown (March-April 2020) even though we can observe a steep fall in claims under the overall general medicine category in the same period. This highlights the users' reliance on PMJAY or the life-saving dialysis procedure. Thus, the critical, life-saving health procedures such as dialysis seem to have not been severely affected during the Covid-19 pandemic.
- Second, the number of dialysis claims have only been growing. This fact highlights that the National Dialysis Mission could be merged with PM-JAY.
- Third, while access to medical services were classified as essential services during the lockdown, care-seeking exhibited a V-shaped behaviour during the lockdown and unlock phases with the pre-Covid-19 levels being reached in December 2020. The V-shaped behaviour is likely to be due to both demand and supply side effects. On the supply side, health care workers might have cut back on services out of initial fear of infection or it is possible that pre-authorization processes were skipped. Further, many private hospitals were not providing services for fear of infection and government hospitals were reserved for COVID-19 patients. On the demand side, patients avoided hospitals due to fear of contracting the virus, or their access to medical services could have been impeded by lack of transport or finances during the lockdown. Both the demand and supply side factors seem to have since recovered completely during the unlock phase. Further, recovery in private sector hospitals in much better than the public empaneled healthcare providers (EHCP).

Concluding Observations

- The health outcomes of the states that adopted PM-JAY improved when compared to the states that did not adopt it. Using difference-in-difference computations that control for confounding factors, this chapter shows that states adopting PM-JAY are able to improve their health outcomes. Relative to states that did not implement PM-JAY, states that adopted it experienced greater penetration of health insurance, experienced a reduction in infant and child mortality rates, realized improved access and utilization of family planning services, and greater awareness about HIV/AIDS. While some of these effects stemmed directly from enhanced care enabled by insurance coverage, others represent spillover effects due to the same. Even though only a short time has elapsed since its introduction, the effects that are identified by the Survey underscores the potential of the program to significantly alter the health landscape in the country, especially for the vulnerable sections.

10

The Bare Necessities

CONTEXT

- Access to "the bare necessities" such as housing, water, sanitation, electricity and cleancooking fuel are a sine qua non to live a decent life. Economic Survey 2020-2021 examines the progressmade in providing access to "the bare necessities" by constructing a Bare NecessitiesIndex (BNI) at the rural, urban and all India level.
- The BNI summarises 26 indicators onfive dimensions viz., water, sanitation, housing, micro-environment, and other facilities.The BNI has been created for all states for 2012 and 2018 using data from two NSOrounds viz., 69th and 76th on Drinking Water, Sanitation, Hygiene and Housing Conditionin India.

INTRODUCTION

- The "bare necessities" of housing, water, sanitation, electricity and clean cooking fuel are jointly consumed by all the members of a household. They, therefore, touch the life of every member in the household. As these are durable assets, they deliver services to the household over long periods of time. Access to clean drinking water, safe sanitation and clean cooking fuel also have direct linkages with health of the members in the household. Access to these saves time for a household, which they can utilise in productive activities such as education and learning.
- In order to improve access to "the bare necessities," successive governments have made constant efforts. The network of schemes designed to deliver these necessities include inter-alia the Swachh Bharat Mission (SBM), National Rural Drinking Water Programme (NRDWP), Pradhan Mantri Awaas Yojana (PMAY), Saubhagya, and Ujjwala Yojana. These Schemes were equipped with new features such as use of technology, real time monitoring, geo-tagging of assets, social audit, embedded digital flow of information, and direct benefit transfers wherever possible.
- The "basic needs" approach to economic development focuses on the minimum specified quantities of basic necessities such as food, clothing, shelter, water and sanitation that are necessary to prevent ill health, and undernourishment (Streeten, 1981; Emmerij, 2010).
- Sen (1999) defines poverty as a failure to achieve certain minimum basic needs or capacities. Shaffer (2008) similarly defines poverty as the deprivation of material requirements for the minimum acceptable fulfilment of basic needs. The Bare Necessities Index (BNI) is an attempt to quantify this approach to economic development using data from the National Statistical Office (NSO).

THE BARE NECESSITIES INDEX

- The data for developing the Bare Necessities Index (BNI) is sourced from two NSO Rounds on drinking water, sanitation, hygiene, and housing condition in India: 69th (2012) and 76th (2018). The data on the indicator 'household using LPG for cooking' for 2011-12 is taken from NSO Report on Energy Sources of Indian Households for Cooking and Lighting 2011-12. The BNI is created for all States/UTs by employing the data at State level. As Telangana did not exist in 2011, data is not available for the State in 2011; however, the maps show the index value for the combined State of Andhra Pradesh in 2011. The indicators selected are the most desirable options and relevant for public policy targets from the possible and recorded options. The index is constructed at two points of time – 2012 and 2018 – using 26 indicators on five dimensions viz., water, sanitation, housing, micro-environment, and other facilities.

Five Dimensions of Bare Necessities Index (BNI)
Dimension - 1: Water
◆ Principal source of drinking water (Eg: piped water into dwelling, piped water to yard/plot etc)
◆ Distance to the principal source of drinking water (Eg: within dwelling, outside dwelling but within premises etc)

◆ Method of taking water.
◆ Nature of access. (Eg: exclusive, common, shared, community etc)
Dimension - 2: Sanitation
◆ Access of the household to latrine.
◆ Type of latrine used by the household. (Eg : piped sewer system, septic tank, twin leach pit, single pit)
Dimension - 3: Housing
◆ Condition of structure (Eg: good, satisfactory, bad).
◆ Type of the dwelling (Eg : Independent (independent house, flat, others).
◆ Pucca dwelling: if having pucca wall and roof and other kutcha dwelling.
Dimension – 4: Micro-environment
◆ Drainage system of the household.
◆ Whether the household faced problem of flies/mosquitoes during last 365 days?
◆ Whether any effort was made by the Local Bodies/State Government during last 365 days to tackle problem of flies/ mosquitoes?
Dimension – 5:Other Facilities
◆ Kitchen type: with water tap, no separate kitchen etc.
◆ Ventilation of the dwelling unit (Eg: good, satisfactory, bad)
◆ Access of the household to bathroom.
◆ Type of bathroom used by the household (Eg: attached to the dwelling unit)
◆ Whether the household has electricity for domestic use?
◆ Type of electric wiring.
◆ Type of fuel used by household for cooking (eg : LPG, firewood, chips & crop residue, dung cake, kerosene, coke / coal, gobar gas, other biogas, charcoal, electricity etc)

- The value of the index ranges between 0 and 1. Higher the value of index, better is the access to thebare necessities.

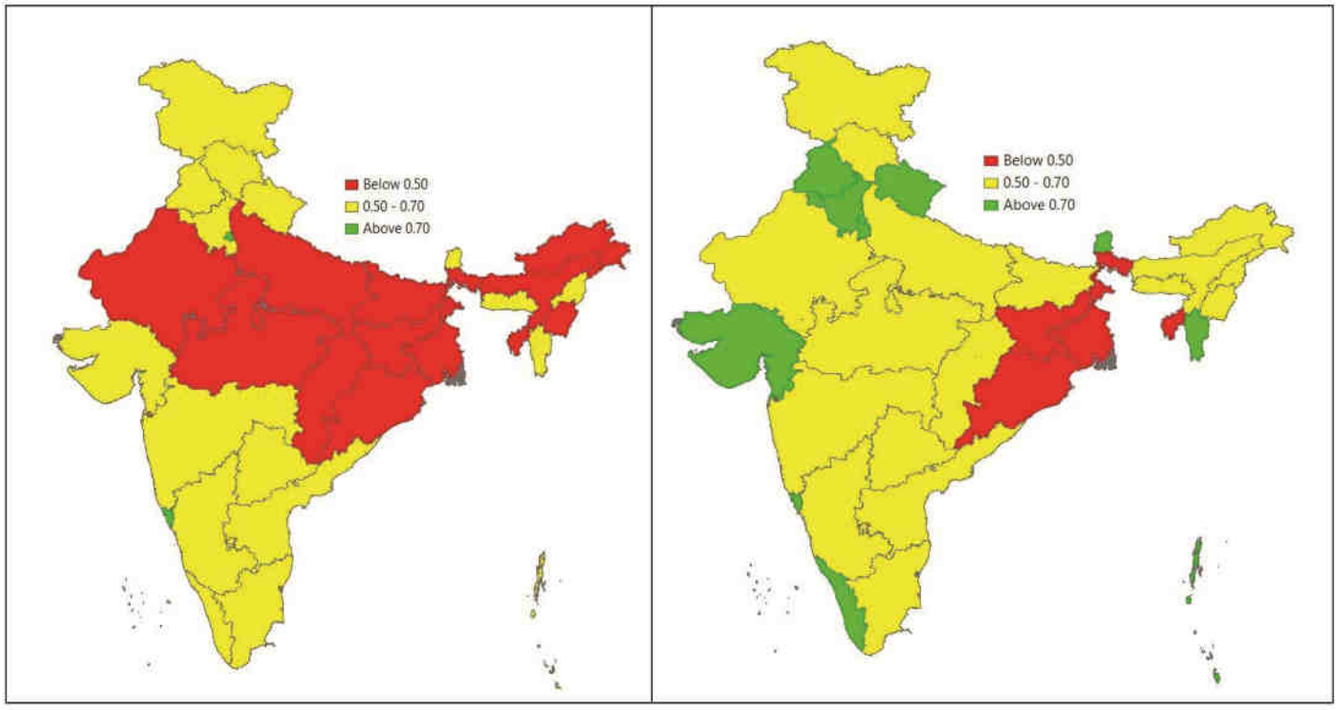
$$\text{Indicator Score} = \frac{\text{Actual value-Minimum value (fixed at 0)}}{\text{Maximum value (fixed at 100) - Minimum value (fixed at 0)}}$$

INDIA'S BNI PERFORMANCE

- A higher value indicates better access to bare necessities in a State. The three colours, green, yellow and red, used in the maps show the level of a State in providing access to bare necessities to its households. Green (above 0.70) indicates 'High' level and is therefore the most desirable, followed by yellow (0.50 to 0.70), which indicates 'Medium' level. In contrast, Red (below 0.50) indicates very 'Low' level of access. The difference in colours in a map indicate the regional variation in the access to bare necessities for the households.
- It is quite evident that in most of the states, the access to bare necessities for the households in 2018 is significantly better compared to 2012. Access to bare necessities in 2018 is the highest in the States such as Kerala, Punjab, Haryana, Gujarat, Uttrakhand, Delhi, Goa, Mizoram and Sikkim while it is the lowest in Odisha, Jharkhand, West Bengal and Tripura. The states showing improvement on the access to bare necessities, where red in 2012 became yellow or green in 2018 or where yellow in 2012 became green in 2018, are Haryana, Punjab, Uttarakhand, Gujarat, Kerala, Rajasthan, Uttar Pradesh, Bihar, Madhya Pradesh, Chhattisgarh, and North East states except for Tripura, Nagaland and Meghalaya.
- In rural India, the highest access to bare necessities in 2018 is recorded in Punjab, Kerala, Sikkim, Goa and Delhi, while the lowest in Uttar Pradesh, Madhya Pradesh, Bihar, Jharkhand, West Bengal, Odisha, Assam, Manipur and Tripura. The States showing improvement in their access to bare necessities are J&K, Punjab, Rajasthan, Gujarat, Maharashtra, Karnataka, Chhattisgarh, Tamil Nadu, Andhra Pradesh, Kerala, Goa, Meghalaya and Arunachal Pradesh.

Figure 1: Improvement in the Bare Necessities Across India (Rural + Urban) from 2012 to 2018

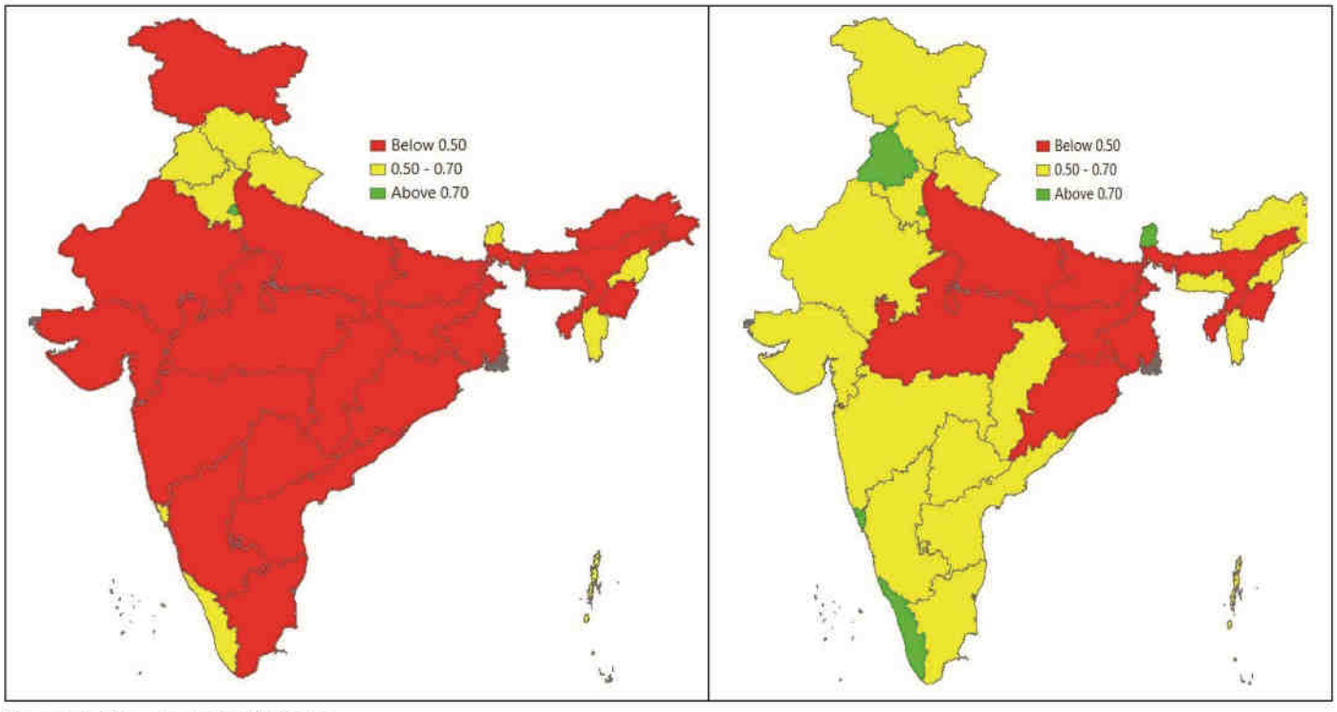
BNI for India (Rural + Urban) 2012 BNI for India (Rural + Urban) 2018



Source: Survey calculations.

Figure 2: Improvement in the Bare Necessities Across Rural India from 2012 to 2018

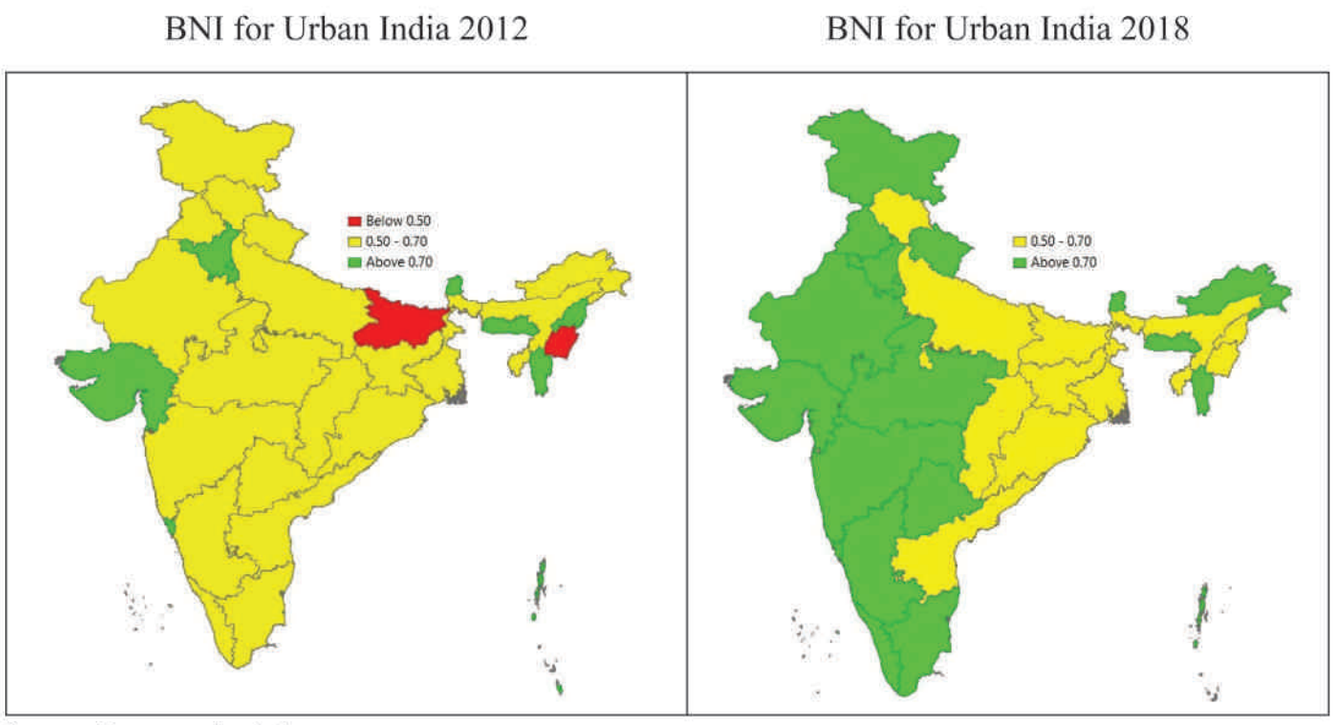
BNI for Rural India 2012 BNI for Rural India 2018



Source: Survey calculations.

- In urban India, no State is showing the lowest level of BNI in 2018, and the States showing improvement over 2012 include Uttarakhand, J&K, Punjab, Rajasthan, Madhya Pradesh, Maharashtra, Karnataka, Kerala, Tamil Nadu, Arunachal Pradesh and Manipur.
- The improvement is significantly higher in the rural areas when compared to the urban areas. However, variation in the access to bare necessities across states and between rural and urban remained large.
- Inter-State disparities in terms of access to bare necessities to the households have declined both in rural as well as in urban areas. States that had low level of access to bare necessities in 2012 have gained relatively more between 2012 and 2018.

Figure 3: Improvement in the Bare Necessities Across Urban India from 2012 to 2018



Source: Survey calculations.

DRINKING WATER ACCESSIBILITY INDEX

- The sub-index for access to drinking water, drinking water accessibility index, is composed of sub-dimensions viz., the principal source of drinking water, distance from source of water, nature of access, and method of taking out water. The indicators included from these sub-dimensions are in terms of the per cent of households that have piped water into dwelling or piped water to yard/plot, within dwelling or outside dwelling but within premises, have water through tap, and exclusive use of the household or not.
- The access to drinking water to households in most of the States has improved in 2018 compared to 2012, in rural as well as in urban areas, (except for Andhra Pradesh in Rural and Andhra Pradesh and Himachal Pradesh in urban areas).
- States such as Sikkim, Punjab, Haryana and Gujarat areat the top while Odisha, Jharkhand and Andhra Pradesh are at the bottom on the drinking water accessibility index.
- Regional disparities have increased in 2018 when compared to 2012 despite such disparities declining in urban areas. This is because these disparities have increased in the rural areas.
- The Jal Jeevan mission must therefore focus on reducing the disparities in the rural areas as the reduction in such disparities will reduce the disparities across India.

SANITATION INDEX

- Indicators used in the sub-index are percentage of households by access to latrine for exclusive use, the type of latrine viz., piped sewer system, septic tank, twin leach pit, single pit.
- These indicators show physical as well as quality of access to sanitation.
- The sanitation access has improved for all States in rural areas and for most of the States in urban areas in 2018 compared to 2012. Regional disparities in access to sanitation has declined as the states having low access to sanitation in 2012 have gained more.
- Inter-State difference in access to sanitation are still large, especially in rural areas.
- In continuation of the efforts made by the government through various government programmes, such as Total Sanitation Campaign, Government launched Swachh Bharat Mission in 2014. Under the programme, more than 10 crore toilets were built in rural areas. The programme has been critical in enhancing the access to safe sanitation to rural households.

HOUSING INDEX

- The housing index measures not only the structure of house (in terms of Pucca or Katcha), but also the quality of house in terms of type of dwelling unit (independent or not) and condition of structure (Good or not).
- The access to housing has improved in all States, except urban areas in few States.
- The inter-State disparities have also declined as the States having low level in 2012 have gained more. However, the gaps in the levels across states have been large, especially in rural areas.
- The improvement in access to housing has also been disproportionately greater for the lowest income group when compared to the highest income group, thereby enhancing equity in access to housing in 2018 vis-à-vis 2012

MICRO-ENVIRONMENT INDEX

- The micro-environment index measures the percentage of households who are living in a dwelling unit with access to drainage (indicated in terms of access to drainage and quality of drainage in terms of other than Katcha drainage), without problems of flies/mosquitoes (indicated by other than severe), and efforts made by local bodies/State government to tackle problem of flies/mosquitoes.
- Micro-environment, as measured by the index, has improved in 2018 for all States, except for Assam in rural and Odisha and Assam in urban areas, as compared to 2012.
- Regional disparities have declined sharply in urban areas in 2018 vis-à-vis 2012, though it was increased in the rural areas .
- The micro-environment is much better in urban areas when compared to the rural areas, and the rural-urban gaps are large.
- The access to micro-environment in 2018 has improved especially to the lowest income quintile in rural as well as in urban areas .

OTHER FACILITIES INDEX

- 'Other facilities' index captures the availability of kitchen, kitchen with a water tap, good ventilation in house, access to bathroom, attached bathroom, electricity use, the types of wiring used instead of temporary electric wiring, and type of fuel used for cooking (LPG or others).
- Access to Other-facilities for a household has improved for all States in 2018 compared to 2012 for rural as well as in urban areas except for Himachal Pradesh in urban. The inter-states disparities in terms of these facilities have also declined, especially in the urban areas. The equity in access to other facilities has improved in rural and urban areas. The gaps are still high across the State in rural, between rural and urban in States, between income groups, and between rural and urban in income groups.

HEALTH OUTCOMES

- Research highlights the health benefits that can accrue from greater access to the bare necessities examined above.
- The Economic Survey 2018-19 (Chapter 8, Volume 1) showed the benefits of the Swachh Bharat Mission, as it led to a decrease in diarrhea and malaria cases in children below five years, still births and new-borns with weight less than 2.5 kg.
- Geruso and Spears (2014) document similar effects on child survival of safe sanitation through the decline in open defecation. Access to improved sanitation also reduces the risk of contracting diarrhoea (Kumar and Vollmer, 2013; Jalan and Ravallion, 2003). Further, the access to the piped water and sanitation is critical in reducing the child mortality substantially (Zwane et.al., 2007).
- The distance and time spent on fetching water from the source is found to affect under-five child health (Pickering and Davis, 2012; Zayatri et. al., 2013) and increase the risk of illness (Xia and Hunter, 2010).
- Research also supports the view that access to clean cooking fuel improves child health. Studies have found a significant trend for higher infant mortality among households that cooked with a greater proportion of biomass fuel (Rinne et.al., 2007).
- The close association between household air pollution and mortality among children aged under-five, possibly because of respiratory illnesses, support the case for providing clean cooking fuel through government programmes (Naz et. al., 2016). Having a separate kitchen improves the indoor environment, thereby yielding health benefits to the household, especially women and children. Access to housing, better housing conditions and amenities are closely connected with health outcomes (Thomson et. al., 2017).

Table 2: Regression Results: Health and Education Indicators and BNI

	(1)	(2)	(3)	(4)
Dependent variable:	**Infant Mortality Rate (per 1,000 live births)**	**Under-5 Mortality Rate (per 1,000 live births)**	**Gross Enrolment Ratio Class 9-10**	**Gross Enrolment Ratio Class 11-12**
BNI	-26.21***	-30.63***	86.33***	46.11**
	(7.375)	(9.930)	(12.86)	(18.80)
Constant	45.37***	53.68***	24.91***	23.93**
	(5.431)	(6.212)	(7.685)	(11.52)
Observations	91	90	59	59
R-squared	0.751	0.677	0.874	0.851
State FE	Yes	Yes	Yes	Yes

Source: Survey calculations.
Note: Robust standard errors clustered by State in parentheses; *** p<0.01, ** p<0.05, * p<0.1

EDUCATION OUTCOMES

- Research studies support that the access to bare necessities through its possible linkages can positively impact educational indicators as well.
- Water hauling, a daily activity, consumes substantial time and effort of a household. It is found that water hauling activity is negatively associated with the girls' school attendance (Nauges and Strand, 2011; Sekhri, 2013). Access to latrine in schools substantially increases enrolment of pubescent-age girls (Adukia, 2016).
- Further, the electrification's links with education, which could be through lighting and use of other equipment, are visible in day-to-day life.

- In fact, there is a strong correlation between electricity consumption per capita and higher scores on the education index across countries (Makoto and Nakata, 2008). In view of the above, it is pertinent to explore relation, if any, between BNI levels and education indicators.
- The State-wise BNI in 2012 and 2018 correlate positively with the gross enrolment ratio6 for class 9-10 and class 11-12.

Findings

- Compared to 2012, access to "the bare necessities" has improved across all States in the country in 2018. The improvements are widespread as they span each of the five dimensions viz., access to water, housing, sanitation, micro-environment and other facilities.
- Inter-State disparities in the access to "the bare necessities" have declined in 2018 compared to 2012 across rural and urban areas. This is because the States where the level of access to "the bare necessities" was low in 2012 have gained relatively more between 2012 and 2018.
- Access to "the bare necessities" has improved disproportionately more for the poorest households when compared to the richest households across rural and urban areas.
- The improvement in equity is particularly noteworthy because while the rich can seek private alternatives, lobby for better services, or if need be, move to areas where public goods are better provided for, the poor rarely have such choices.
- It was also found that the improved access to "the bare necessities" has led to improvements in health indicators and in education indicators. However, while improvements in access to bare necessities are evident, the disparities in access to bare necessities continues to exist between rural-urban, among income groups and also across States.

Way Forward

- Government schemes, such as the Jal Jeevan Mission, SBM-G, PMAY-G, may design appropriate strategy to address these gaps to enable India achieve the SDG goals of reducing poverty, improving access to drinking water, sanitation and housing by 2030.
- There should be effective targeting of the needier population be they in urban or rural areas or across states.
- As civic amenities in urban areas are also provided by the local self-governments, there must be effective convergence in scheme implementation at the Centre-State and local levels. For this purpose, a BNI based on large annual household survey data can be constructed using suitable indicators and methodology at district level for all/targeted districts to assess the progress on access to bare necessities.

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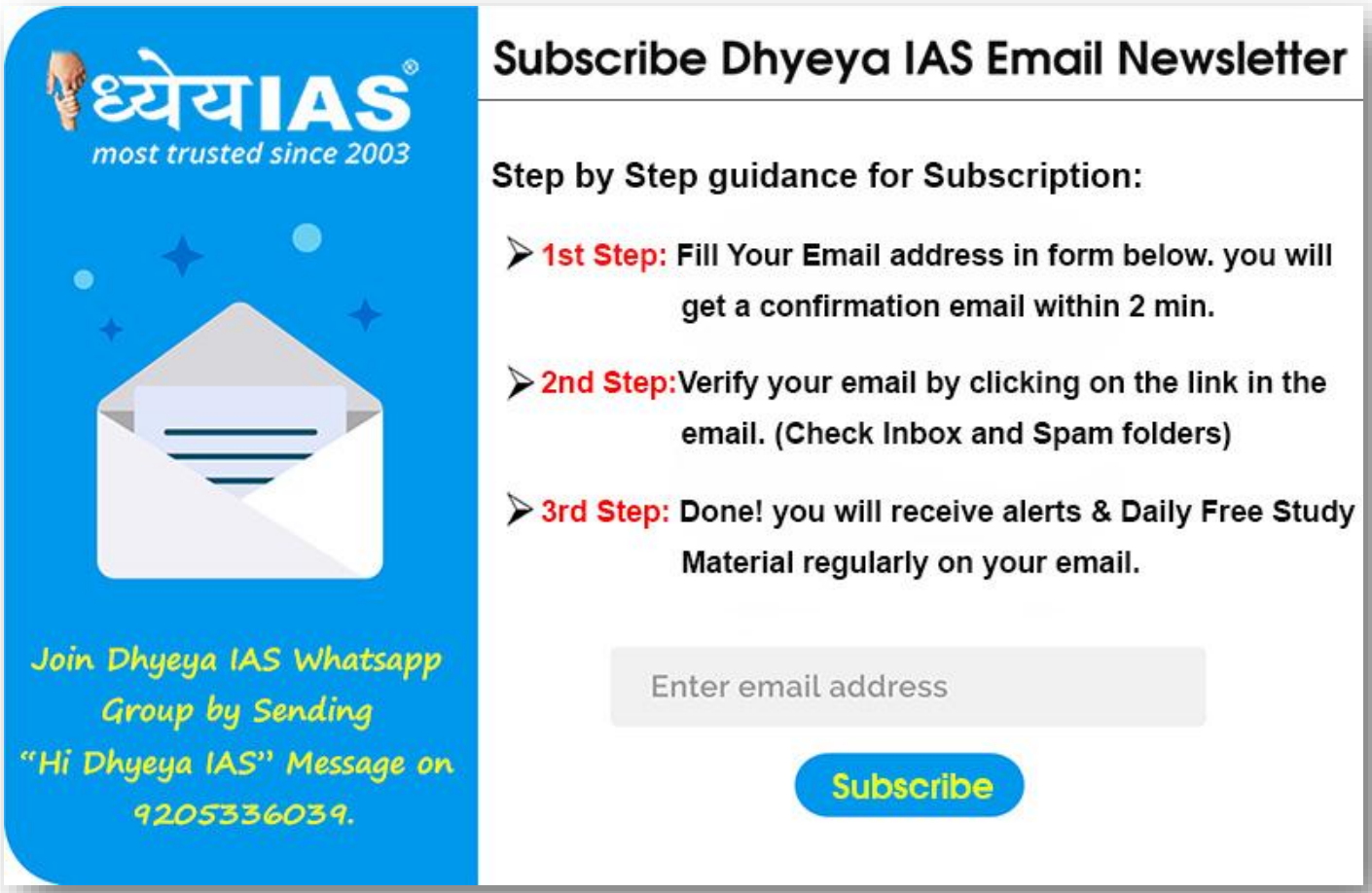
नोट (Note): अगर आपको हिंदी और अंग्रेजी दोनों माध्यम में अध्ययन सामग्री प्राप्त करनी है, तो आपको दोनों में अपनी ईमेल से Subscribe करना पड़ेगा | आप दोनों माध्यम के लिए एक ही ईमेल से जुड़ सकते हैं |



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