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Growth Implications of Pandemic: Indian Economy

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FOUNDATION FOR ECONOMIC GROWTH AND WELFARE

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Abstract

The novel Coronavirus has resulted in significant pressure on healthcare infrastructure of countries across the world. The most potent policy tool to address the healthcare emergency has been the choice of lockdowns and advocating for social distancing. Both policy tools come with substantial economic costs representing a trade-off between the optimal health policy tool and the economic interests of a country. Economic interests and costs can be recovered as supply chains repair themselves whereas an unprecedented loss of lives can have severe social, political and economic implications. The purpose of this paper is to estimate growth implications of the Pandemic for the Indian economy. Such an exercise will be critical for subsequent discussions on policy interventions needed to accelerate the process of repairing supply chains and minimizing the economic costs associated with the pandemic.

Keywords: SARS Cov2, COVID – 19, Pandemic, Growth

JEL No. I00, I18, E01, O40

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1. Introduction

The novel Coronavirus outbreak (SARS Corona Virus II or COVID 19) has resulted in a public health emergency with severe consequences for the World Economy. It is an unprecedented shock to every economy in the World, including the Indian economy. The outbreak originated from Wuhan, China and has spread across 185 countries with US, Spain and Italy being among the worst hit countries along with China. Lack of any known vaccine to prevent the spread of the virus or any approved treatment along with high reported death rates has resulted in a wave of fear across the world.

Many countries have announced lockdowns restricting people to their homes, to contain the transmission of the disease by carriers. This is one tool in the effort to slow the domestic transmission of the disease so that the healthcare capacity of a country remains adequate to the number of patients with a severe version of the disease. The lockdown is unprecedented, even when compared to the effect of World War II on the main combatants. China was the first to impose a lockdown, first in Hubei Province and then in the rest of China. This resulted in a disruption in the supply of intermediate goods and inputs into production, comparable to World War II, given China's role in global supply chains and its monopolization of so many products.

India was quick to act as it imposed several measures such as visa advisories, mandatory testing and quarantine of passengers from foreign countries, temporary suspension of visas, restricting all air travel and eventually announcing a complete lockdown of economic activity across the country except for essential services. The move was aimed at containing the spread of the virus across the country, especially since India's healthcare capacity is unevenly distributed. The Pandemic comes at an inopportune time, as India had just started recovering from a sharp slowdown that originated from the second quarter of FY 2018-19. Therefore, the exogenous shock will accelerate the downturn and extend it further as governments across the world announce lockdowns which restrict economic activity.

Lockdowns come with significant costs in terms of loss of economic activity. With much of the working population restricted to their homes, production is naturally limited and growth negative. It is obvious that tax revenues, private government investment and many other economic aggregates will be correspondingly affected. Thus, the lockdown adds to the negative impact of the crisis triggered by the Pandemic. We are therefore staring at one of the sharpest declines in global growth during calendar year 2020.

The contagion fear before the lock down, which will remain after the lock down, constitutes a huge demand shock for contact services, which involve dense collections of people like air, rail & bus transport, Tourism, Restaurants & Hotels, Entertainment, Malls. The Pandemic is therefore a combination of a Real Supply and a Demand shock to the economy, which in turn affects the financial system. The Global financial Crisis was a financial system collapse, which propagated into the Real economy. In that sense they are opposites. However, once the effects reach from one to the other, lots of similarities emerge with respect to the financial elements of the current crises and how to deal with them. The Real elements are different and the fiscal measures to deal with it, must be different.

Though most of this paper is about the economic crisis induced by the Pandemic, we must never lose our hope and our optimism. Grim times are also the time to recall our strengths and think of how to apply them innovatively. For instance, the excellent service quality of our Hospitality sector can be applied to other industries which are less service oriented but have become more conscious of the service element. As the Pandemic affects all sections of society equally, it has made many more citizens aware of and sensitive to, the condition and situation of other socio-economic groups in society and how to provide mutual support. It has also increased our understanding of the "Dignity of Labour". The services of all health workers, from the cleaner in the hospital, the nurse aids and nurses & up to the doctors is now more widely appreciated, as are the services of the virtually anonymous delivery boy. We must celebrate and expand these gains after the crisis passes.

In this paper, we quantify the impact of the Pandemic on different sectors of the Indian economy, and the additional cost of the Lockdown. This helps in evaluating Trade-off and focussing policy action during the crisis. We classify the economy into Essential Commodities & services (EC), Contact Services (CS) and Rest of the Economy (RoE). We then study the impact of the SARSCoV2 disruption on these sectors and analyse possible scenarios for their recovery over the coming months. Such an estimate is needed to evaluate the trade of between the health benefits and the costs of lockdowns. There is a definite trade-off between the optimal health policy choice and the Economic costs to Government, Investors and Workers. It should also be noted that are also different Social costs (e.g. mental health) and benefits from each course of action. This exercise culminates in an estimate of the impact of the pandemic on India's growth rates during 2020-21.

Section 2 outlines the economics of Pandemics induced crisis, Section 3 reviews other country Experience of Pandemic. Section 4 outlines our approach and some past trends. Section 5 presents scenarios for the effects of the Crisis and the Lockdown. Section 6 Offers some reflections on Post-Crisis Policy. Section 7 concludes the paper.

2. Economics of Pandemics

The Indian equivalent of the Depression (or near-depression) is an Economic Crises, like the BOP crisis of 1990-1991[1],[2] the external shock (GFC) induced Growth crisis of 2008-2009[3],[4] and the crisis induced by the SARS CoV2 Pandemic. The Growth recession of 2019 was particularly severe and could be described as a Great “Growth recession”. The issues connected with this have been analysed in the author’s research papers.[5]

A completely new element has been added to Crisis management and Crisis handling, by promulgation of medically driven, Government mandated lockdowns of economic activity. This requires further analysis and refinement of Crisis handling approaches.

2.1 External Shock Induced Crises

What are the lessons learnt from handling financial crisis & external shocks, with reference to India? In this section we put these lessons in simple terms that non-experts can understand. This is done by applying a few popular analogies to explain how to deal with the current crisis

There are five basic lessons, aspects, and steps, needed to address the pandemic affecting India. (1) Slow and Stop the Pandemic from spreading. (2) Stop the Real Dominoes from falling and setting off a chain of Dominoes, (3) Stop Financial contagion from spreading through the Financial Network and freezing the network. (4) Treat the Welfare-Social aspects as you would a Flood or Tsunami. Move the threatened people to higher ground if possible, help those whose houses, farms & shops have been destroyed, rebuild their houses & livelihoods after its passed. (5) Create the Economic environment for rapid recovery of the overall economy, so that it's not trapped in low level growth equilibrium for years afterwards:

Analytically, it is useful to divide the economy into three Parts and three Phases. The three Parts (sub-aggregates) are, (a) Essential Commodities and Services (EC), (b) Contact

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[1] Virmani (1997). In Planning Commission, the principal author analysed the BOP crisis and advised on it and then moved to DEA, MOF in November 1991 to advise on post-crisis economic reforms. Subsequently he dealt with other external shocks like the Latin and Asian Crisis.

[2] As Economic Advisor from 2007-2009 the principal author dealt with a surge in Capital inflows, and the big spike in oil prices and the severe shock of the Global Financial Crisis on the Indian economy. Virmani (2007b), Virmani (2009).

[3] The 2008 GFC shock was so unexpected and so unique that even the most brilliant generalists were dumbfounded and gave an opening for me not just to devise & suggest polices but to go public in media to explain why a host of fiscal measures were necessary and along with monetary measures, sufficient to deal with the crisis. It was also the one and only time in the Principal authors Govt career that he directly cautioned the PM (through email) about a few measures taken by RBI which the first author didn't agree with.

[4] After the crisis was successfully dealt with by October 2009, the Principal author spent 3 years as executive Director on IMF Board, the only economist on the Board, who had dealt personally with many crises and utilized this golden opportunity to study, discuss and write about the Global Financial Crisis and the actions taken by the USA, EU, Greece, IMF and a host of other countries and World organizations to deal with its effects and after-effects.

[5] Virmani (2020 a, b, c).

Services (CS) in which fears of epidemic will continue to reduce Demand, and the (c) Rest of the economy (ROE). The phases are (1) The Lockdown phase and near-Lockdown conditions, (2) The Crisis Phase, (3) Restoration of economy to "normal" growth. The standard Fiscal, Monetary, Credit and Economic policy Actions must be tailored to these three phases. Further, in the first two phases, they must be much more closely focussed on Contact Services and the industries suffering from the Growth recession of 2019.

2.2 Epidemic, Pandemic

Dealing with the medical elements of the crisis requires advise from medical experts who know Indian health and are fully up to date on information & knowledge emerging from rest of world.

Consider the data available to us about the Global spread of Corona Virus Pandemic for _180 countries as of April 13, 2020. The cross-country average (180 countries), of Corona virus related Deaths (CVD) to detected Corona virus cases (CVC) is ~0.039 or 3.9%. India's death rate of 3.5% is marginally lower than this average. There is little reason to believe that this is biased, compared to other countries. The average number of cases per million of population for the same set of countries is 360. Together they yield a death rate of 14 per million of population. This compares with normal death rates of a little over 7000 per million in India and a little over 8000 per million in USA.

The number of corona virus cases in India is only 7.1 per million, compared to the world average of 360 per million of population. There is a combination of likely reasons for this; (a) Early action to reduce travel from China and other infected countries to India. (b) One of the most stringent lockdowns in the world, perhaps the 5th country to impose a national lockdown. (c) Lower levels of testing than richer countries and consequent lower rate of detection of confirmed cases. (d) Higher ambient temperatures then most developed countries, except those like Singapore which are near the equator. (e) Lower mobility internationally and domestically than richer countries, (f) Higher percentage (70%) of population in Rural & semi-rural areas with lower population density and consequent natural Socio-spatial (Social) Distancing, and (g) social practice of women covering faces with “Chunni”, “Saree-Pallu” or Burqa, when outside the house.

However, we should expect and prepare for, a rise in the number of CV cases, closer to the World average, before the pandemic is controlled. We expect the infection rate to creep up closer to the international average but is likely to remain well below it.

Spatial separation of people from each other and from those infected with the SARS CoV 2 (COVID19) virus has been the critical element in slowing the spread of the virus. In successful countries like Singapore, Hong Kong, Taiwan, S Korea, Japan this involved widespread use of Masks (outside home).[6] Wearing of Masks (even home-made ones) helps reduce transmission of virus from infected persons and must be made compulsory for 3-6 months. It must be encouraged even inside the home if there are suspected cases of Corona Virus Infection in the family and for those coming into the home from outside. Hand washing with soap has been recognized and accepted as a method for slowing transmission. Free distribution of soap and washable, triple layered, cloth, masks can help promote their use by the relatively less well-off sections of society.

Socio-Spatial (Social) Distancing is a critical measure for slowing transmission while engaging in essential economic activities. With exception of factories and workplaces, no gathering of more than four adults must be allowed till the Virus has been tamed. This includes religious gatherings, festivals, celebrations, conferences, seminars and private parties in restaurants, hotels, or homes. Consumer Activities in which more than four adults are normally present in a confined space, less than 2-3 meters apart (e.g. Airlines, Malls, Markets, Trains) must be carefully controlled and phased, for the duration of the Pandemic. Spatial distancing of 1-2 meters must be enforced compulsorily in all permitted activities, including the Workplace and Queues.

Another element for slowing transmission is the identification and isolation of infected people in homes or special facilities depending on severity of symptoms. Comprehensive testing of population in a large, poor country is impossible. Ideally, all those with suspicious symptoms and clinical appraisal by the local doctor/clinic, would isolate themselves at home and those with international travel history or contacts with same would be tested & those confirmed as infected, be isolated in special facilities. This has not worked even for those who seem too have brought the virus from abroad through air/sea travel to and from India (Indian & foreigners). Therefore, home isolation must be made more stringent through use of mobile Apps with occasional physical checking or GPS enabled electronic wrist bands/anklets. International travel & tourism must be banned till the Pandemic has passed world-wide. Domestic travel for tourist purposes will also have to be controlled till Epidemic has passed in India.

And finally, the health infrastructure was geared up by procuring enough test kits & ventilators and providing appropriate protective gear to health workers and expanding ICU capacity.

In India and Other Developing and Emerging Economies, we must account for the fact that living spaces are worse than the workspaces, for those living in one room tenements and

[6] It was much more common in these countries when travelling in public transport or walking in crowded public places & commercial establishments. The importance of masks, even low-quality ones, as a means of slowing transmission has been under appreciated in India.

Urban/semi-urban slums (30% of urban/semi-urban population). Consequently, confining everyone to their homes, can accelerate transmission of the Virus, for this segment of population, instead of slowing it down. We should therefore be very wary of mechanical suggestions to extend Lockdown, without careful analysis of Benefits and Costs. Medical teams will have to be sent into these areas to identify potentially infected cases within, who may have to be kept in special facilities outside the slums, as home quarantine is impractical. Consideration has also to be given to homeless people and slum developers with family connections in villages, to facilitating the temporary return of unaffected persons/households (i.e. those testing negative) to their Villages. Given the lower population density in rural areas this will make socio-spatial distancing easier.

Lockdowns are a last resort, a kind of Shock Therapy, which has a devastating impact on the economy & economic wellbeing. Consequently, lockdowns must be limited in time & geographical space.

2.3 Lockdown Economics

A lockdown is a complete Government mandated shut down of economic activity (with exemption for "essential goods & services", like food & beverages & Pharmaceutical products and health services). This is a crisis event the World has never seen before. World Wars have seen a massive redirection of economic activity towards war fighting but never an almost complete shutdown of production. If most of the production is shut, this means an end to the profits, wages and rents earned and the consumption of these products. All those who earned their income from the locked-down sectors, must use their cash/liquid savings (SB acts, current acts) to buy essential commodities produced by the remaining. The latter continue to earn income but will not have anything to buy besides essential commodities and will therefore become net savers of cash.

A nationwide lockdown is a simultaneous supply and demand shock as both the production and sales of non-essential Goods and Services is shut. Even if some employers in the Non-essential sectors of the economy keep part or whole of their workers on their payroll and/or keep paying workers the lower or full salary, there is no effective demand for non-essential goods and services and no change in demand for essential services. This part of income is saved.

The longer the lockdown lasts the more Households in the Lock-down sectors will run out of cash and fixed deposits. Even those which have other assets like bonds and equity, will become poor rapidly given the collapse of asset prices in the markets. It therefore become imperative for Government to identify these marginal households on a real-time basis and keep increasing the Direct cash transfers to the affected households. This can rapidly extend from the conventionally poor to the lower middle class in the lock-down geographies/sectors, particularly in sectors which were already stressed and cash starved.

2.4 Force Majeure and Legal issues

Another critical element of a lock-down is a contractual asymmetry or mismatch. This in turn can lead to a situation of cash-flow mismatch for all but the strongest corporations.[7] That is, while companies will undertake limited or no value addition during the period of lockdown, their contractual liabilities like rents, interest payments, debt repayment, tax payments and wages to permanent workers continue to exist, unless formally suspended by the Government. Industries with high fixed investment have a contractual obligation to pay interest and repay debt. Industries with high debt-equity ratios such as aviation and hotels will be severely impacted by the legal asymmetries. Regulatory forbearance, tax deferrals and moratoriums, and temporary suspension of many explicit and implicit contracts, may be critical for staving of bankruptcy. Government support in the form of additional credit and some form of wage support measures such as EPFO contribution for organised firms, can absorb only a part of the shock, due, to sudden stop of Cash inflows, while cash outflow commitments have to be met because of legal obligations.

It would be wrong for State governments to impose asymmetric requirements on Non-Profit organizations, SME's and commercial organizations. Organizations which have been banned from operating, providing goods and services and receiving payments and fees, cannot/must not be forced to keep all their workers on their payroll and pay full wages while they sit at home. Bankrupting such organizations will ensure that there is a permanent increase in unemployment after the immediate crisis passes.

An alternative, far better approach, would be to use the hiatus, to plan for a comprehensive reform of the entire legal system from end to end. A reform of the criminal justice system, along with that of commercial law, would benefit workers and employers, women and men, and every citizen independent of caste and religion.

2.5 Phasing Out Lock Down

Two additional elements must be kept in mind while phasing out National Lock down. First, the differential spread of the coronavirus across India. There are three sets of Districts: (1) Those which are completely free of virus. (2) Those which are heavily infected. (3) Districts with small number of cases. Govt should consider banning entry of people into the set of Virus free districts and exit out of heavily infected Districts for a few months. Normalization can be phased in at a different pace in each set of districts. Rattan Chand at

[7] In the developed country context, Professor Lawrence Summers summed this up as the difference between the economic time which has halted and the financial time which continues.

The Foundation for Economic Growth and Welfare finds that, "in 50% of ~700 districts there's no Corona positive case. 75 have 1 corona positive case each and 40 districts have 2 positive cases each. 60 districts have 3-5 positive cases, while only 175 districts have more than 5 cases. Government should define a Contiguous Zone of virus free districts & low infected (1-5 case) districts which are contiguous to them, into which entry from outside is banned. Similarly exit out of heavily infected Districts could be banned for a few months. Normalization can be phased in at a different pace in each set of districts.

The second aspect is the distinction between production & trading of goods and their support services and Contact Services in which production and consumption occur simultaneously to or in the presence of many other people. In this paper we produce estimates of these different categories along with that of Essential Goods and services. Though production cannot resume without export demand or domestic consumption, it is possible to differentiate between these two when phasing out controls. Much quicker freeing of the former is desirable and feasible. Public Transport or Mass transit is an intermediate service falling between the extremes. It is and Essential Contact Service as workers and hawkers must travel to work from their homes. These will have to be opened along with industrial production with rules for defined rules for social distancing e.g. empty seat between two passengers.

2.6 Real Economy (Dominoes)

Contact Services can be defined as those services which are supplied jointly to consumers, such as Air, Rail or Bus travel or are supplied in the same space to a large number of other consumers being present (e.g. Malls, restaurants, Retail & Wholesale markets, Shops). Thus, sectors related to Travel & Tourism, Hospitality, Retail Trade & Entertainment Services will suffer. Fear of catching the Corona Virus infection through Contact with other people, will reduce demand for these sectors even after the lock-down is lifted, Sectors already affected by the Growth recession, such as Cars, Housing & Real Estate may have their problems compounded. Govt's Fiscal and other action, has to identify Companies/firms in these sectors, which are fundamentally solvent, from closing and setting off a chain of Closures bankruptcies (Dominoes) This involves suspension of rules & regulations, tax reductions, temporary tax exemptions, permissions to delay tax payments, interest subventions, loan guarantees, quicker payment for services etc..[8] These imperatives and the responsibility of Govt, multiplies manifold, during a Government mandated lockdown.

[8] Finance minister has announced a list of items on which deadlines are extended and Regulatory forbearance is given in laws, rules, and regulations under the charge of the Finance ministry like taxation, Company affairs and Banking.

2.7 Fiscal Policy Measures

Fiscal stimulus (that results in a permanent increase in government expenditure) is completely the wrong thing to do in a lockdown. Fiscal expenditures must focus primarily on ensuring human survival and secondarily on ensuring against bankruptcy. Besides suspending legal obligations for the duration of the Lockdown, collateral ensuring is the most efficient means of facilitating the flow of credit to cash stressed sectors.

The economic relief packages announced by the government (two packages) are rightly designed to deal with Phase 1 (as defined above), that is the impact of the Lockdown, which covers about 2/3rd of the economy and the succeeding 4-6 weeks. The best part is the assurance that the Government now has its ear to the ground and using information to design and modify packages. The challenge is therefore shifting to effective implementation. As States are responsible for both Health and Welfare and effectiveness of Health and Social welfare measures depends on the States, who are present at ground level.

Once the lockdown is over and we enter phase 2 (as defined above). Fiscal measures must be targeted at industries and sectors which are most severely affected by the Epidemic (Contact Services mentioned above). Next in line must be industries and sectors which were already badly hit by the growth recession and whose situation has worsened because of the Pandemic. In this context, elimination of cesses and surcharges in both GST and personal income tax will play an important role.

The Mantra of FRBM targets and "Fiscal space" is irrelevant during the Crisis. Under extreme crisis like the present, the FRBM even provides for direct purchase by RBI of Government securities. RBI must ensure that the interest rate on Government securities does not rise because of lack of demand for Govt securities, as this rate anchors the entire structure of interest rates and it would be disastrous if interest rates rise during a period when low real interest rates are critical to survival of many firms. Ignoring Fiscal deficits during the crisis to institute temporary expenditure does not however, mean that irresponsible introduction of medium-long term schemes which will be hard to reverse after the crisis has passed.

Once the economy comes out of the crises mode and enters Phase 3, the primary policy issue will be how to speed its recovery back to its growth potential. In this context tax reforms (Direct Tax Code, GST) are more important than expenditure reforms. Tax reduction must be considered as part of these tax reforms, to provide short term stimulus, while ensuring long term fiscal sustainability through improved voluntary compliance and higher buoyancy. Direct cash transfers will be necessary for those affected by crisis. But an increase in DCT for a wider population will be sustainable if and only if combined with reduction of leakages (inefficiency and corruption) in major subsidies like fertilizer and Food Corporation.

The Universal Basic Income (UBI) concept, though it may be relevant for Developed countries, is irrelevant for India. A "Targeted" UBI is a contradiction of the term "Universal". Virmani (2006) proposed Direct Cash Transfers to the poor to eliminate as the estimate cost of doing so was less than the Government Expenditure on the three largest Anti-Poverty programs was more than the cost of doing so., Pursuant to which he recommended the creation of a Universal ID (UID) to help target such transfers.[9] Virmani (2007a) showed that targeting Welfare programs on the bottom 40% of the population enhanced GDP growth. To preserve incentives in our system with evasion & corruption we need to mesh this into a Negative Income tax system (NIT).[10] The time to consider it will however be in 2021-22, after the economy is on road to recovery

2.8 Financial Markets and System Stability

The Pandemic is a Real Supply cum Demand shock to the economy, which will affect the financial system. The Global financial Crisis was a financial system collapse, which propagated into the Real economy. In that sense they are opposites. However, once the effects reach from one to the other, lots of similarities emerge with respect to the financial elements of the current crises and how to deal with them. The real elements are different and so will the fiscal measures to deal with it have to be different.

The nodes, channels, and networks through which real problems translate into financial crises and propagate are well known since the Financial Crisis. The RBI has to provide sufficient short, medium and long term liquidity to ensure that the Banking and other critical financial institutions, all critical markets (e.g. Govt Secs) continue to function smoothly and key instruments which are normally liquid and widely used, remain largely so. RBI also must identify borderline institutions and devise specific measures to ensure that they don't collapse and set of contagion, and systemic failure.

In this context, Real Repo rates are a very important tool for signalling & giving confidence to solvent financial agents, that the RBI will do whatever it takes to ensure system stability. They must be negative for duration of crisis. This is also the best (rational and easiest to implement) way to provide a cushion to solvent borrowers, including cash strapped ones. Government can supplement this by providing Collateral insurance to banks and Systemically important Financial institutions, so they are incentivising lending of surplus funds accumulated by them.

[9] For UID operationalization see https://sites.google.com/site/chintan1997reg/institutional-reform/uid and for poverty elimination, http://planningcommission.nic.in/reports/wrkpapers/rpwpf.htm and https://sites.google.com/site/chintan1997reg/social-welfare/povertyelimination

[10] http://dravirmani.blogspot.com/2017/01/income-tax-reform-ii-feasible-negative.html , http://dravirmani.blogspot.in/2017/01/income-taxt-reform-i-benchmark-flat-tax.html

2.9 Contract Workers in & Self-Employed

Contract workers in services facing Direct demand collapse and self-employed (street vendors, hawkers etc.) associated with them. As is well known by now, the most directly affected services are Travel (Air, rail, bus) and Tourism, Hospitality (hotels & restaurants), Retail, Entertainments. The key lesson is that help must be targeted to those directly affected. Expending highly limited Government resources/funds on poor people or workers in other sectors and geographies is not just pointless but socio-politically harmful.

During a Lockdown it's impossible to aid the poor through public works and production related subsidies. When Lock down is lifted, resumption of infrastructure investment must be accompanied by strict rules for Socio-spatial distancing and Mask wearing. A mobile based Direct Cash transfer (DCT) system is ideal for getting Transfers & Subsidies (DBT) to the vulnerable sections of the population. It is best for rural areas (70% of population) because people are dispersed and distance to Bank Branches and ATMs is large. It is also the best mechanism for migrants from rural to Urban areas. Women with minor children should get transfers separate from their spouses. This requires a mobile loaded with a Payment App, Aadhar & Voter ID numbers and few work/residence & family details. Rural/slum Women who do not have mobiles, should be given free pre-loaded ones.

Those Households in which a member is affected by Corona Virus infection, can easily be given an additional cash transfer for meeting normal expenses. For the rest of the poor and lower middle income ones affected by broader Pandemic crises and/or lockdown, the States must quickly invite all affected people to register for assistance with details of their Aadhar, Voter ID, mobile & bank account details, work type & place. A simple form can be devised which can be filed through multiple channels, By email, at a digital portal or at a Ration shops. These can then be provided Direct Cash transfer for duration of Crises/Lockdown.

3 Pandemic Experience in Other countries

It is difficult to predict the impact of Coronavirus (COVID-19) on economies and to state with certainty whether it will have any or no long-term implications. However, several authors have used available data from previous pandemics to suggest possible implications of the same. For instance, Barro, Ursúa and Weng (2020) study the impact of the "Spanish Flu" to arrive at potential effects of Coronavirus on Mortality and Economic Activity. They use data from 43 countries and estimate flu-related deaths between 1918 and 1920 to be 39 million which translates to 2 per cent of the world population. This implies 150 million deaths when applied to the current population and they argue this to be a plausible upper bound for outcomes under coronavirus (COVIR-19). Further, they find that flu-generated economic declines for GDP and consumption to be between 6-8 per cent, respectively.

Moreover, they find evidence of higher flu death rates resulting in declines in real returns on both stocks and short-term government bills.

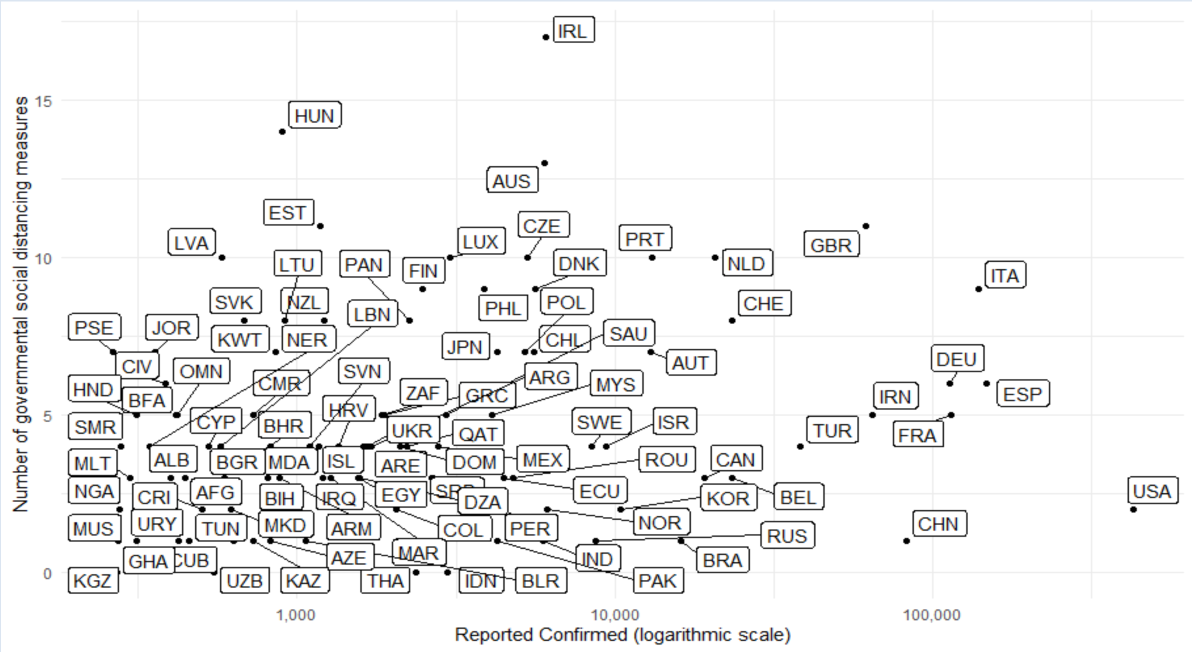
Guerrieri et al (2020) on the other hand present a theory of Keynesian supply shocks that triggers change aggregate demand larger than the shocks themselves. They argue that COVID – 19 pandemics may have this feature. The success of containing the economic fallout of the lockdown would depend on preventing firm shutdowns and preserving jobs. That is, swift revival of demand combined with addressing supply side bottlenecks with growth enhancing reforms could be key in limiting the extent of growth costs faced by economies over the coming months. In the Indian context we must remember that problems highlighted by the sudden Growth recession in 2019 must be addressed to get a sustain recovery to India's full growth potential.

The transmission of SARS CoV2 (COVID-19) across countries has resulted in an unprecedented test of the healthcare capacity of countries. The experience of Italy and Spain illustrates the problems of managing the health crisis when the number of cases exceeds healthcare capacity. In contrast, many successful countries like Singapore, Hong Kong, Taiwan, South Korea and Japan have involved widespread use of masks and effective enforcement of socio-spatial distancing. Spatial distancing has indeed been a key in slowing the transmission of the disease, when combined with successful identification and isolation of infected people in homes or special quarantine centres.

Figure 1 plots the relationship between governmental social distancing measures and the reported Corona Virus Cases. The evidence is inconclusive, keeping in mind the two-way causation. The higher number of cases could have induced some countries to introduce stricter measures. Another confounding factor is the degree of voluntary compliance among different societies and the fear of and effectiveness of judicial-policing system.

Singh and Taylor (2020) attempt to explore these issues by studying the historical evidence over centuries. They suggest that the macroeconomic after-effects persist for about 40 years with real rate of returns being substantially depressed. This is consistent with the findings of Baro, Ursúa and Weng (2020). They contrast this with wars, in which there is substantial destruction of capital stock unlike in pandemics. Further, they find real wages to be elevated post pandemics. Their findings are consistent with pandemics that result in labour scarcity and a shift to greater precautionary savings. It is difficult to forecast the long-term implications of the current crisis, including the after-effects of simultaneous large fiscal deficits across major economies along with monetization of debt by major central banks. However, there's a distinct possibility of deflation likely to return just as it did post the Global Financial Crisis.

Figure 1: Social Distancing & Confirmed SARScov2/COVID19 Cases (10th April 2020)



Source: Data from JHU CSSE and ACAPS

To the extent its data can be believed,[11] China's experience of recovery is relevant. The spread of the virus during the Chinese New year holiday led to a break down of Global supply chains, including those for drugs and pharmaceutical, engineering goods like valves and auto parts and electronics intermediates. Before supplies were exhausted, however, the Corona Virus had spread to other parts of the World and several countries started imposing lock downs and restriction. As restrictions in the less affected parts of the country eased and major export manufacturing centres started to urge labour to return, production and supply for global supply chains resumed during March. This is reflected in the improvement in China's PMI in the month of March [figure 3] compared to the month of February which was already at a low base. By then, the reduction in global demand had reduced the supply-demand-mismatch. The lockdowns combined with the public health emergency resulted in a -6.8% contraction in China's economy in the first quarter as per official data.[12]

The complete lockdown in Wuhan was lifted in early April. This was probably preceded by gradual lifting of lockdown in less affected provinces and the easing of restriction on export production. With reduced global demand for China's exports and likely prioritization of export and export-oriented supply chains by the authorities, the disruptions caused earlier are likely to ease considerably during Q2 of 2020 calendar year. Several Countries which are overly dependent on Chinese supply chains have announced programs of diversification, while companies in many countries have stepped up their efforts at diversification. However,

[11] According to Oxford COVID data base, the number of Coronavirus cases in China on January 1, 2020 was 27. Backward graphical projections by the primary author, using daily data for January 2020, indicates the first known/recognized COVID19 case in China occurred on 11th December 2019.
[12] Many indicators of manufacturing and industrial activity have fallen even more sharply.

some disruption of Rest of the World production is possible in Q4 of 2020 and/or Q1 od 2021 as World Demand picks up, but parts of the Chinese supply chain remain disrupted.

Figure 2: China Quarterly Gross Domestic Product

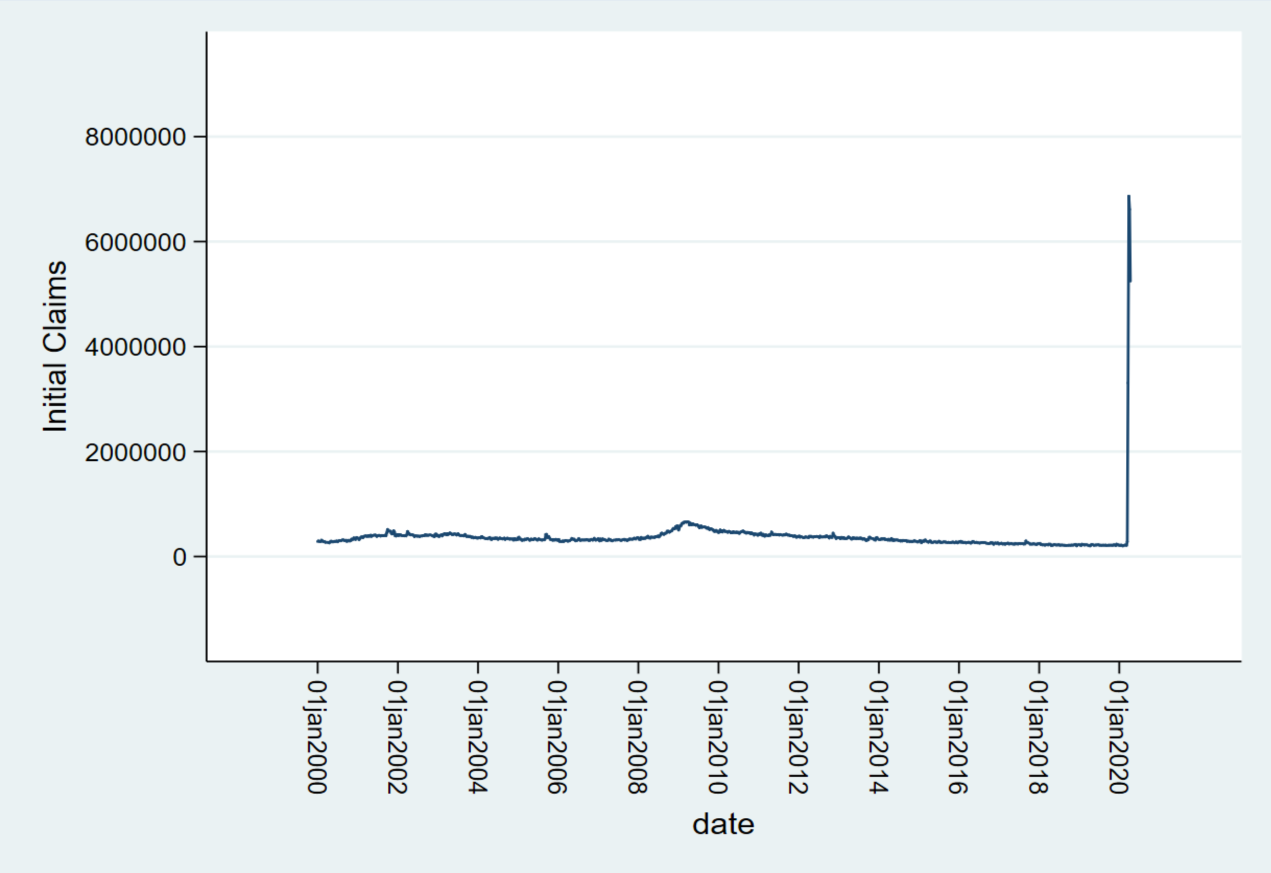
Source: National Bureau of Statistics of China

Figure 3: China Purchasers Manufacturing Index

Source: National Bureau of Statistics of China

Globally, aggregate demand will be a key variable in the speed of economic recovery from the slump, as supply disruptions affecting advanced economies result in substantial loss of livelihoods. This is visible in the US weekly initial claims report which is an indicator of joblessness 2000 to 18th of April 2020 [figure 4]. However, the loss of jobs could also be temporary for some, if not most of these workers. Consequently, many of the laid-off workers would be hired once economic activity picks up. Therefore, the extent of policy response becomes an important factor in determining the pace of economic recovery post the crisis.

Figure 4: US Joblessness Initial Claims



Source: Weekly Unemployment Insurance Weekly Claims Report, U.S. Department of Labour

4 Empirical Analysis

In this section, we use the sectoral composition of India's national accounts and classify the subsectors into essential commodities, contact services and rest of the economy. Essential Services, Contact Services, and the rest of the economy. Essential services include Food, Agriculture & Allied, Health services and Pharmaceuticals, Utilities (Electricity, water sewage etc), Telecommunication and Broadcasting, Payment & Financial Intermediation and all Goods and Transport & Shops & Delivery Services necessary for their supply chains to function effectively. All subsectors that are neither essential commodities nor contact services are classified as rest of the economy. This includes activities such as mining, manufacturing, some part of financial services along with construction and storage services.

This separation of Contact services allows us to account for the different pace of recovery. International flights won't be allowed to operate for the foreseeable future and even once allowed, the number of flights might be significantly reduced due to lower passenger loads. In contrast, railways being state owned will be able to resume full services immediately after the lockdown. Similarly, transportation services will restore quickly post the lockdown as supply chains repair themselves over the first quarter.

Table 1 presents the share of GVA based on our classification of the disaggregated national accounts data into the categories of essential commodities, contact services and rest of the economy Essential Goods and Services constitute 40% of the economy, while Contact Services as defined by us constitute 10% of the economy, with The Rest of the economy constituting half of GDP.

Table 1: GVA Total and Major Sub-aggregates

Items	Shares	Growth Rate (%)			
	(2018-19)	2015-16	2016-17	2017-18	2018-19
Total GVA	**100.0**	**8.0**	**7.9**	**6.9**	**6.0**
Essential Commodities	40.4	5.6	7.1	6.7	5.7
Contact Services	10.4	23.9	8.9	9.0	8.1
Rest of Economy	50.4	9.7	8.6	6.1	6.0

Source: Authors calculations based on National Accounts

Table 1 also shows annual growth rates from 2016 till 2019 for each of these categories. In 2018-19 essential services grew marginally slower (5.7%) than the 6% growth rate of GVA and the Rest of the economy in the same year, and about the same as its growth rate in 2015-16 (5.6%). Contact Services after a big growth spurt in 2015-16 have been growing at between 8% & 9% in the subsequent three years. Rest of Economy (ROE) has decelerated from an average growth rate of 9.1% in FY16-FY17 to 6% in FY18.FY19 (table 1).

Table 2, 3 and 4 present the shares of GVA and annual growth rates of subsectors under essential commodities, contact services and rest of the economy. Five NAS industries/sub sectors are assigned between our sub-aggregates based on assumed ratio. These are Other manufacturing (0.3), Trade and Repair services (0.4), Storage (0.4), Financial Services (0.75) and Other Services (0.4). The ratios in parenthesis are the GVA from these sectors assigned to Essential commodities and Services. Food and agriculture are conventionally considered an essential commodity and along with its associated Trade & storage channels constitutes 48% of all essential Commodities & Services. Electricity, Communication and Financial services constituting 21% of EC&S GVA, are critical to the functioning of a modern economy and Society. Medical Services, Pharmaceutical & drugs and medical services are estimated to be 13% of GVA from Essential Commodities and Services.

Table 2: GVA in Essential Goods & Services

Items	Shares	Growth Rate (%)			
	(2018-19)	2015-16	2016-17	2017-18	2018-19
Essential Commodities & Services	**100.0**	**5.6**	**7.1**	**6.7**	**5.7**
Agriculture & Allied	36.2	0.6	6.3	5.0	2.4
Food, beverage, tobacco	4.5	16.2	10.4	4.7	8.7
Electricity, water, gas,	5.7	4.7	10.0	8.6	8.2
Communication, broadcasting	3.9	14.3	1.0	-4.8	5.0
Public admin & defence	14.3	3.9	8.6	11.4	9.2
Trade & repair services (EC)	11.8	10.8	10.3	10.4	8.5
Financial Services(payment)	11.1	7.3	3.4	4.8	4.7
Other Manufactures (Drugs)	5.3	16.7	3.0	3.2	5.8
Other Services (medical)	7.3	8.0	9.8	9.8	9.5
Storage (of ECs)	0.1	12.9	-2.3	9.2	3.5

Source: Authors Calculations based on National Accounts Statistics, CSO.

Table 3 shows the details of GVA from Contact Services constituting an estimated 10% of total GVA. We assume that 65% of GVA from Railways services and 45% of GVA from Road services are Passenger services while the rest are good transport. 50% of Trade & Repair services is also assigned to this sub-aggregate.

Table 3: GVA in Contact Services

Items	Shares	Growth Rate (%)			
	(2018-19)	2015-16	2016-17	2017-18	2018-19
Contact Services	**100.0**	**23.9**	**8.9**	**9.0**	**8.1**
Hotels & Restaurants	10.4	13.3	8.7	5.9	7.7
Air Transport	0.7	16.7	18.5	17.6	12.3
Railways (passenger)	2.4	5.9	-3.9	7.0	5.0
Road Transport (passenger)	17.0	7.0	5.6	6.0	6.8
Water Transport	0.7	1.8	5.8	6.6	5.8
Trade (CS)	68.7	33.0	10.3	10.4	8.5

Source: Authors Calculations based on National Accounts Statistics, CSO.

Trade with an estimated 70% share constitutes the bulk of this sub-aggregate. The phasing out of the lockdown in this sector is therefore critical to the revival of this sector and the economy. Passenger Road Transport constitutes 17%, and intra-city and suburban passenger transport is critical to daily movement of workers from their homes to factories and workplaces. Socio-spatial norms will be important for safe revival of this sub-sector, while Inter-city bus transport may be constrained for a longer period. Passenger Rail travel is estimated to be 2.8% of this sector and is more important for migrants employed in metros and cities and special trains will have to be considered for moving these migrants from workplaces to home villages and vice versa. Air transport is only 0.7% of the GDP of this sector, but air travel is likely to be the last to be freed from controls and last to be free from fears of catching the Corona Virus infection. The extent of behavioural change, such as substitution of video conferencing for travel to international business meetings & conferences is likely though its extent is uncertain.

Hotels and Restaurants constituting 10% of contract sector will also be affected throughout the coming financial year as people avoid visiting public spaces. Socio-Spatial distancing will be easier in Hotels and Restaurants with attached Terraces or gardens as food service can be shifted out to these areas with compulsory 3-meter distancing of tables with chairs.

Table 4 gives the details for the rest of the economy (ROE) constituting 50% of the total GVA for the economy. Real Estate, Dwellings and Professional Services (31%), Manufacturing (28%) and Construction (31%) constitute the three most important sub-sectors, with the rest constituting less than 25%. Within the latter we have assumed that repair services are 10% of “Trade and repair services” and are included in this sub-aggregate.

This part of the economy of the economy must have top priority in lifting the lockdown, subject to appropriate socio-spatial distancing norms in the workplace. Some distinction between the parts of the supply chains located in high density metros and cities and rural, semi-rural areas and small towns may be useful in the process of phasing out (transition).

As the Indian economy was experiencing a severe economic slowdown (Virmani, 2020c) from the second quarter of FY 2018-19. The economy had just started to slowly recover as the disease spread across China disrupting supply chains from the middle of February and eventually, resulting in a lockdown. Consequently, the bottom of India’s U-shaped recovery is likely to be extended further into the coming two quarters.

Table 4: GVA in Rest of Economy

Items	Shares	Growth Rate (%)			
	(2018-19)	2015-16	2016-17	2017-18	2018-19
Rest of Economy	**100.0**	**9.7**	**8.6**	**6.1**	**6.0**
Mining	5.3	10.1	9.5	5.1	-5.8
Manufacturing(non-EC)	28.1	12.1	8.4	7.4	5.4
Construction	15.8	3.6	6.1	5.6	6.1
Real Estate, dwellings, Professional	31.3	12.1	10.8	7.0	7.7
Transport Services	1.5	7.4	7.0	7.5	7.3
Railways (goods)	0.9	5.9	-3.9	7.0	5.0
Road Transport (goods))	2.9	7.0	5.6	6.0	6.8
Financial Services (non-EC)	3.0	7.3	3.4	4.8	4.7
Repair services (non-EC)	2.4	10.8	10.3	10.4	8.5
Storage (non-Ec)	0.1	12.9	-2.3	9.2	3.5
Other Services(non-Ec)	8.7	8.0	9.8	9.8	9.5

Source: Authors Calculations based on National Accounts Statistics, CSO.

The question thus arises on how quickly our supply chains can recover and economic activity recover to the 5 per cent level of FY 2019-20. Govt policy may have to provide policy support to Manufacturing sub-sectors like automobiles and capital goods, which were already suffering from the Growth recession (Virmani 2020a,c).

5. Pandemic Impact Scenarios

5.1 Introduction

For estimating the effect of the Pandemic, we adopt an "as if" approach; We first analyse a hypothetical scenario in which the Pandemic occurred in 2019-20 starting in February-March 2019. This exercise is useful as we have actual GDP data for 2019-20, we do not have to impose any assumptions on the likely effect of external factors such as export demand, oil prices etc as would be required for making forecasts for FY 2021. The three scenarios considered here are (1) Optimistic, (2) Likely, and (3) Pessimistic.

In the most likely scenario, we assume that the Lockdown is not extended beyond May 3 while the legal restrictions on the "Rest of the economy" as defined above are phased out by end June 2020, subject to injunction on Socio-spatial distancing in workplace and Public Transport and public spaces. It's also assumed that phasing out of restrictions in Contact Sectors will be more nuanced and be phased out over a much longer period. Even after the lifting of the lockdown demand for these sectors will be affected by Contagion fears and Socio-spatial rules and injunctions by the Government. Normalisation for these sectors will take far longer than the rest of the economy. In the first half of the year, even this part of the economy will be subject to the after-effects of the lockdown and stricter spatial distancing rules. These are, (a) Supply Chain Disruptions and Demand-Supply mismatches, because of different pace of normalization of different industries and services, in different States & districts. This may result in supply-demand mismatches that delay normalization. (2) Given the importance of cash savings to survive the lockdown, there may be a delay in the recovery of demand for Housing and cars, as unorganised sector workers rebuild cash & savings deposits depleted by the lockdown and build a higher reserve for fear of a return of the Pandemic and further lockdowns. This may however be offset by organised workers who continued to receive salaries and increased their cash and saving deposits because they could only buy essential commodities and services. (c) Retail trade is part of the Contact sectors and will continue to face socio-spatial restrictions. Despite the freeing of home delivery and e-commerce, these restrictions on Trade are likely to have a negative effect on the demand for Goods and services which are part of "Rest of the economy".

In the Likely scenario we assume that, both in India and the World the pandemic will wind down gradually over the next 3 to 6 months. The pessimistic scenario is based on the possibility that either the pandemic continues to build towards a health emergence or a second wave of cases and deaths hits after the current wave moderates and slows to manageable levels in India and across the World. The return of the Pandemic in a stronger form in the second half of the fiscal year, would necessitate strong public health social distancing measures which could include partial lockdowns in some part of the world. In this scenario, Bankruptcy of firms would accelerate and the damage to established production systems, markets and supply chains would be longer lasting, despite govts across the world to limit the spill over effects.

The optimistic scenario assumes that the health crisis is resolved swiftly and effectively, aided perhaps by the discovery of partial cures or a vaccine. This scenario assumes that any loss of income, profits, rents and wages is temporary, and self-employed, employers and employees, come back to work with renewed enthusiasm after an enforced absence. Similarly, Consumers, who were forced to restrict their consumption to essential goods and service return with a sense of liberation and optimism realising that their fears of the epidemic were a little exaggerated. Thus, despite some norms for hand washing, mask wearing and socio-spatial distancing, demand and supply for the non-contract services rebounds strongly. The government's role will be critical in creating an environment of Confidence in which entrepreneurial spirits revive strongly and consumer confidence rebounds. The best, most effective way to achieve this will be through a spate of long pending Policy and institutional reforms, such as those proposed in Virmani (2020a,c) to revive the economy from the growth recession in 2019-20.

5.2 Contract Sectors

Our first set of simulations is for the five sub-sectors of Contact Services. In the most likely scenario, GVA from Contact services will contract by -18%, with growth rate being reduced by -6% even in the optimistic scenario (table 5). The three most vulnerable sectors during the pandemic are Air transportation, hotels & restaurants, Trade (markets, malls & shops). The three sectors are estimated to contract between 7.6% and 60 per cent in 2020-21(table 5). This is in contrast with the 5.6 per cent growth that they experienced in FY 2019-20. These three sectors will be adversely impacted not just by lockdowns but also by a slower pace of economic revival after the lockdown. Moreover, socio-spatial (social) distancing norms post-lockdown will also impose costs on hotels, restaurants and modes of transportation, which can further slow the process of their revival. The maximum contraction comes in the first half of the financial year as with Rail, Road and water transport less affected than Hotels & Restaurants and Trade.

Recovery is assumed to start in the second half of 2020-21, with pace of economic recovery in the second half of the fiscal year assumed to differ in the three scenarios (table 5). We anticipate quick revival of railways and road transportation. Since railways is a departmental enterprise of the Govt of India, a quick recovery is expected after the lockdown is lifted. The speed of recovery of road transport is contingent, however, on post lockdown rules and adoption of appropriate spatial distancing procedures.

Table 5: Simulated Growth contraction in Contact Sectors

Items	GDP FY20	Growth Rate (%)		
	Estimated	Scenario I	Scenario II	Scenario III
Contact Services	**1240308**	**-6.2**	**-18**	**-30**
Hotels & Restaurants	145568	-7.6	-21	-34
Air Transport	9993	-16.4	-38	-60
Railways (passenger)	34112	-1.0	-7.6	-14
Road Transport (passenger)	238122	-1.0	-7.6	-14
Water Transport	10200	-1.9	-9.4	-17
Trade (CS)	802314	-7.6	-21	-34

Source: Authors Estimates using National Accounts Statistics, CSO.

5.3 Rest of Economy and Overall Effect of Pandemic

The hypothetical simulations for FY20 assume that the Lockdown was imposed for one month at the start of the year and Essential commodities & services (public administration, agriculture, public utilities, services related to broadcasting and communication) where fully exempt from the lockdown and were neither affected by it nor suffered significantly from the Pandemic.

The "Rest of the Economy" is assumed in the optimistic scenario, to face limited costs due to a one-month lockdown and the pandemic per se, though this increases substantially if the lockdown is extended another month. Preventing production activity over time can have consequences for industries with high fixed costs such as manufacturing. In the absence of coordinated and targeted policy response, prolonged lockdowns can push companies closer to their shutdown points which will cause permanent loss of livelihoods and consequently, income.

The Optimistic, "Most likely" and Pessimistic simulations for the "Rest of the Economy" assume a decline of 1%, 2% and 4%, resulting in growth rates of 3.5%, 2.5% and 0.4% in the simulations with 2020 pandemic assumed to occur in 2019. These simulations, along with the projections made for the Contact services in the previous section, yield a hypothetical growth rate of GVA of 3.3% in the optimistic scenario, 1.7% in the most likely scenario and -0.4% in the pessimistic scenario (table 6). The last scenario assumes that any recovery will be limited to just 5 per cent in the second half of the financial year and that will not be enough to make up for the negative growth registered during the first half of the financial year. Consequently, we may experience a contraction in annual output.

Table 6: Hypothetical Impact of Pandemic on GVA in FY 2020

Items	**GDP**	**Growth Rate (%)**			
	Estimated	Estimated	Scenario I	Scenario II	Scenario III
Total GVA	**13434606**	**4.9**	**3.3**	**1.7**	**-0.4**
Essential Commodities	5442793	5.2	5.2	5.2	5.2
Contact Services	1240308	5.6	-6.2	-18	-30
Rest of Economy	6752821	4.6	3.5	2.5	0.4

Source: Authors Estimates using National Accounts Statistics, CSO.

In figures 5, 6 and 7 illustrate the quarterly pattern of economic loss for various quarters for for the three scenarios. The key difference between these three scenarios is the extent of recovery experienced in the second quarter along and the effects of contagion fears from the Corona Virus which will persist in aviation sector well beyond the second quarter.

One can think of three phases within the financial year. In the first quarter, economic activity (supply & demand) is shut down for 60% of the economy (i.e. except Essential commodities and services), and remains very constrained as the lock-down is phased out at a different pace in different States and Industries. In the next two quarters of the financial year, there is a gradual pickup in economic activity, slower in contact sectors and much faster in the rest of the economy. Normalization of sorts is anticipated in the last quarter, almost completely for the Rest of the economy constituting 50% of GVA and incompletely for Contact services constituting 10% of the GVA.

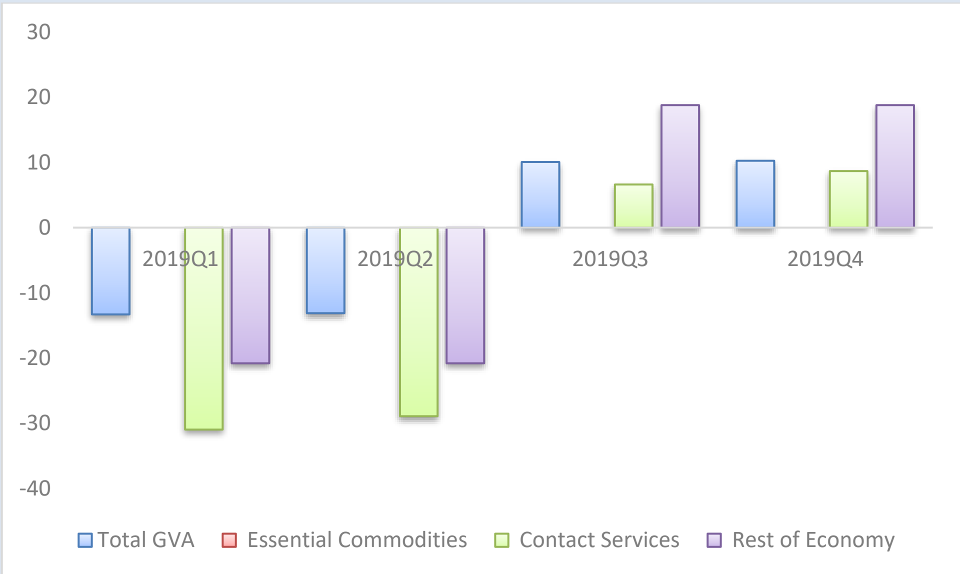
The “most likely” scenario assumes that while recovery in the rest of the economy will begin from the end of second quarter, contact services will continue to struggle throughout the second quarter (figure 5). In this case, rest of the economy will experience a slight contraction due to slower recovery during the second half of the financial year.

Figure 5: Expected quarterly pattern of Loses from Pandemic; Most Likely Scenario

Source: Authors Estimates using National Accounts Statistics, CSO.

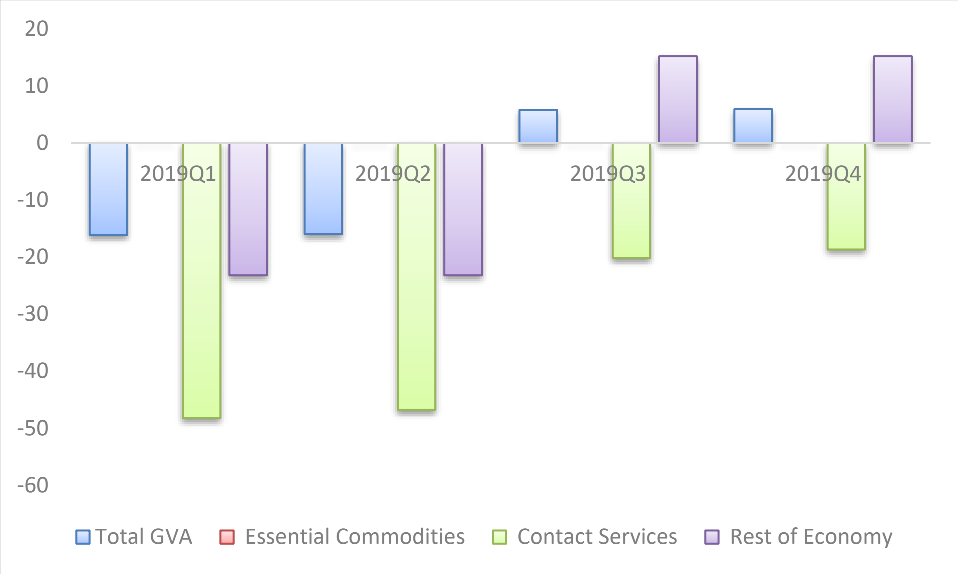
The optimistic scenario anticipates a quick recovery from the second quarter onwards including for contact services except for aviation. Railways, road transportation and other activities pick up due to strong recovery experienced in the manufacturing sectors (figure 6). This results in positive growth for all the three categories.

Figure 6: Expected quarterly pattern of Loses from Pandemic; Optimistic Scenario



Source: Authors Estimates using National Accounts Statistics, CSO.

Figure 7: Expected quarterly pattern of Loses from Pandemic; Pessimistic scenario



Source: Authors Estimates using National Accounts Statistics, CSO.

5.4 Cost of Lockdown on GDP

Any projection of the growth rates for 2020-21 is contingent on the possible duration of lockdown. The initial lockdown was supposed to be till the 14th of April 2020; however, it has now been extended by another two weeks. As a nationwide lockdown with exemption for essential commodities, shuts down 60 per cent of the economy and has substantial costs to the public. These must be weighed against the potential benefits of lock down in slowing the spread of the Corona Virus and potentially saving lives by giving the health system to improve its readiness for managing the Pandemic by identifying infected cases and help them survive serious forms of the infection. An estimation of these costs is essential for making a rational cost-benefit analysis of the optimal duration and extent of lockdown and the alternatives to a lockdown.

At present, the duration of the Lockdown is uncertain. The final projection estimates the economic costs of the lockdown as per cent of India's 2020-21 GDP. Here we present three scenarios, the first scenario is of loss of economic growth if the lockdown were to be lifted on the 14th of April, the second scenario is of lockdown till 30th of April and the third scenario is of the lockdown being extended till the 31st of May.

Some of the non-linear costs of the lockdown, such as the bankruptcy of companies with high fixed costs, are not accounted for in these projections. These could result in permanent reduction in employment, which in turn could result in permanent income loss for households triggering an aggregate demand crisis. Consequently, the fiscal response needed to avert such a situation increases in a non-linear fashion with every subsequent day of lockdown

Table 7 presents the results of simulations, for the reduction in sectoral GDP for FY2020, from the levels which would have prevailed in ta situation of Pandemic Crisis in the absence of the lockdown. The lockdown is estimated to reduce GVA by -2.2 per cent of non-crisis GVA if it lasts for 2 weeks and -9.4 per cent of non-crises GVA, if it lasts for 2 months. The losses in the Contact service sectors are the highest, with their contribution to the overall loss twice that of the rest of the economy [Table 7].

Table 7: GDP Cost of Lockdown as % of total & sectoral GDP

		Additional Loss of sectoral GDP (%)		
Duration of Lockdown	**=>**	**2 weeks**	**1 month**	**2 months**
Total GVA		**-2.2**	**-4.7**	**-9.4**
Essential Commodities		**0.0**	**0.0**	**0.0**
Contact Services		**-3.0**	**-6.5**	**-12.9**
Rest of Economy		**-3.8**	**-8.2**	**-16.3**

Source: Authors Estimates using National Accounts Statistics, CSO.

The key issue in an extended lockdown till end of May would be the disruption of supply chains that will start impacting essential commodities which could be immune from the disruption in the first two scenarios. This occurs primarily due to logistics sector acting as a constraint despite exemptions to essential commodities. Even though the Contact Services are Worst hit, it contributes only 13% to the total loss in GVA. As 87% of the loss from the Lockdown is contributed by Rest of the Economy, these sectors must be prioritised for phasing out of the lockdown with appropriate socio-spatial distancing rules.

The costs of lockdown have been implicitly acknowledged by the Prime Minister while announcing an extension subject to phased liberalization focused on the Rest of the Economy, including rural manufacturing and production for export. Given the limited knowledge about the effect of lock down on speed of transmission and the increasing death rate of known infected cases, a rigorous cost benefit analysis is very difficult. The extension of the lockdown to May 3rd, 2020 is therefore a risk averse strategy appropriate for non-quantified risks.

5.5 Growth in 2020-21

We estimate that the economic impact of the Pandemic is to reduce GVA growth 1.6% to 5.5%. Given a pre-pandemic GDP growth forecast of 5.5% for 2020-21, growth is now forecast to be between 0.2%. and 3.9% with a likely value of 2.3% [table 8].

Table 8: GDP Forecasts for FY 2021

	GDP Growth Rate (in %)
Our Forecast (pessimistic)	0.2
Our Forecast (most likely)	**2.3**
Our Forecast (optimistic)	3.9
International Monetary Fund	1.9

Source: Authors Computations using various sources.

This appears to be consistent with the forecast of International Monetary fund at 1.9 per cent. The key assumption for arriving at our forecast is that a bulk of the impact of the disease will be felt in the first two quarters and most sectors will start recovering by the end of Q2 onwards. This is, however, contingent on strong policy response by the union governments.

6 Post-Crisis Recovery

During a crisis Govt's emergency action has to be targeted at affected workers, firms, industries & sectors, as best as possible, without obsessing about leakages; Nor do we have the luxury (unlimited funds) of indulging our pet schemes, issues & approaches (e.g. UBI, NIT, tax reduction for salaried, Uniform, single rate GST, MNREGA, MSP), which may be very relevant for normal times. The human tragedy of crisis must be dealt with first and foremost, the secondary focus has to ensure that productive, job generating enterprises are not driven into bankruptcy by the lockdown and survive the economic crises generated by the Pandemic.

The second order of business is for Govt to put those Institutional/administrative and policy reforms in place which will lead to rapid recovery of GDP growth to its Full Potential. The speed and extent of recovery from crisis depends critically on the policy & institutional changes made during and after the crisis. Those countries which have used crisis as an opportunity to reform policies which were slowing growth, even before the crises, have recovered relatively quickly and in a more sustained way. The Indian Economy was at the bottom of U (~5% GDP growth) before the pandemic. The pandemic could push it even lower. That would be a disaster of unmeasurable proportions for the Indian economy and the Welfare of its people.

It's imperative to re-consider the policies that we have suggested in the light of the new threats and opportunity and to reprioritize them for urgent action.[13] Union and State Govts (e.g. GST council) must use the current hiatus in economic activity, to prepare a comprehensive calendar of Reforms to be implemented during H2 of FY21 and H1 of FY22. Besides comprehensive reform of GST and Indirect Tax Code, it must include reform of External sector & Exim policy, Agriculture, Skilling (including Apprenticeship), Regulatory reforms for promoting "Educate in India". Land and Labour flexibility reforms for Coastal/Special Export Zones, replacement of Subsidies by Cash Transfer, Reform of Electricity Distribution & pricing for Industry. Similar facilities could be given in newly defined Import Substitution Zones (ISZs) along with Capital grants for setting up Industries currently monopolized by Dictatorships who don't follow Global Rule of Law.

A Crisis is a terrible thing to waste, from the perspective of a sustainable fast growth and sustained Welfare improvement during the post-crisis decade.

7 Conclusion

Black Death, for instance was a turning point that increased real wages which subsequently led to innovation in production process that improved productivity ultimately culminating in Industrial Revolution. The SARS CoV2/COVID – 19 Pandemic is a Black Swan event that poses a challenge for countries across the world as the trade-off is between saving lives and protecting livelihoods. It also presents a unique opportunity to undertake bold, courageous reforms that can unshackle India’s productive potential. We would be compounding the tragedy if we waste this opportunity. Swift policy response will be the key to recovery as governments combat a simultaneous demand and supply shock unlike ever seen before. The prospects of recovery in the short run ultimately demand on the scale, mechanism and instrument of policy action.

Using our three sectors cum three phase framework of analysis, we arrive at preliminary estimates of growth for the coming financial year. India’s slowing economy results in an extension of the bottom well beyond expected and the real growth for India could be anywhere between 0.2 per cent to 3.9%per cent with a likely value of 2.3 per cent. As soon as the worst of the Pandemic is past the Union and State Govts must introduce a comprehensive package of reforms to ensure quick recovery from crisis and speedy return of Indian economy to its full growth potential. A tragic once in a century crisis like this, also provides an unprecedented opportunity to transform the Indian Economy.

[13] https://egrowfoundation.org/research/growth-recession-j-curve-of-institutional-reform/

India's approach to Fiscal Stimulus must combine economic reforms which improve fiscal sustainability in the middle-long term with short term fiscal stimulus. Well-designed tax reforms are revenue neutral over 3 years or less. In the current pandemic crisis, both the economy and tax revenues are down,[14] and therefore any tax reduction is currently less costly and will be more than made up in increased buoyancy, as economy recovers. Comprehensive GST reform and reform of personal income taxes and the Direct Tax code are ideal candidates for this purpose. Preparation of the design must start in June 2020, with a view to introduction of comprehensive GST reform by the GST Council before the end of calendar year and a new Direct Code in the next Union Budget.

On the expenditure side, we similarly need to use this traumatic crisis to rethink the entire welfare approach. The Pandemic reminds us that in times of such crisis we have to be able to target additional transfers to specified groups of citizens in specific geographic locations. A Direct Cash Transfer System, linked to a clean and comprehensive UID/Aadhar covering every remote nook & corner of our country, is an ideal foundation for such a system. This requires each of us to sacrifice our attachment to our favourite product linked subsidy. Replacing all these price distorting subsidies by Direct Cash transfers will allow Govt to raise the money that reaches the deserving, by reducing leakages and improving administrative efficiency. We must grab the opportunity provided by this critical threat to our citizens, not just to alleviate poverty, but to eliminate it.

There are a few Global trends which will be accelerated by the Pandemic, which Govt, Industry and Social Organizations, must jointly and collaboratively exploit for the Welfare of all. One is the message of personal hygiene, cleanliness of the home and its environments, sanitation and public health, The Pandemic has raised awareness of its importance for controlling the spread of all communicable diseases. "Swach Bharat" campaign can be relabelled to "Swach Bharat, Swastha Bharat". Second is the digitization of the economy and the spread of web based social-professional services like e-learning/e-education/e-skilling and e-medicine/e-health. This can help reach unserved citizens and improve the quality of these essential services for all, particularly the lower half. Third is the diversification of supply chains out of the country, celebrated till five years ago, as the manufacturer to the world. The Pandemic has helped raise awareness of the authoritarian approach which underlies its mercantilist, international trade policies and the monopolization of many export industries. A bipolar trade cum industrial policy, which liberalizes trade with free market, open democracies on one side, while introducing a carefully targeted import substitution

[14] In hindsight this applies to the 2019 Corporate tax reforms as well, where most of the presumed loses (in 2020) from tax reduction will prove hypothetical, as economy slowed due to the Pandemic and was shut down because of the lockdown.

policy towards arrogant, authoritarian countries can provide an unmatchable boost to demand in this time of global recession.

As forecast by Virmani (2004) a Bipolar World order is emerging in the 2010s. The Tariff War initiated a few years ago introduced the possibility of Technological decoupling and Partial economic decoupling through diversification of supply chains [Virmani (2018)]. The supply disruptions induced by, and emerging from, the Pandemic have increased the probability of Partial Economic de-coupling. Multilateral Development and Finance institutions need to recognise the changed reality of the post-pandemic world. This World is likely to be characterised by a shift from multilateral to plurilateral and bilateral co-operation among free market economies, open societies and genuinely democratic countries. The multilateral institutions should facilitate these arrangements by focussing on the economic benefits instead of repeating the Mantra of trade theories, whose assumptions are contradicted in authoritarian, mercantilist, Socialist market economies.

There is always a silver lining to every dark cloud. As the pandemic affects every member of society, it has also brought out the best in many of us. Can India use this new-found solidarity and sensitivity to among its citizens to turn this crisis into an opportunity for accelerating growth and increasing the Welfare of all its citizens?

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