COVID-19: Global Diagnosis and Future Policy Perspective

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Abstract

We analysed the macroeconomic policy responses to COVID-19 pandemic and the impact of the pandemic on economic growth, and the level of consumption. The COVID-19 crisis is a dual crisis - public health crisis and a macroeconomic crisis. The policy responses to this crisis have been a 'life versus livelihood' sequencing and the findings are such that global cooperation, and domestic macroeconomic policies complementing with exit strategy to solve the economic disruptions in supply chains can be helpful.

Keywords: COVID-19, Monetary Policy, Fiscal Policy, Macroeconomic Responses.

JEL Classification Codes: E5, E6, I150

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Introduction

COVID-19 is a dual crisis – a public health crisis and a macroeconomic crisis. The policy responsiveness to "life versus livelihood" crisis of COVID-19 in most of the countries have been sequential rather than simultaneous design to address both life and livelihood issues. This has adverse humanitarian consequences, especially in the countries which responded through "lockdown" as a crisis mitigating strategy. The lockdown, though is the only policy option to prevent community spread, is indeed an economic disruption. Unless a judicious "exit strategy" is planned, the prolonged lockdown can lead to irreversible loss in economic growth. More than that, the loss of livelihood due to lockdown strategy can lead to starvation deaths, unless addressed through policy interventions. This paper examines the global diagnosis and policy responsiveness to COVID19 across countries.

The macroeconomic uncertainty creates by covid pandemic is hard to measure. The post covid economic revival to V- shaped or U-shaped depends on the exit strategy. Globally, countries have resorted to macroeconomic policy packages for revival. The International Monetary Fund (IMF) has launched a policy tracker to help member countries to be informed about the experience of others in fighting the pandemic and the discretionary policies taken to help them combat the pandemic more effectively (IMF 2020). The fiscal space is a significant issue in designing the covid policy response packages. The fiscal rules to threshold deficit levels of 3% fiscal deficit to gross domestic product (GDP) is acting as a constraint especially when monetary policy fails to trigger the economy as a counter cyclical policy tool. It is not only the levels of deficits but also revamping the financing patterns of deficit is relevant. Globally there is a re-emergence of talk on the monetary financing of fiscal programme.

Against the backdrop of these, this paper is organized into 4 sections. Section 1 reviews the existing studies. Section 2deals with the diagnosis and examines the impact of pandemic on economic growth. Section 3examines the existing policy responses across countries. Section 4 concludes.

1. Survey of Literature

Baldwin and Mauro (2020) has edited an e-book addressing the spread of the pandemic, the mechanisms of economic contagion and how the government responded to it. The hardest nations are G7 and China. The G7 and China which is affected, account for 60% of the world GDP (supply and demand), 65% of world manufacturing, and 41% of world manufacturing exports (Baldwin and Mauro, 2020). They noted that China, Korea, Japan, Germany and the US are also part of global value chain, so their supply-chain contagion will amplify the direct supply shocks. They explained about the SIR model, the first assumption that it takes is that the population can be classified into three categories as Susceptible to infection, Infectious, and Recovered. The elaborated that all infectious and susceptible people are equally likely to meet, the number of interactions is the stock of susceptible people, S, times the stock of infectious people, I, per period (the number of days during which an infected person becomes infectious). Given the transmission rate is "Beta", the number of new cases is beta times S times I. They mentioned that the epidemiology curve can only be flattened by removing infected people from the population either by curing or quarantining them, and by taking preventive measures like closures, and social distancing.

Mauro (2020) noted that fiscal policy could quickly be deployed as targeted help for those affected by quarantine and income shortfalls, and highlighted the 'Kurzarbeit' – a state-subsidised scheme in Germany to protect employment. Mauro (2020) argued for a coordinated fiscal stimulus and financial packages. t is also highlighted that using the flexibility of the European fiscal rules to increase room for spending, the EU should also consider a common disaster relieve fund to help affected regions and people.

Boone, L., Haugh, D., Pain, N. and Salins, V(2020) identified three main channels through which these measures spill over globally; (i) supply: significant disruptions in the global supply chain, factory closures, cutbacks in many service sector activities; (ii) demand: a decline in business travel and tourism, declines in education services, a decline in entertainment and leisure services; and (iii) confidence: uncertainty leading to reduced or delayed consumption of goods and services, delayed or foregone investment. Their policy recommendations include increased government spending first directed at the health sector, supporting all necessary spending on prevention, containment and mitigation of the virus, including higher overtime pay and better working environment conditions, as well as research. They advocated a co-ordinated policy response using "short-time working schemes and providing vulnerable households with temporary direct transfers to tide them over the loss of income from work shutdowns and layoffs. Increasing liquidity buffers to firms in affected sectors is also necessary to avoid debt default by otherwise sound enterprises. Reducing fixed charges and taxes and credit forbearance would also help to ease the pressure on firms facing an abrupt falloff in demand."

McGibbin, Wand Fernando, R (2020) have simulated a global economic model to explore a range of different scenarios for the spread of COVID-19. Using G-cubed model (hybrid of dynamic stochastic general equilibrium (DSGE) models and computable general equilibrium (CGE) models, they created filters that convert the epidemiological assumptions into economic shocks to reduced labour supply (morbidity and mortality) and rising business costs (economic disruptions). Arezki, R. and Nguyen, H (2020) explained the impact of virus spread to Iran and MENA countries, exploring the oil price effects. Baldwin, R. and Tomiura, E (2020) highlighted that one should not misinterpret pandemic as a justification for anti-globalism. Beck, T. (2020) emphasised that the effect of the virus on the financial system will depend on (1) how much further the virus will spread across the globe and its effect on economic activity, (2) fiscal and monetary policy reactions to the shock, and (3) regulatory reactions to possible bank fragility. Cecchetti, S. and Schoenholtz, K. (2020) highlighted that aggressive testing and effective quarantine of those stricken is significant to regain confidence and advances in treatment is required to limit the pathogen's impact. Mann (2020) noted that global growth might weigh on the L-shape evolution of demand for these non-storable tradeable services. He highlighted that financial markets initially 'looked through' the corona virus shock. It is further noted that covid19 outbreak has risen the uncertainty and affected the business sentiments, and accommodative central bank easing alone cannot revive the real economy. Meninno, R. and Wolff, G. (2020) noted that share of cross-border commuters as per cent of the employed citizens is as high as 5.5 per cent in Slovakia , 2.7 % in Luxemburg , Croatia , Estonia and Belgium. As per article 2 (21) and 6 (1e) of regulation (EU) 2016/399 , the Schengen regulation does allow travel restrictions in case of health pandemic. It is reported that more than 1.9 million residents from Schengen countries crossed the border to go to work in 2018.

Voth, J. (2020) noted that the outbreak of the novel coronavirus (COVID-19) in Wuhan shows some interesting parallels to the situation in Marseille in 1720. He noted that smart policies have to weigh the costs and benefits of uninhibited exchanges of people and goods, in order to reap the benefits of globalisation. Grada (2020) emphasised the significance of data to analyse the pandemic.

Cochrane (2020) in his paper "corona virus monetary policy", has put it upfront that central bank should not lower the rates, as the covid pandemic is a classic supply shock and nothing more demand can do. He argued that when the economy is shut down by choice or by public health mandate, one of the jobs of central bank is "to spy what the natural real interest rate is and move the nominal rate accordingly, so there is no force unsteadying inflation". What he argued is that with shutting down, if left alone, there could be a huge wave of bankruptcies and insolvencies, and subsequently could be a financial catastrophe. He highlights that if the financial problems are wiped out, the level pf GDP would return fast. He argues for a detailed pandemic response financial plan, however with precaution not to create atrocious moral hazards. He argues that rate cut alone to induce liquidity cannot solve the issue as the level of the overnight rate is "a very small issue to a business that needs a loan to keep up with mortgage or rent, payroll, electric bill, debt payments when there is absolutely no money coming in, it can't buy supplies if there were, and the bank is refusing (rightly) to make such a loan at any rate".

Wren-Lewis (2020) emphasised on the trade-off that policymakers face, between preventing deaths and losing some percent of GDP for a short-period, probably a quarter. The percentage fall is dependent on the proportion of population infected, and on what's the fatality rate that the country is facing. One thing is to be noted that the output after the pandemic quarter will be higher, considering the firms replenish diminished stocks and meet postponed demands. They made an assessment that, if schools are to be closed for around four weeks, it can multiply the GDP impacts above by as much as a factor of three, and a quarter of closure can lead to an impact twice of that. He mentioned that the major consumption hit will be on "social consumption" which includes things like going to the pub, restaurants, to football matches or travel, which can be easily postponed, but on the contrary some of the public services and utilities should keep running, even when workers in those services start falling ill. Wyplosz (2020) in "The good thing about coronavirus" mentioned that the fear of coronavirus is such that some epidemiologists fear that half of the world's population may be infected, with 2% mortality rate, which means 1% of the current living could be wiped out. He blamed deaths on the secretive and autocratic regime in China which posed tight limitations on the population which eventually turned to be efficient with overwhelmed health system, but claimed to have violated elementary human rights, the blame was equally shared by the US which has a well-equipped health system, but suffered badly because of the President (and the government)'s early denial which has led to scores of avoidable deaths. While noting the scenario for the poor, ill-equipped countries, he mentioned that many epidemiologists seem worried. Chudik, A., Pesaran, M., and Rebucci, A. (2020) mentioned that mandating social distancing is very effective at flattering the epidemic curve, but is costly in terms of employment loss.Liley, A., Rogoff, K. (2020) mentioned that conventional monetary policy has been constrained by low interest rates in many major economies, which has spurred discussions in regard to the possibility of negative interest rates as a part of the monetary policy toolkit. They noted that Central banks across the world have taken extraordinary measures propping up private credit market as well as weaker sub-sovereign. Continuing to the same idea, they mentioned that It is not difficult to exempt overwhelming majority of retail depositors from negative rate policy. The issue of pass through of funds from banks to large depositors, which is proving to be less of an issue overtime, should completely disappear once the cash hoarding option is taken off the table. In a similar crisis, central banks play an essential role of market makers of last resort, but routine intervention into private markets in a large complex economy would ultimately undermine central bank independence. Of course, it is entirely possible that at the end of this dizzying, but necessary fiscal binge, real interest rates may end up significantly higher than market now expect, and so too might inflation. But there is at least a good chance central banks will be stuck at the zero effective lower bound for a very long time.

Ilzetzki, E., Reichardt, H. (2020) has put an emphasis on the past, comparing the current production patterns of ventilators with the munition production during WWII, basis of which is the arrival of non-specialist firms to produce medical ventilators. The author has mentioned to have learnt 3 lessons from the production patterns of WWII- (a) Ramping up production takes time, particularly for non-specialist firms, (b) International cooperation is necessary to share knowledge on production technology and supply chains, such as getting to know about the procurement of the tools and equipment required for production and (c) Direct public investment in plant expansions should be emphasised on, due to lack of monetary benefits for private companies to enter the production process to answer the "temporary" demand. Existing ventilator producers have said to have the potential the increase the production substantially, and the main obstacle to mass ventilator production is the limited supply of production inputs: parts and components. The current circumstance can be dealt with national and international supply chain coordination, which would further help steer production component to their best use. Inoue, H., Todo, Y. (2020) in "Propagation of the economic impact of lockdowns through supply chains" have found that if Tokyo were to be locked down for 2 weeks, the impact will be a loss in value added production of 4.3 trillion yen, while the production loss for the rest of Japan due to propagation through supply chains would be 5 trillion yen. Similarly, Lockdowns across the world has brought substantial economic losses, due to connectivity across regions through global value chains. The negative effect of the economic restriction can defuse across economies through the network.

The economic shock of a disaster propagates downstream to customers through lack of supplies, and upstream to suppliers through lack of demand. Recently, McKibbin and Fernando (2020) estimated the economic effect of COVID-19 using a macroeconomic model that incorporates international and inter-sectoral linkages in production and the model suggest such that, in the worst-case scenario, the COVID outbreak will reduce the GDP of China, Japan, UK, and the US by 6.2%, 9.9%, 6.0%, and 8.4%, respectively. The figures are substantial, but they could be underestimated due to the absence of complex interfirm supply chains, which are found to be a source of substantial progapation in the network science literature as mentioned by Inoue, H., Todo, Y. (2020). Olowo-Okere, E. (2020) mentioned that all countries, especially the resource dependent ones are facing severe revenue shortfalls, complementing it with adopted social distancing measures, including lockdown , which provides with even more responsibilities to use new processes and technology to continue critical core operations, while also managing the impact of the crisis on the public service. Weber, M. (2020) focused on Eurobonds(which are also referred to as coronabonds) such that some countries, which have to pay high interest rates on their respective countries, and the issuance of these will reduce the financial costs, and would help fight the outbreak and to start the economy thereafter. Some of the features of those bonds are as follows- They should be a limit to the amount of debt that a country can create throughout these bonds, also there should be sanctions where countries default on the debt procured through these bonds. Also, the debt should be guaranteed by the ECB, in order to ensure repayment (the repayment is to be made by ECB on maturity and further the money could be received by ECB from the respective country. Werner, A. (2020) in "Economic Policy in Latin America and the Caribbean in the time of COVID-19" mentioned that, with atypical supply and demand shocks that the economies are facing, alongside a health crisis, and high financing cost across Latin America, the required actions to mitigate the human and the economic costs of this crisis will be daunting and will require an unprecedented approach to deal with it. Measures like increasing the amount of fiscal resources allocated to the healthcare, including tests, beds, respirators, and other equipment, which is an overarching priority alongside preventive measures to contain the virus such as social distancing and restrictions on non-essential activities are in place across many countries, especially due to under preparedness to face the worst of the pandemic by many countries. Central banks across the region have reduced policy rates and have also taken required measures to support the liquidity and to counteract disorderly conditions in domestic financial markets. Alongside, temporary use of regulatory flexibility is used to facilitate rollovers.

Cardoso, F., Lagos, R., Santos, J. and Zedillo, E. (2020) suggested that the policymakers should focus on upgrading health systems, channelling resources to hospital, and in order to temporarily adapt idle infrastructure such as hotels and convention centres, and boosting the testing capacity. The effect on Latin American economies are due to the disruption of domestic production, besides falling export volumes and prices, lost income from tourism and remittances, and large capital outflows. They have also suggested to emphasize in regard to cash transfers to the vulnerable, who can't access employment subsidies or unemployment insurance. External support for fiscal and BOP accounts is also crucial for Latin America's smaller and less developed countries, as the support will be complemented with capital-flow reversals, which can further compound the problem. Tilford, S. (2020) mentioned that this outbreak has led the West to see a collapse in consumption, which threaten the survival for a range of firms, from restaurants to airlines to car-manufacturers, which has also impacted the labor markets. Several European countries have come up with a system called “Kurzabeit”(short-time working) which has helped to cushion the impact of the crisis. The US administration has stepped up emergency support for businesses, while Federal Reserve like the ECB and the Bank of England has moved to boost the liquidity in an effort to head off a financial crisis. They have also helped individuals by CARES Act which was passed by the Congress at the end of March, targeted to increase unemployment benefits and the number of people who qualify for them, but still, they are unable to process and provide better access to health to the poor and jobless, in comparison to the Europeans. Giley, C. (2020) mentioned that the UK’s OBR(Office of Budgetary Response) seem to be having optimistic calculations, as they said to achieve “normal” life by the end of 2021, and on a path predicted in the March 11 Budget. Their estimate is that economic activity was at 35% below its level in early March, as an educated guess based on taking broad sectors of the economy and allocating to each estimate of output losses. Their second assumption in regard to the recovery is such that, the recovery will be rapid and total, with almost no hangover from the crisis, which seem contrary to the past experiences from the 2008 financial crisis, taking in regard the bankruptcies and unemployment. Rubin, R. (2020) predicted that it will be different for many small businesses to survive, even for those under the Paycheck Protection Program. The recovery is said to be slow and long, requiring intermediate and longer-term stimulus, and a large-scale investment in the nation’s infrastructure could provide both stimulus and increase productivity. Badkar, M. and Greeley, B.(2020) accentuated that the increasing jobless figures follows a public health crisis to all parts of the economy, with historical declines in industrial production and retail sales. On similar lines, Gregory Daco, chief US economist at Oxford Economics said that “ The bleeding is ongoing but it’s less severe” in regard to the job losses across the US which has crosses over 30 million mark. “There will be scar tissue for the economy, and it will take some time for Americans to return to travel, to shopping, and to their former habits,” said Jim Baird at Plante Moran Financial Advisors. “Employment conditions will heal, but that healing process is going to take years, not months, just as is always the case coming out of a recession.”

Romei, V. and Thomas, D. (2020) quoted an estimate of the Office for National Statistics(UK) that one-quarter of companies in UK have temporarily closed due to the lockdown and majority of the ones that are still operating, have reported lower turnovers, the distribution of which is such that 38% of the companies still operating have reported "substantially lower" turnover and an additional 17% of the ones operating have reported "slightly lower" turnover. Bars, Restaurants and property companies are the ones which have faced the hardest hit. Hale, T., Liu, X. and Yang, Y. (2020) mentioned that the Chinese economy has shrank for the first time in more than 40 years which has ended an era of uninterrupted growth dating back to the 1970s. In line to this, IMF official data came, warning of the worst global economic outlook since the Great Depression, with output losses for this year expected to exceed the ones that followed the financial crisis of 2008. Mao Shengyong, spokesperson at the statistics bureau said that " We cannot say the fundamentals of China's long-term economic progress have changed because of a short-term shock", adding that the average annual growth was forecasted to be about 5%. Orton, K. (2020) mentioned that the Federal Reserve have soothed the mortgage market temporarily, after its purchase of mortgage-backed securities(MBSs are bundles of mortgages sold on a secondary market), which resulted in calming effect on rates. Matthew Speakman, a Zillow economist on this issue said, " The wild swings have calmed in recent weeks after a period of extreme fluctuations", also adding that " This suggests that the historic intervention by the Federal Reserve has successfully eased some of the strains that had plagued the market just a few weeks ago, though challenges remain. Long, H. (2020) focused on the level of unemployment that the US is facing amid this crisis, which has never happened since the Great Depression, which is making the government struggle to respond fast to the heath crisis and the economic pain it has triggered. The condition is such that the State unemployment offices are overwhelmed with people waiting for the unemployment payment weeks later. Even the federal relief payments – "stimulus checks" distribution process have been held up due to various glitches which has led to about half of the payments sent so far. The job loss has reached more than 30 million, which means 1 out of every 5 "Americans in the work-force" has lost their job. "We must have a working economy and we want to get it back very very quickly, and that's what's going to happen. I believe it will boom," Trump said in a news conference.

Arnold, M., Romei, V. (2020) quoted Christine Lagarde's statement to the IMFC's virtual meeting that the eurozone was heading for "a large contraction in output" and "rapidly deteriorating labour markets" because of the coronavirus pandemic. Also, Lagarde mentioned that inflation was expected to continue falling from its already low levels in the short term, and in medium term, the outlook for prices was "surrounded by high uncertainty". And, "the uncertainty is sharply elevated and will remain high, making it extremely difficult to predict the likely extent and duration of the imminent recession and subsequent recovery. In line to this, there were certain responses from the ECB to increase its asset purchases by almost €900bn this year, alongside offering cheap loans to banks worth trillions of euros and easing its collateral rules to make its liquidity easier to access. This partly explains why borrowing costs for most eurozone governments have increased since the coronavirus crisis reached Europe in mid-February, she said, warning that liquidity in sovereign bond markets remained lower than usual.

2. COVID-19 Diagnosis and Its Impact on Growth

COVID-19 is a medical contagion, which has strengthened its roots in the form of an economic contagion. We get to see a clearer picture, when we look at the spread of the virus, the most infections are amongst the nations which plays an important part in the global value chain. The scenario is such that, 5 out of 7 in the G7 countries are amongst the worst hit nations, and among those, is China which was the epicenter of the virus and is the largest part of the Global value chain as a global supplier (Global Value Chain Report 2019, World Trade Organization). Quantitatively, the G7 and China account for 60% of the World GDP, and 65% of the world Manufacturing, which cause a direct effect on the Supply chain, resulting in non-fulfilment of the demand for Medical Supplies, Equipment, and other essentials.

Table 1: 10 Countries ranked in terms of most confirmed cases + G7 + India

Country	Confirmed Cases	Deaths	Recovered
USA (G7)	1012583	58355	115936
Spain	232128	23822	123903
Italy (G7)	201505	27359	68941
France (G7)	169053	23694	47775
United Kingdom (G7)	162350	21745	813
Germany (G7)	159912	6314	120400
Turkey	114653	2992	38809
Russia	99399	972	10286
Iran	92584	5877	72439
China	83940	4637	78435
Canada (12th)	51150	2983	19231
India (15th)	31332	1008	7747
Japan (29rd) (G7)	13736	394	1899

Source: Coronavirus Resource Center, Center for Systems Science and Engineering (CSSE) at John Hopkins University; updated April 29, 2020 (3:30 pm IST)

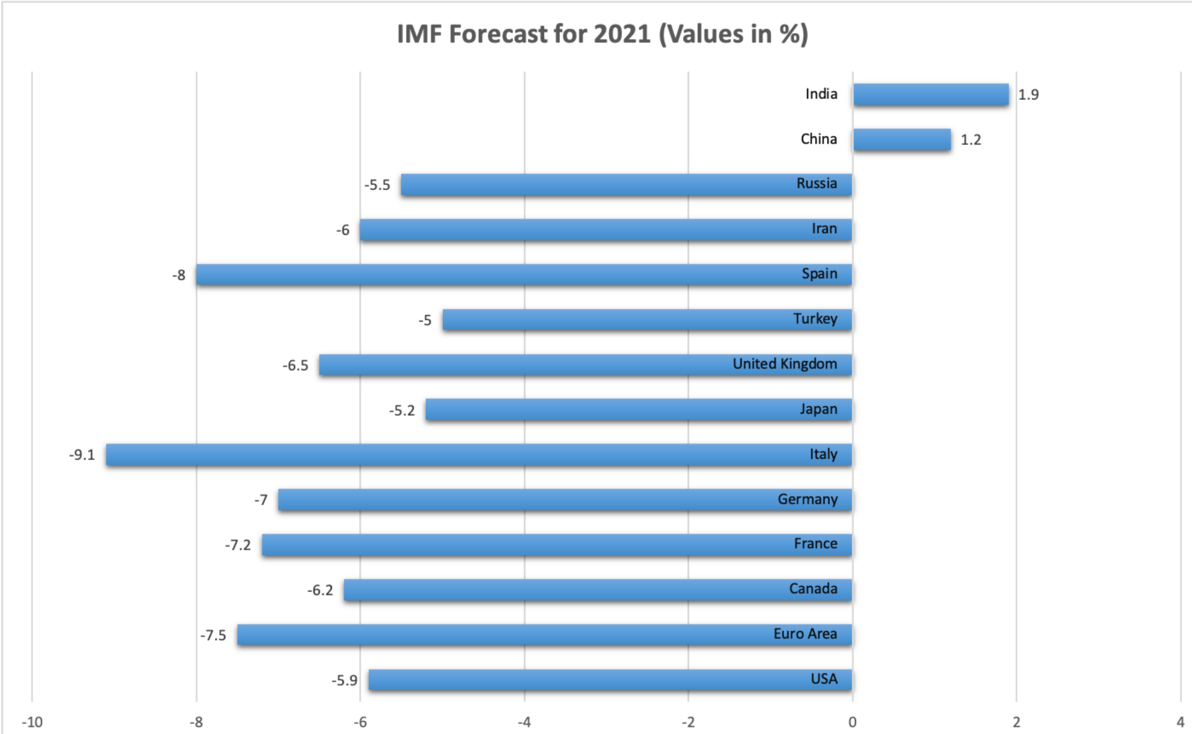
According to the World Economic Outlook (April 2020: Chapter 1), The outbreak has led to a de facto shutdown of a significant portion of the economy which is projected to impact the world economy with a shrinkage of 3%, advanced economies with a shrinkage of 6.1%, emerging economies to shrink by 1% whereas countries like India and China are expected to a positive but slow growth at 1.9% and 1.2% respectively.

Table 2: IMF Growth Forecasts for 2021 (10 Worst Hit Countries +G7 + Euro Area + China + India)

Country/Region	Forecast (Values in %)
USA	-5.9
Euro Area	-7.5
Canada	-6.2
France	-7.2
Germany	-7.0
Italy	-9.1
Japan	-5.2
United Kingdom	-6.5
Turkey	-5.0
Spain	-8.0
Iran	-6.0
Russia	-5.5
China	1.2
India	1.9
Source: IMF's World Economic Outlook (April 2020)	

Gita Gopinath, Chief Economist of the International Monetary Fund during the Press briefing of World Economic Outlook said, "The cumulative loss to the global GDP over 2020 and 2021 from the pandemic crisis could be around $9 trillion, greater than the economies of Japan and Germany combined", referring to the developing economies, she mentioned that " Emerging market in developing economies face additional challenges as they face, unprecedented reversal in capital flows, major currency pressures, while at the same time coping with weaker health systems and much lower fiscal space to support their economies."

Figure 1: IMF Growth Forecast 2021



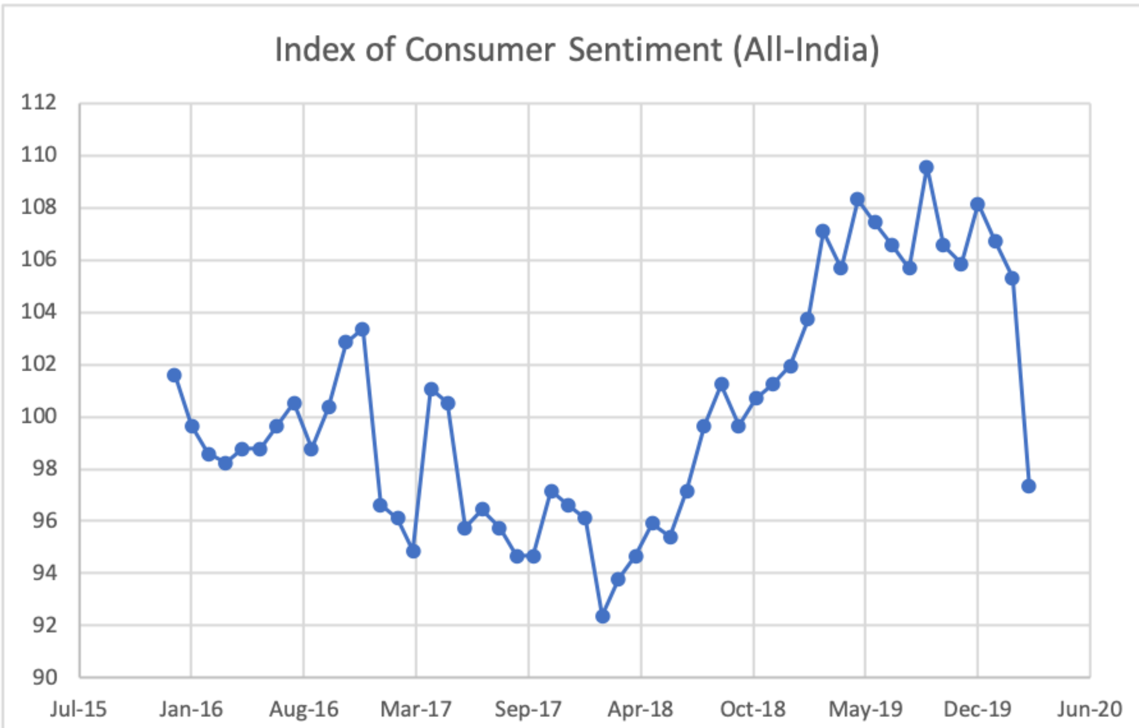
Source: IMF (2020), World Economic Outlook

Following the decline in the level of output and disrupted labor demand, the unemployment rate is expected to sharply rise in most of the countries like the USA to 10.4%. Advanced Europe is expected to increase unemployment by 39.4 % from 6.6% to 9.2%, and for Advanced Asia, unemployment is expected to increase by 32.3%from 3.1% to 4.1%. In line to the decline in GDP, Gita Gopinath, the IMF's chief economist said, "It is very likely that this year the global economy will experience its worst recession since the Great Depression, surpassing that seen during the global financial crisis a decade ago".

Reduced employment is mostly credited to the various containment measures taken by several governments like lockdowns within domestic borders including factory closures, shutting-off international borders, restricting exports to fulfil the domestic needs, which further worsen the problem by the means that for people not working, it means that they are not getting paid which puts an additional dampen on their demand, which means less productions, and more people will be forced to leave the labor market.

Considering the Indian context, during the end of 2019, there were news about the NSO survey reporting a decline in consumption to Rs 1446 in 2017-18, from Rs 1501 in 2011-12. Amid this crisis, people are confined to their homes which has led to a decline in the level of consumption, as shown by the declining CMIE Economic Outlook's Consumer Sentiment Index which gave the government an opportunity to show a causation across the outbreak and decrease in consumption, covering up for the unreported decline.

Figure 2: Index of Consumer sentiment (all India)



Source: CMIE Outlook

3. Monetary and Fiscal Policy Responses to COVID-19

The countries have designed policy packages to respond to the crisis – both fiscal and monetary packages. In US, the fiscal package announced constituted 11 per cent of GDP, at an estimated US$2.3 trillion. The US Coronavirus Aid, Relief and Economy Security Act (CARES Act) included one time tax rebates to individuals, a food safety net for most vulnerable and unemployment benefits, loans and guarantees to small firms, fiscal transfers to subnational governments, and loans to prevent to prevent corporate bankruptcy. The US also announced a separate package around one per cent of GDP for virus testing, medicaid funding; development of vaccines, therapeutics, and diagnostics. The corona paid sick leave is declared for two weeks. On the monetary policy side, the policy rate was reduced by 150 bps to 0-0.25bp in March 2020. The Fed also introduced programmes for credit flow.

In Spain, package announced was 1 per cent of GDP. This includes budget support to health sector for regional health services, research funding for development of vaccines and drugs , unemployment allowance, sick pay entitlement and support to self-employed, contractual workers and household employees and the unemployment allowance. The Government also funds the autonomous communities to provide meals to children affected by school closure. The government also announced some tax relief measures. Spain also announced macro-prudential financial policies. In Italy, an emergency package was announced, which constitutes 4 per cent of GDP to strengthen health care system and it support laid off workers and business. The ECB announced an asset purchase program in Italy and France refereed as Pandemic Emergency Purchase program. In France, the fiscal package worth 20 per cent of GDP is announced in two stages. In Germany, fiscal package constituted 4.9 percent of GDP. This included spending on healthcare equipment, hospital capacity and R&D (vaccine), and expanded access to short-term work ("Kurzarbeit") subsidy to preserve jobs and workers' incomes. Germany has also expanded childcare benefits for low-income parents and introduce basic income support for the self-employed, and also announced an economic stabilisation fund (WSF). The Table 3 reproduces the fiscal monetary policies discussed by IMF in their policy tracker for selected countries (Table 3). In India, fiscal and monetary policy measures are announced. The fiscal policy package was 1 per cent of GDP, predominantly designed to transfer basic income and food to the poor, and the energy infrastructure. The Monetary Policy Committee of India has reduced the repo rate to 4.4 per cent and also infused liquidity in the system. Chakraborty and Thomas (2020) deals with the details of the macroeconomic package announced for India.

Table 3: Fiscal and Monetary Policy Responses to covid19

Country	Policy Responses		
	Fiscal	**Monetary and Macro-Financial**	**Exchange Rate and Balance of Payments**
USA	• (1) fiscal package formulated around 12% of GDP	• Federal funds rate were lowered by 150bp in March to 0-0.25bp.	• No measures.
Spain	• (1) Key measures is about 1 percent of GDP,	• The ECB provide macro-prudential policy support	• No measures.
Italy	• (76 percent of GDP) • 2 On April 6, the Liquidity Decree allowed for additional state guarantees to 25 percent of GDP. The guarantee envelope from this and earlier schemes is aimed to unlock close to 50 percent of GDP of liquidity for businesses and households.	• The ECB announced an asset purchase program of private and public sector securities (Pandemic Emergency Purchase Program, PEPP) until end-2020.	• No measures.
France	• The authorities have announced an increase in the fiscal envelope nearly 5 percent of GDP, including liquidity measures. • A new draft amending budget law has been introduced on April 16. This adds to an existing package of bank loan guarantees and credit reinsurance schemes of €315 billion (close to 14 percent of GDP).	• The ECB provide asset purchase program of private and public sector securities (Pandemic Emergency Purchase Program, PEPP) until end-2020.	• No measures.
Germany	• (4.9 percent of GDP) which includes: (i) spending on healthcare equipment, hospital capacity and R&D (vaccine), (ii) expanded access to short-term work ("Kurzarbeit") subsidy to preserve jobs and workers' incomes, expanded childcare benefits for low-income parents and easier access to basic income support for the self-employed, (iii) €50 billion in grants to small business owners and self-employed persons severely affected by the Covid-19 outbreak in addition to interest-free tax deferrals until year-end. At the same time, through the newly created economic stabilization fund (WSF) .	• The ECB purchase program of private and public sector securities (Pandemic Emergency Purchase Program, PEPP) until end-2020.	• No measures.
United Kingdom	• • Tax and spending measures include: (i) additional funding for the NHS, public services and charities (£14.7 billion); (ii) measures to support businesses (£27 billion), including property tax holidays, direct grants for small	Key measures include: (i) reducing Bank Rate by 65 basis points to 0.1 percent; (ii) expanding the central bank's holding of UK government bonds and non-financial corporate bonds by £200 billion; (iii) introducing a new Term Funding	• No measures.

	firms and firms in the most-affected sectors, and compensation for sick pay leave; and (iii) strengthening the social safety net to support vulnerable people (by nearly £7 billion) by increasing payments under the Universal Credit scheme as well as expanding other benefits.	Scheme to reinforce the transmission of the rate cut, with additional incentives for lending to the real economy, and especially SMEs;	
China	An estimated RMB 2.6 trillion (or 2.5 percent of GDP) of fiscal measures or financing plans have been announced, of which 1.2 percent of GDP are already being implemented.	• The PBC provided monetary policy support and acted to safeguard financial market stability.	The exchange rate has been allowed to adjust flexibly. A ceiling on cross-border financing under the macroprudential assessment framework was raised by 25 percent for banks, non-banks and enterprises.
Turkey	• Key support measures include (i) raising minimum pension and cash assistance to families in need, (ii) increased employment protection by loosening short-term work allowance rules (iii) reduced/postponed taxes for affected industries (eg. tourism), and also for citizens over 65 or with chronic illnesses, (iv) extension of personal and corporate income tax filing deadlines, (v) easing of households' utility payments to local governments, (vi) a ban on layoffs, initially, for three months, with a state subsidy for affected staff, (vii) state payment of two-thirds of workers' salaries in affected firms, (viii) debt relief for local governments' earmarked revenues, (ix) 32,000 additional medical staff hired and performance payments maximized, (x) allowances of social assistance and solidarity foundations increased, including accelerating support for farmers, (xi) direct support to Turkish Airlines and other affected entities, and (xii) Turkey Wealth Fund (TWF) given new rights to buy stakes in distressed firms.	Specifically, liquidity facilities were augmented, including with longer-term instruments and at discounted rates. The reserve requirements on foreign currency deposits were reduced by 500 bps for banks meeting lending growth targets	• No measures.
Iran	Key measures include (i.) moratorium on tax payments due to the government for a period of three months (7 percent of GDP); (ii)	• The Central Bank of Iran has (i.) announced the allocation of funds to import medicine; (ii.) agreed with commercial banks	The Central Bank of Iran announced it injected USD

	subsidized loans for affected businesses and vulnerable households (4.4 percent of GDP); (iii.) extra funding for the health sector (2 percent of GDP); (iv.) cash transfers to vulnerable households (0.3 percent of GDP) and; (v.) support to the unemployment insurance fund (0.3 percent of GDP). Sukuk bonds and the National Development Fund will provide part of the financing.	that they postpone by three months the repayment of loans due in February 2020; (iii.) offered temporary penalty waivers for customers with non-performing loans; and (iv.) expandedcontactless payments and increased the limits for bank transactions in order to reduce the circulation of banknotes and the exchange of debit cards.	1.5 billion in the foreign exchange market to stabilize the rial.
Russia	Key measures include: (i) increased compensation for medical staff as well as health and safety inspectors; (ii) individuals under quarantine to receive sick leave benefits; (iii) sick leave pay to equal at least the minimum wage until the end of 2020; (iv) unemployment benefits to equal at least the minimum wage for three months, including for self-employed workers. The total cost of the fiscal package is currently estimated around 3 percent of GDP.	• Policy rates remain unchanged so far.	No measures beyond FX sales.
European Union	0.3 percent of 2019 EU27 GDP) include (i) establishing a Corona Response Investment Initiative in the EU budget to support public investment for hospitals, SMEs.	• The ECB asset purchase program of private and public sector securities (Pandemic Emergency Purchase Program, PEPP) until end-2020	No measures.
Canada	• Key tax and spending measures (8.4 percent of GDP, $193 billion CAD) include: i) $3.175 billion (0.1 percent of GDP) to the health system.	Key measures adopted by the Bank of Canada include: i) reducing the overnight policy rate by 150 bps in March (to 0.25 percent)	No measures.
India	Finance Minister Sitharaman on March 26 announced a stimulus package valued at approximately 0.8 percent of GDP. The key elements of the package are: in-kind (food; cooking gas) and cash transfers to lower-income households; insurance coverage for workers in the healthcare sector; and wage support to low-wage workers (in some cases for those still working, and in other cases by easing the criteria for receiving benefits in the event of job loss).	On March 27, the Reserve Bank of India (RBI) reduced the repo and reverse repo rates by 75 and 90 basis points (bps) to 4.4 and 4.0 percent, respectively, and announced liquidity measures to the tune of 3.7 trillion.	• On March 16, RBI announced a second FX swap ($2 billion dollars, 6 months, auction-based) in addition to the previous one with equal volume and tenor. The limit for FPI investment in corporate bonds has been increased to 15 percent of outstanding stock for FY 2020/21. Restriction on non-resident investment in specified securities issued

			by the Central Government has been removed.
Japan	• On April 7, the Government of Japan adopted the Emergency Economic Package Against COVID-19 of ¥108.2 trillion (20 percent of GDP).	• On March 16, the BoJ called a monetary policy meeting and announced a comprehensive set of measures to maintain the smooth functioning of financial markets (notably of U.S. dollar funding markets), and incentivize the provision of credit.	The exchange rate has been allowed to adjust flexibly.

Source: IMF Policy Tracker (Policy Responses to COVID-19)

4. Conclusion

Almost every nation is hit by this contagion, differing in the magnitudes but at the end, cooperation and assistance will pull the world out of the this pandemic. Policymakers have used a combination of fiscal and monetary policies in order to facilitate the smooth functioning of the economy.The scale of recession caused by pandemic is hard to measure, which has resulted in multiple estimations, predicting a negative growth for most of the economies, which has put them in a situation of jeopardy as most of the African and Latin American countries lack the level of healthcare infrastructure and policy institutional structure, which has put a change in front of them.These challenges are what will facilitate the reality of the future world, post COVID-19. No matter how long this lockdowns will go, it will end up as a lesson for the whole world. The appropriate fiscal and monetary policy packages are crucial in stemming the crisis and in formulating the exit strategy. The sequential policy decisions of "life first and then livelihood" can be costly as it can lead to humanitarian crisis and starvation related deaths.

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