

Study of the Number of Corona Cases and Deaths in Different Countries and its Correlation with GDP

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ABSTRACT

The world is witnessing an unprecedented global health crisis. It was started as an outbreak in China, then spread out globally and affected over 190 countries with significant increase in COVID-19 cases and death tolls. Countrywide lockdown imposed on a number of developed and developing nations. A third of the world population was under lockdown. This lockdown led to the significant slowdown in the global economy and its components. It is clearly evident that the global economy is on the verge of recession. This study offers insights on the impact of COVID-19 on global economy and GDP. The major findings of the study suggests that there are several short term and long term impacts of this pandemic. Global Uncertainty, Job Prospective and Corporations & Crisis are three major study under the impact of this pandemic on GDP

Keywords

COVID-19, Global Economy, GDP, Lockdown Phase

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Introduction

The COVID-19 outbreak exhibiting exponential growth rates globally and death tolls are also increasing in a significant manner. We are dealing with a pandemic situation that induces necessarily drastic action, in the form of social distancing and later on countrywide lockdown. For the upcoming future the more we will be practicing this, our economic engine will retard further. There will be a decline in global sales revenue, GDP index and will cause unemployment and company cash flows. Absence of the right stimulus policy and incapability to stop this pandemic will cause a major damage to the global economy. Several months from now, the economy of the tradeoffs will be a major concern (Robert, 2020). The epidemic (COVID-19) has already impacted human life and triggered severe economic turmoil. Production contractions are felt globally in China. The economic slowdown is clear, reflecting China's leading position in global supply chains, food and travel industries. Consequently, outbreaks of COVID-19 are showing the same trends in other countries.

Development forecast stays rather optimistic. Nation outbreaks are mild and controlled, so this year global growth could decline by about 3 percentage points relative to what was expected in the November 2019. The global GDP development is estimated to fall by 2.4 percent in 2020 as a whole, up from an already low 2.9 percent in 2019, performance in the first quarter of 2020 would eventually be negative. With growth of less than 5 per cent this year, the forecast for China was specifically measured, before rising to more than 6 per cent in 2021, where sales are projected to rebound to the touch rate predicted before the outbreak (World Economic Outlook, 2020).

The negative impacts on capital markets, the tourism sector and supply chains in all of the G20 economies in 2020 are solely liable for the slowdown. Particularly those countries that are engaged in business with China like Japan, Australia and Korea. Thinking that the consequences of a malignant

epidemic would gradually diminish, and that the impact on confidence and the result of properly maneuvered policy decisions in most economies will help raise global GDP growth to 3 percent by 2021. If the COVID-19 outbreak stays for a long time then it will worsen the economy in a greater magnitude. As a consequence, the global growth could possibly decline 1.5% which is almost half of the COVID-19 prior forecasted rate (CSIS, 2020).

India's GDP would decline by 6.1 per cent in FY 21, according to Nomura's forecast. The economy of our country is displaying a sluggish pattern and going for a rapid decrease in India's GDP (The Economics Times, 2020). Official data also suggests an uptick in inflation, which in actual terms would contribute to a further decrease in GDP. It was projected to slip to 5.6 per cent in the quarter of September, 2.8 per cent in the quarter of December, and 1.4 per cent in the quarter of March 2021, contributing to a full fiscal GDP. Weak 6.1 per cent. Aggregate demand is similar to the lagging aggregate output, largely due to poor retail operation and lower urban market demand. As a part of the closure, market demand has been severely impacted (The Economics Times, 2020).

Consumers are now focused on their savings for this health crisis. Supply side is restricted to follow the norms. Global economic aspects remain fragile and very uncertain as a result of the pandemic. The Coronavirus (COVID-19) outbreak has already caused severe human suffering and a major economic slowdown. In China, unplanned delays in restarting factories after the Lunar New Year holidays and drastic cuts in many service sector operations have prompted quarantines and severe limitations on movement and transport at work. As long as the effects of the pandemic epidemic continues, these steps represent a significant reduction in demand. At the same time across the globe the pandemic was spreading up at a massive pace. So almost every country was going through a lockdown phase. And as a result, the supply chain was disrupted. In the meantime, it was being observed that demand for imported goods and

services became weak. In capital markets, risk aversion grew as the US 10-year interest rate hit an all-time low, bond values plunged, oil prices declined, and company and consumer trust decreased. It has declined.

India is facing the greatest GDP deficit as a consequence of the COVID-19 pandemic. Standard & Poor's added that the depletion of India's gross domestic product is double that of Latin America and Africa, and five or six times as high as the rest of Asia. Normal & Poor's warned that this outbreak would cause lasting marks on all nations. The business said the downward revisions to GDP largely reflected the general deterioration of the outbreak in several emerging markets and a greater impact on foreign trade relative to its previous April outlook which predicted a 1.8 percent decline. It was also stated here that the pandemic will result in irreversible supply losses for all emerging markets, with a wide difference compared to the 11 per cent pre-COVID GDP trajectory in India and 6 per cent -7 per cent in most of the Americas. South Africa and Latin America. In most developing European countries, from 3% to 4% and in Malaysia and Indonesia, from 2% (David C Teshar, 2020)

Global GDP is on the brink of this year's major downturn and will slowly rebound in 2021 / while growth factors are still volatile. There is an evident and significant deterioration in global financial condition and there are lots of uncertainty. Overall, the global GDP growth is declining. While the effects of COVID-19 will gradually wane by 2020, as assumed, research suggests that global growth may slow up to a percentage point in this year. New cases are quick to mount. Thus, the financial slowdown is very obvious. Stimulating macroeconomic policies in more open economies will build confidence as the virus outbreak effects wear away and disrupt supplies. Fiscal stimulus will help Asian economies sustainably. Industrial production in India plummeted sharply in April with disruption of the country and most factories. The index contracted 55.5 per cent compared with the same period last year. These include the sectors of mining, manufacturing, and electricity. Manufacturing consumer durables saw the largest drop during the month. (Choudhury, 2020).

The world economy is going through a health crisis. We have seen that governments around the world have responded quickly to economic and health crises, but they are largely uncoordinated. This is not surprising, because there is no "one size fits all" political response to this situation. As countries have imposed strict restrictions on activities to prevent the spread of the virus, the COVID-19 pandemic has spread at an alarming rate, infecting millions of people and paralyzing economic activities. The research is expected to help researchers develop conceptual models to overcome this problem. The highly contagious nature of this disease, methods to control this spread include political actions such as social distancing, self-isolation at home, closing public institutions and facilities, restricting travel, and even shutting down the entire country. These actions can have dire consequences for the world economy.

1.1 Research methodology

We have used survey data analytics, descriptive statistics and some forecasting techniques to gain valuable insight

about the present and coming future. All though sufficient data is not available at the granular level as the data related to COVID-19 is fluctuating. So sufficient research has not been done yet to project and anticipate the impact. As the GDP has very wide aspect to estimate from single impacted factors. GDP of various country has been also vary on various factors beside the corona pandemic is penetrating the economy to much, because of the research currencies available fighting these unexpected situation. As per Indian prospective it may be vary as compare to global prospective for GDP impact.

1.2 Research Objective

- To forecasts of GDP growth for 2020
- GDP analysis as per Income categories
- Impact Analysis on GDP
- Establishing the Correlation of number of corona and GDP

Review of Literature

(Maliszewska et.al., 2020) studied on the Potential Impact of COVID-19 on GDP and Trade. In this analysis they aim to demonstrate the possible effect of the COVID-19 pandemic on GDP and business, for this we used standard global computable general equilibrium model. This model shows the utilization of labor and capital growth in international trade and costs. It also demonstrates the downturn of transport facilities and the realignment in demand for specific events. They explored the possible effect of increasing local cost of exchange, as well as leaving demand for practices that include communication with others. This analyses hypotheses and scenarios built and matched with the current economic measures and facts.

Another study by (Jackson and Weiss, 2020) Share your thoughts on COVID-19's global economic impacts. This study examines the global economic consequences and steps that have been taken by policymakers and foreign organizations to resolve such impacts. In terms of loss of life, the cost of employees will permanently affect global economic growth, in addition to the exacerbation of the cost of poverty, the deterioration of life, the professional interruption, and the increase in social unrest. Global trade may also fall by between 13 per cent and 32 per cent based on the severity and magnitude of the global economic slowdown, causing especially high economic losses to export-dependent emerging and developed economies. Before the impact of the pandemic, the full effect was not yet known.

(Agrawal and Jamwal, 2020) In their study on Effect of COVID-19 on the Indian Economy and Supply Chain. In this article they address Covid-19's effect on the Indian economy and its effects on the supply chain in India. A total of 18 major obstacles were found Supply chain in India. This research is expected to contribute to the development of researchers a conceptual model for solving this problem. The planet now faces the Coronavirus disease known as the Covid-19 outbreak. The first case of coronavirus was identified in the Chinese city of Wuhan in December 2019, which is recognized as China's largest transport center.

Many countries have closed their ports and airports after Covid-19's expansion.

Another study by (Jamir 2020) Forecasting Potential Impact of COVID-19 Outbreak on India's GDP using Arima Model. The importance of the study lies in encouraging transparency in dealing with uncertainty and international cooperation so that the government can implement economic reforms during the global epidemic. Transparency is essential, and it is necessary to instill confidence in foreign investors, which will have a major impact on FDI flows and economic growth. In addition, improving public health in India is very important, especially epidemiological changes and social determinants of health. India must work tirelessly with the National Rural

Health Mission (NRHM) to overcome the challenges of current and future epidemics, thereby addressing the challenges of lack of financial and material resources, labor issues, and the implementation of fair public health policies. (Dev and Sengupta, 2020) In their study on Covid-19: The Indian Economic Effect. In this report, they define the condition of the Indian economy prior to Covid-19, evaluate the possible shock impression in many economic sectors, and examine the policies so far implemented by the central government and the Indian Reserve Bank to relieve the shock. Economy. The group compiled a series of explicitly tailored policy proposals. Before Covid-19, the economy was already in an unstable state. With the long-term closure of countries/regions, the global economic downturn and the destruction of related supply and demand chains, the economy may face a long-term slowdown.

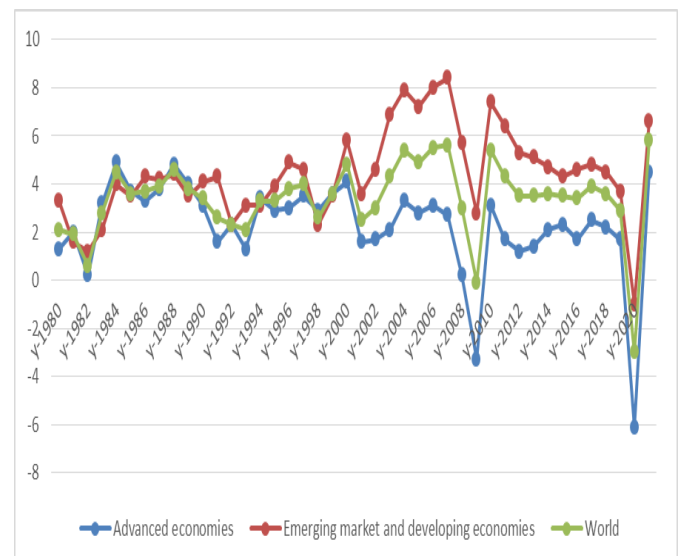
Another study by (Banerjee, 2020) Impact of Covid-19 on the World Economy. As suggested by them before the outbreak of the coronavirus crisis, the global economic outlook was fragile. Initially, when the bird flu broke out in China, it was thought that the negative impact on the global economy was minimal-mainly limited to China's output contraction and its knock-on effects on the global supply chain, tourism and commodity markets. However, with the rapid spread of Covid-19 worldwide and the subsequent implementation of containment and restrictive measures, all countries are suffering from severe supply and demand shocks, regardless of their connection with the global supply network.

(Food and Agriculture organization, 2020) Share your thoughts on the global economic downturn COVID-19: the center of economic policy will be preventing hunger. The study presented proof that the plurality of countries (65 out of 77) suffering a rise in poverty between 2011 and 2017. Now the unparalleled crisis of COVID-19 obscures those economic viewpoints. All around the globe in a manner that no one actually might own. Were anticipated. In 2020, the connection between economic success and malnutrition is becoming more significant.

Another study by (UK Economic, 2020) studied on Covid-19. The data for the three months to the end of May shows that GDP has shrunk sharply by 19.1%. However, the economy grew by 1.8% in May, indicating a decline in economic activity due to the closure of the entire month in April, which seems to be stable. This was mainly driven by improvements in the manufacturing and construction industries, which increased by 8.4% and 8.2% respectively in April. The service industry is still weak, and output is still

nearly a quarter below its pre-crisis level, but with more retailers, restaurants and unnecessary bars appearing to close, it is expected to improve further in June and July.

General Scenario of GDP

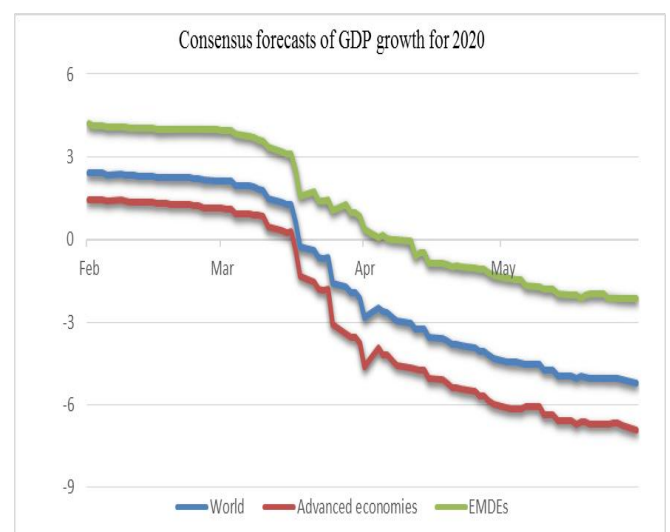


Source: Real GDP growth (2020),

https://www.imf.org/external/datamapper/NGDP_RPCH@WE0/OEMDC/ADVEC/WEOWORLD/SLV?year=2017

As the above figure presented the three categorical mark of GDP in the year of 1980 to 2020. The GDP scenario of advance economics, developing economies and world as presented in line graph. The drastic change in GDP trend has been found in two very visible trough in year 2010 where the trend down. One due to global recession and second due to covid-19. It is very significant downfall for advance economic nation where the GDP goes down below negative 6 %, where emerging country GDP like India less affected as compare to world and advance economic nation found at above negative 2%.

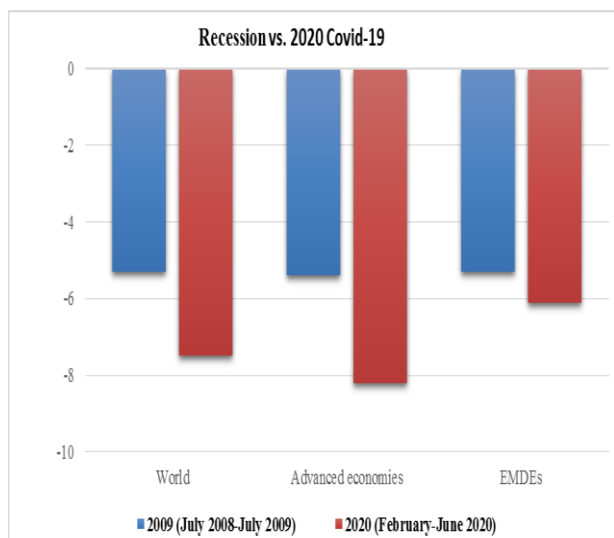
3.1 Consensus predictions of GDP recent progress



Source: (Global Economic prospects, 2020)

Note: Expected GDP growth for 2020, centered on 59 economies (including 32 developed economies and 27 emerging and developing countries) for which details are available for consensus forecasts, weighted by the 2019 constant US Dollar GDP. For the most current updated estimate, measure the development for rising working day as a rolling average. The horizontal axis represents month and day. The last date is 1st June 2020.

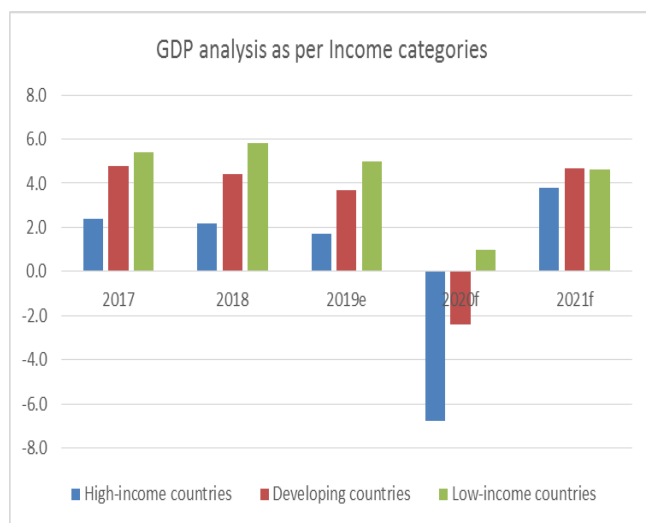
3.2 Changes in consensus forecasts of GDP growth (2009 – Recession vs. 2020 Covid-19)



Source: (Global Economic prospects, 2020)

Note: Changes in percentage points in negotiated development projections for the years 2009 and 2020. The adjustments for 2009 reflect the discrepancies in projections between July 2008 and July 2009 (based on monthly surveys). The updates for 2020 reflect the forecasting discrepancies between February 18, 2020 and June 1, 2020. Development is measured for each business day as a weighted average of the most current updated estimate.

3.3 GDP analysis as per Income categories



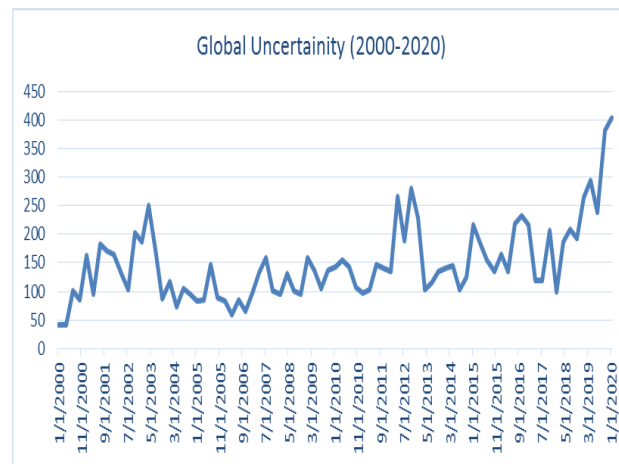
Source: (Global Economic prospects, 2020)

Fig: Comparative analysis of GDP for the three main economy division of nation.

As the comparative analysis of GDP for the High, Developing and low income countries found to be consistence in three successive year 2017 to 2019 means before this pandemic year. As it come the very significant change has been observed for all three cauterized nations. The High income nation has very deeply affected by Covid and found the negative GDP whereas the low income nation found just above the zero GDP.

Impact Analysis on GDP

4.1 Global Uncertainty



Source: Ahir, Bloom, and Furceri (2018).

Fig : Global Uncertainty from 2000 to 2020

The impact of recession and global pandemic affect GDP significantly. The Global uncertainty parameter is important measurement for investment. As seen above the significant rise in GU data in 2019 which cross over the 400 mark which is quite high as compare to the average value of 150.

4.2 Correlation of GDP between country for past, present and future

This analysis has to find the correlation of the GDP of 407 countries data including India in 2019, 2020 and 2021 corresponding as past, present and future.

Correlations

		2019	2020	2021
2019	Pearson Correlation	1	.836**	.912**
	Sig. (2-tailed)		.000	.000
	N	407	407	407
2020	Pearson Correlation	.836**	1	.879**
	Sig. (2-tailed)	.000		.000
	N	407	407	407
2021	Pearson Correlation	.912**	.879**	1
	Sig. (2-tailed)	.000	.000	
	N	407	407	407

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	Sig. (2-tailed)	.000	.000	
	N	407	407	407

**, Correlation is significant at the 0.01 level (2-tailed).

As the above table clearly present the comparison of 2019 to 2020 is very correlated for each of the country same as the 2021. This above correlation constitute the 407 different country including India. Further apply pair sample regression statistics to perform the generalized equation of covid impact on GDP. Considering the 2019 as non-covid, 2020 as covid and 2021 as the derived year for the estimated GDP.

<i>Regression Statistics</i>	
Multiple R	0.936272
R Square	0.876605
Adjusted R Square	0.875994
Standard Error	1.541277
Observations	407

As the above statistics the r-square is very close to Adjusted R Square with 407 Observations.

		<i>P-value</i>
Intercept	1.765565	1.44E-64
2019	0.269005	1.93E-55
2020	0.220063	2.39E-29

The p-value of this relation is significant and the expected GDP which treated as the dependent of previous successive year as 2019 and pandemic year 2020.

Expected Pandemic Year (2021) = Non-Covid (2019) * 0.269 + Covid (2020) * 0.22.

4.2 Job Prospective

It is evident that this economic slowdown is a direct result of social distancing and lockdown. When employees lose their jobs, they have a tendency to file for the unemployment benefits. In the long term recession scenario weekly filings of this unemployment benefit rise up to 700000. As the latest reports suggest, weekly filings touched a mammoth 3 million figure which is far ahead than any other weekly filling data. As we all can see a prominent decline globally

in the segment of transportation, accommodation and food service industry. Consequently the unemployment rates spiked. The above mentioned segments contribute 6% of total GDP and approximately 12% of employment. Nothing is possibly going to revive the economy in near future, which is currently declining in a double digit rate. The fiscal stimulus package is being announced in many countries to deal with the massive economic slowdown.

4.3 Corporations & Crisis

This paper discussed how this COVID-19 is damaging economic fabric. The significant evidence suggests that almost all organizations will undergo the foreshock of recession and witness major downfall in sales revenue. The high risk organization will face real some troubles and turmoil to make interest payments. And the machinery is making the situation much worse. Most of the debt consumption is occurring by these organizations on a short term basis. And this short term loan needs to be refinanced when it becomes due. But in the current day the interest rate will be much higher. So the companies will reduce revenue and double up the debt service. Bankruptcy is pretty obvious. As a result of that companies are sacking their employees. But if this becomes a systematic response, the situation will be much worse.

Conclusion

It began as an epidemic in China, then expanded worldwide and infected over 190 countries with major COVID-19 cases and death tolls. Countrywide lockout on industrialized and emerging countries. A sixth of the world's population became lockout. This shutdown contributed to a major global economy recession and its components. Clearly, world economy is on the brink of contraction. Economic Instability, Work Prospective, and Companies & Recession are three main studies within this pandemic on GDP. We investigated at how COVID-19 impacts the economic system. Organizations collect, spend, settle loans, and keep the remainder. Debt service is an important way to keep the corporation out of bankruptcy. As with the current pattern of concern in recent years, a number of companies have released large amounts of debt, partly in response to super-low borrowing rates. The map above shows trash credits. Highly risky businesses have loans below 5%. Clear data indicates that nearly all businesses are facing a crisis and are witnessing a major decrease in operating income. A high-risk company will face real problems and uncertainties in paying interest. And the equipment makes it worse. Most of the debt consumption occurs through these entities in the short term. And this short-term loan has to be refinanced when it is due. Scenario of economic progress, emerging economies and world GDP, as shown in the line graph. In 2010, a dramatic shift in GDP was observed in two very visible troughs where the average was lower. Half because of the global contraction, and the second because of the Covid-19. This is a very big contraction in the advanced economic region, where GDP falls below negative 6%, while GDP in developing countries such as India is less affected than in the nation, and the advanced economic

country is above negative 2%. Nevertheless, interest rates will be even higher today. As a consequence, unemployment rates have risen. The above segments contribute 6 per cent of overall GDP and nearly 12 per cent of employment. Significantly, the rise in long-term filing levels will push the U.S. unemployment rate down to 3.5% the lowest point in 50 years following the Great Depression of the 1930s. Nothing would improve the economy in the immediate term, which is already weakening at a double-digit rate. Many countries have proposed a fiscal stimulus package to address the global economic slowdown. This research provides perspectives on COVID-19's effect on global economy and GDP. The study's main results indicate many short-term and long-term impacts of this pandemic.

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