Project Dissertation Report on

"EFFECTS ON INDIAN ECONOMY DUE TO COVID-19 PANDEMIC"

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Jan - May 2021

CERTIFICATE FROM THE INSTITUTE

This is to certify that the Project Report titled "Effects on Indian Economy due to Covid-19 Pandemic" is a bonafide work carried out by Mr. Saransh Gupta of MBA 2019-21 batch and submitted to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi – 110042 in partial fulfilment of the required for the award of the degree of Master of Business Administration, under my guidance and supervision.

This work is his original work to the best of my knowledge and has not been submitted anywhere else for the award of any credits/ degree whatsoever.

Signature of Guide	Signature of Head (DSM)
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DECLARATION

I, Saransh Gupta, Student of MBA 2019-21 of Delhi School of Management, Delhi Technological University, Bawana Road , Delhi -110042 declare that Major Project Report on "**Effects on Indian Economy due to Covid-19 Pandemic**" has been submitted in fulfilment of Degree of Masters of Business Administration is the original work conducted by me.

The Information and data given in the report is authentic and original and is a result of my own work to the best of my knowledge.

This report is not being submitted to any other university for award of any other Degree, Diploma or Fellowship.

Saransh Gupta

Place : Delhi

Date : 15th May, 2021

ACKNOWLEDGEMENT

It is a great pleasure for me to acknowledge the kind of help and guidance received during the research work. I would like to thank my faculty advisor Dr. Deep Shree, who helped me to take up the topic "**Effects on Indian Economy due to Covid-19 Pandemic**" and guided me to complete this project properly. The project provided me with an excellent opportunity to explore the areas of finance and economics tools.

I am highly indebted to Delhi School of Management, Delhi Technological University for giving me the opportunity to work on this project. Lastly I would like to express my gratitude to all the honourable faculty members for sharing their experience and expertise on this project.

I have put all my efforts to ensure that the project is completed in the best possible manner and also ensured that the project is error free.

EXECUTIVE SUMMARY

Research Project Objective:

The aim of the Project is to analyse the impact of COVID-19 on different sectors of Indian Economy.

The highlights of the project:

- Trend analysis of Indian economy (FY 2010-FY 2020).
- Study of background of COVID-19, global outlook, disruption of supply chain and impact on Indian Economy.
- Understanding the impact of COVID-19 on different sectors of Indian economy, i.e., agriculture sector, industrial sector, services sector, capital market, crude oil prices. • Analysis of monetary policy and fiscal policy measures undertaken by RBI and Union Government.
- Identifying opportunities for Indian economy amid COVID-19.
- A statistical model to study the impact of aggregate demand (Government Final Consumption Expenditure, Private Final Consumption Expenditure, Gross Fixed Capital Formation, Net Exports) on overall economic growth (GDP) of India.

Summary of the research project results:

- Indian economy has evolved over the years and emerged as one of the fastest growing major economies of the world. FY 2019 and FY 2020 witnessed a slowdown in economic growth which further got amplified by nation-wide lockdown owing to coronavirus pandemic.
- COVID-19 adversely affected every sector of Indian economy along with Global economy.
- Global economy is projected to contract by (-) 3% in 2020 as per IMF and projected to grow by 5.8% in 2021.
- World trade contracted by 3% in Q1 2020-2021.
- GDP growth rate of India for 2020 is 4.2% against an earlier estimate of 5%, whereas growth rate for Q4 FY2020 is 3.1%.

- Lack of labour availability and restricted movement of goods due to halted transportation are the major problems faced by agriculture sector.
- Agriculture sector provided a ray of hope with increase in food grain production by 3.7% owing to good monsoon.
- Industrial production contracted by 17% in March 2020, manufacturing activity contracted by 21% and production of capital goods declined by 36% in March. Core industries output recorded a fall of 6.5% and Manufacturing PMI hit its highest fall in April with 27.4.
- India's exports contracted by 60.3% in April 2020 and imports fall by 58.6%. The trade deficit reduced to US$ 6.8 billion in April 2020, (lowest since June 2016).
- Global services PMI was recorded at 5.4 in April 2020. As per ICRA, growth of services sector may fall by 3-5% in FY21 against previously estimate growth of 6-8%.
- Coronavirus pandemic and oil price war between Russia, U.S.A and Saudi Arabia led to drastic fall in oil prices to $32.01 per barrel of Brent crude in March 2020 and $18.38 in April 2020. For WTI, oil prices were $29.21 in March 2020 and $16.55 in April 2020.
- Prices of future contracts of crude oil for the month of May for WTI fell to negative ($- 37.63).
- Capital markets globally have been very volatile and uncertain. COVID-19 has shaken investor confidence and created panic in global financial markets. Out of fear and high degree of unpredictability investors have been in the panic selling mode.
- From an all-time high in January 2020, major global indices saw sharp fall in March 2020.
- RBI adopted accommodative policy an undertook various monetary policy measures to inject liquidity into the system such as reduction in repo rate, reverse repo rate and CRR, Introduction of TLTROs, moratorium of loans, deferment of interest on working capital facilities, export credit, to name a few.
- Union government provided fiscal stimulus through various economic packages covering various sectors such as MSMEs, farmers, vendors, vulnerable sections.

- Every problems comes with an opportunity. Similarly, India can also take advantage of various opportunities in this time of crisis such as providing impetus to domestic manufacturing sector and attracting global investors to make India a manufacturing hub, infrastructure development, undertaking structural reforms, attracting FPI etc.
- Statistical analysis shows existence of strong relation between aggregate demand and GDP. Thus, aggregate demand has a strong impact on overall economic growth.
- Regression analysis shows that 99.53% (which is the value of R square) or 99.47% (which is the value of Adjusted R square as more than 1 independent variable is used) changes in GDP could be explained by changes in the aggregate demand.

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1. INTRODUCTION

1.1 Trend Analysis of Indian Economy (FY 2010 - 2020)

India which is considered as a developing country is one of the fastest growing major economies of the world. Indian economy was one of the fastest growing economy after global financial crisis. Integration of Indian economy with world economy is one of the probable reasons for fast growth rate of Indian economy. Booming service sector, contributing about 53% to GDP, has also been major contributor in growth of Indian economy.

Looking at the state of Indian economy for last 10 years (FY 2010 – FY 2002), after global financial crisis of 2008, India showed remarkable recovery with services sector coming out to be a major driver of growth along with other sectors. Every year had its own challenges in the form of high inflation, high fiscal deficits, high CAD, slowing demand, poor monsoon etc which were addressed by government and RBI accordingly using fiscal policy and monetary policy measures.

Now, let us look at the trend in Indian economy since 2010 in detail and how it had evolved into one of the fastest growing economies of the world.

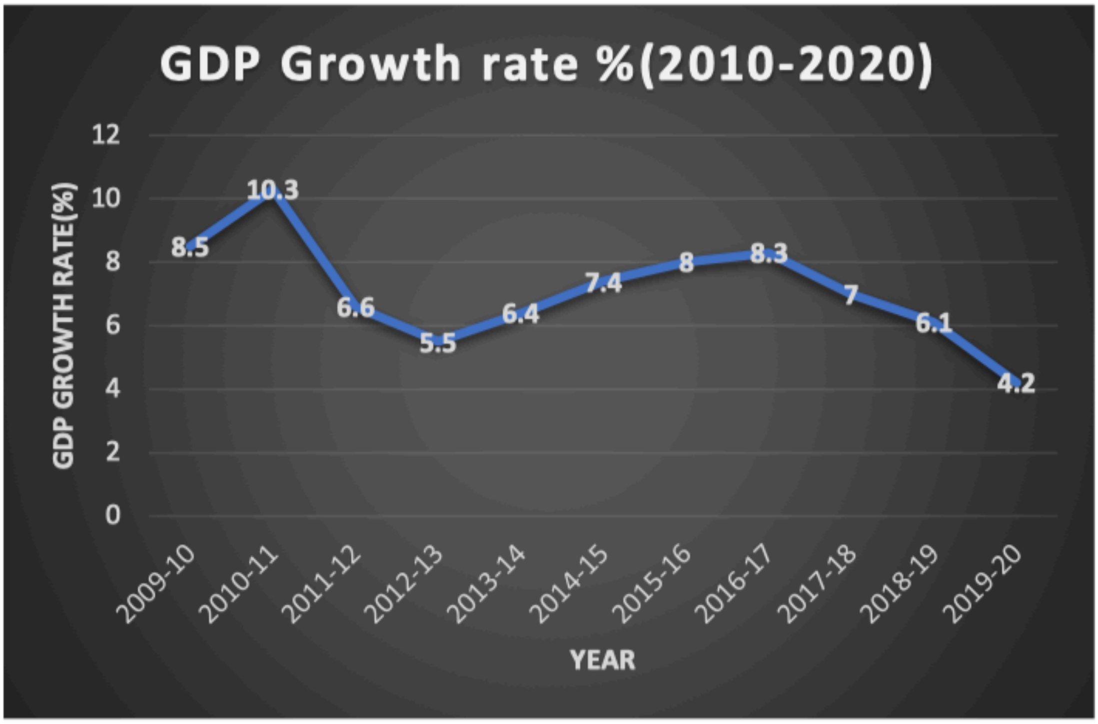
Table 1. (1): GDP growth rate (%) FY 2010- 2020.

YEAR	GDP Growth rate (%)	Base year
2009-2010	8.5%	2004-2005
2010-2011	10.3%	2004-2005
2011-2012	6.6%	2004-2005
2012-2013	5.5%	2011-2012
2013-2014	6.4%	2011-2012
2014-2015	7.4%	2011-2012

2015-2016	8%	2011-2012
2016-2017	8.3%	2011-2012
2017-2018	7%	2011-2012
2018-2019	6.1%	2011-2012
2019-2020	4.2%	2011-2012

(Source: Ministry of statistics and programme implementation)

Figure 1. (1): GDP growth rate (%) FY 2010- 2020.



2009-10

Owing to global financial crisis of 2008, FY 2010 commenced on a difficult note. Attention of policymakers shifted from crisis management to recovery and certain expansionary monetary and fiscal measures were adopted.

India's growth was impressive where industrial sector and service sector showed notable growth with rise in gross capital fixed capital formation, private investments, corporate sales, credit demand and merchandise exports. Due to delayed monsoon there was supply side shortage of food items which led to double digit food inflation signalling the beginning of policy exit.

Fiscal measures taken were providing substantial financial stimulus whereas monetary policy measures undertaken were lowering repo rate, reverse report rate and infusion of liquidity which helped Indian economy make remarkable recovery and achieve a GDP growth rate of 8.5%.

2010-11

2011 was final year for recovery from global financial crisis and economic slowdown. Robust economic growth can be seen with GDP growing at a rate of 10.3%. Services sector continued to be a dominant contributor to GDP and agriculture sector also contributed significantly in GDP growth owing to normal monsoon. Strong private household demand also contributed to strong economic growth.

However, inflation remained high throughout the year due to high commodity prices, high aggregate demand and cost push factors. Increased cost of inputs was passed on to the consumers amidst high consumption demand. High commodity prices have shaken the business confidence and hence led to low investment activity.
Contractionary monetary policy or monetary tightening was used as an anti-inflationary measure. Fiscal support remained limited during this period.

2011-12

Indian economy was characterized by slow growth in FY 12. From 10.3%, GDP fall down to 6.6%. Factors responsible for slowdown were high inflation, rising fiscal deficit and rising current account balance. Steep decline in industrial sector and service sector such as construction, hotels, trade and communication were major drivers which drove economic growth down. Still, service sector was the major contributor to GDP. Low investment levels and weak external as well as internal demand constituted as another factor affecting growth.

Household investments in financial assets, employment and incomes were adversely affected. Slow growth coupled with high inflation led to continuation of monetary tightening till October 2011 after which rising policy rates were paused due to growth risk. Scope for monetary as well as fiscal stimulus was limited keeping in mind the inflation levels. Investment in infrastructure was seen as a source for improving growth.

2012-13

Indian economy slowed down further in 2012-13 to 5.5%. High persistent inflation, structural issues and poor asset quality were main challenges in front of the economy. Fiscal deficit and current account deficit were high in earlier part of the year. All the sectors, namely, agricultural, industrial and services sector suffered with industrial sector suffering the most. Economic activity in all the three sectors declined with services sector being highest contributor, contributing 90% to GDP.

Slowdown in agricultural sector was due to weak monsoon whereas industrial sector activity slowed down due to weak demand (domestic as well as global) and electricity generation too decreased owing to coal shortage. Private consumption declined due to existence of high inflation. It was important to address structural issues and focus on infrastructure development for economic growth for which capital formation was essential.

Decline in government consumption expenditure as well as fixed investment was also seen. Monetary authorities undertook monetary easing which helped in checking inflation and fiscal deficit in later part of the year.

2013-14

There was marginal improvement in GDP growth in FY 14 to 6.4% from previous year's 5.5%. Sectors contributing significantly to growth were agriculture and service sector with service sector leading the growth. Industrial sector faced major downfall. Major challenges were controlling inflation, twin deficits (Fiscal deficit and current account deficit), volatility in exchange rates, declining investments and working towards stabilising the economy.

Exports improved owing to rupee depreciation and imports declined due to low demand and substantial fall in gold imports due to policy restrictions, hence contributing to growth and controlling CAD.

Economy started stabilising with decreasing twin deficits and with inflation being on a declining trend in later part of the year. There was some success in controlling the inflation. It was important to work out policies in a way that it increases the activity levels and productivity thereby improving supply.

2014-15

GDP picked up in FY 15 marking growth at 7.4%. India was among the fastest growing economies in the world. Increase in household consumption and considerable increase in fixed investments were the drivers of economic growth.

There was decline in government expenditure and considerable fall in net exports. Fall in exports was a matter of concern as it affected aggregate demand. Share of agriculture sector declined due to lack of monsoon and loss of crops due to unseasonal rains and hailstorms. This affected rural demand and also posed threat of increasing food prices.

Sectors responsible for growth were industrial and services sector. Growth in manufacturing was mainly due to increased business confidence, electricity and coal production, proper capacity utilisation, increased global as well as domestic demand.

2015-16

GDP growth rate picked up in FY 16 and touched 8% mark. Private consumption was the main driver of growth accounting for about half of the GDP growth owing to higher real incomes because of low inflation. Household consumption in urban areas was higher with increase in sales of passenger vehicles whereas rural demand was low as their incomes were affected due to inefficient monsoon. Government expenditure accounted for a very little share in GDP because of ongoing efforts of controlling fiscal deficit. Net exports were in negative in earlier part of the year but towards the end of the year imports declined outpacing the decline in exports. No major improvements can be seen in fixed investments which dragged down economic growth.

'Make in India initiative' boosted investor confidence and improved business sentiments. Looking at sectoral view, agriculture sector's share was very low because of problems with climatic conditions. Industrial and services sector again were the major contributors to GDP. Disinflation helped in increasing real incomes and interest rates on savings became positive in real terms. Factors attributable to disinflation were global commodity prices falling, and policy measures taken by RBI. High amount of foreign direct investment and increase in number of IPO were also seen as a sign of growth. Fiscal deficit also reduced on account of additional revenues.

2016-17

GDP growth rate in FY 17 was 8.3%. Most important event in 2016-17 was demonetisation announced in Q3 (November 2016).

Agriculture sector rebounded owing to high horticulture and food-grain production and increase in MSP of pulses. Industrial sector's share declined as compared to previous year due to slow growth in manufacturing. Industrial production was affected severely by demonetisation. There was deceleration in services sector as construction and real estate sectors were severely impacted after demonetisation as they mainly depend upon cash transactions. Share of fixed investments declined due to low business confidence. Net exports were very low and major contributors were private consumption and government consumption. Therefore, it was basically a consumption led growth.

Inflation, though being high in earlier part, turned into disinflation due to falling vegetable prices after demonetisation. Deposits saw an increase due to demonetisation but still money supply was moderate. Another reason for increase in deposits was Income declaration scheme and arrears of 7th pay commission.

This spike in deposits created excess liquidity in banking system which was controlled through reverse repo rate under Liquidity adjustment facility, increased CRR, issuing cash management bills. Credit growth was slow and hence private investments remained subdued. After demonetisation, banks did not transfer full benefit of policy rate cuts to lending rates which in turn caused investments to remain subdued. Investment revival required incorporating structural changes along with monetary measures.

2017-18

GDP growth rate slowed down to 7% on account of after effects of demonetisation and implementation of GST. Implementation of GST was a milestone achieved towards adopting an effective indirect taxation regime.

Drivers of growth were gross fixed capital formation or fixed investments. Household consumption mainly comprised of rural demand owing to good harvest and focus on rural housing and infrastructure development. Government consumption had weakened compared to previous year. There was loss of domestic demand as it was fulfilled through imports.

Looking at a sectoral view, agriculture production was very high which was supplemented with imports and resulted in excess supply of rice, pulses, wheat leading to deflation in prices and high levels of buffer stocks. Manufacturing sector started recovering supported by capital goods and infrastructure goods. Service sector too showed signs of recovery. Growth in infrastructure sector was remarkable with various developments taking place such as construction of roads and national highways, launching Mumbai-Ahmedabad bullet train project, various projects launched by smart cities. Not only this, to achieve goal of universal household electrification, Pradhan Mantri Sahaj Bijli Har Ghar Yojana was launched.

External sector remained positive with CAD staying within the controllable limits, robust FDI and FPI inflows thereby increasing the forex reserves and thereby leading to appreciation of Indian Rupee. A regards Financial sector, currency in circulation expanded on account of remonetisation and exceeded the levels of currency in circulation prior to demonetisation, thereby, leading to rise in reserve money levels. Credit growth picked up serving as a source of finance for commercial banks. Personal loans and loans to service sector spiked significantly.

2018-19

Impressive growth in FY18 was followed by slow growth in FY 19 bringing down GDP rate to 6.1%. Economy was basically going through a slowdown as growth suffered various downturns in the path. It might not be wrong to say that global economy was going through a slowdown in economic activity and reduced global demand.

Certain factors responsible for weakening of global activity were increasing trade tensions, oil price volatility, Brexit uncertainty, Chinese economy slowdown and normalisation of US monetary policy. All this caused great uncertainty in financial markets due to weak investor sentiment. There was adverse impact on manufacturing sector and net exports. Indian exports declined in spite of Indian currency being depreciated and weak domestic demand led to fall in imports.

Industrial production fall down affecting employment and income generation. Moreover, as production of capital goods declined, investments were affected, hence, gross fixed capital formation slowed down. Firms were focusing on using the existing capacity rather than expanding it. Private consumption which constitutes as a main part of aggregate demand fall down drastically. Sale of FMCG saw a downfall indicating weak rural demand on account of poor harvest. Share of agriculture dropped down hence affecting rural demand. Therefore, it was consumption along with investment affecting the growth.

With surge in digital payments India was moving on the path of cashless economy where the challenge was to minimise the risk of misuse of data and technology. At this stage, nature of slowdown was identified as cyclical one rather than structural. As regards monetary policy, it had to keep in mind both inflation and changing growth pattern.

2019-20

This year had been very critical for Indian economy as well as global economy due to persistent economic slowdown. While economies were trying to come out of slowdown, all countries globally including India got a major hit from COVID-19 (In Q4 of 2019-20). GDP growth rate of Indian economy for FY 20 decelerated to 11 year low of 4.2% due to halt of economic activities during nation-wide lockdown amid coronavirus spread. Quarter wise GDP growth rates for FY 20 are- Q1- 5.2%, Q2- 4.4%, Q3- 4.1%, Q4- 3.1%.

During 2019-20, climate of uncertainty was persistent. IIP saw a major downfall on account of drastic fall in manufacturing owing to low demand. There was weakened construction activity. Consumer demand for non-durables somewhat rose in Q1 but demand for durable goods had a major hit which was visible through deceleration in automobile sales and white goods sales. Production of cement and steel, that are essentials of construction and hence investment, declined, thereby leading to a fall in gross fixed capital formation. Financial markets were very volatile and equity markets saw loose. Exports and imports, both, contracted. Keeping in mind low levels of investment and inflation levels, policy rate was reduced.

Due to demonetisation, GST, various NBFC crisis, NPAs there was lack of liquidity or cash crunch in the economy which led to decline in investments and consumptions. Consumption or demand registered a drastic fall. There was contraction in demand for cars. Decline in sale of cars affects various forward and backward ancillary industries such as tyre producers, steel producers. In terms of forward linkages, number of auto dealerships are shutting down or contracting.

Housing sales have also declined with mounting number of unsold housing units. Real estate again is linked with large number of ancillary units. Therefore, performance of real estate sector determines performance of other sectors like cement, steel, paint, furniture etc. Sales of FMCG companies were going down. Volume growth was declining for FMCG.

As consumption declined, suppliers were left with piled up inventories, thus forcing them to cut back production and hence leading to deceleration in industrial sector. This affected fixed investments too as producers were not expanding their production capacities.

Fall in production led to fall in employment and people even losing their jobs which affected incomes and savings patterns.
Global slowdown kept exports and imports low. All these things combined led to economic slowdown.

This was not enough that now this slowdown has become more intense due to COVID-19 which led to nationwide lockdown bringing almost all economic activities to a halt. We will be discussing about impact of coronavirus on Indian economy in detail in later part.

2. REVIEW OF LITERATURE

This is an attempt to reviews few studies that are already conducted on Economic growth of India, and various factors affecting economic growth.

- Rudra Prakash Pradhan, in his paper on "Financial Deepening, Foreign Direct Investment and Economic Growth: Are They Cointegrated" (2010) tried to investigate long-term relation (cointegration) between Financial deepening (development of financial system), FDI and economic growth. He studied role of financial deepening on FDI growth and economic growth in India. Study states three important roles of FDI, namely, bridge saving investment gap, bridging foreign exchange gap and reducing tax revenue gap.

- Study finds out that there exists a cointegration and therefore a long-term relation between Financial deepening, FDI and economic growth. A well-developed financial market is important for a country as it helps in getting more FDI and. It helps in efficient allocation of funds (received in form of FDI) and in technological diffusion related to FDI and thereby leading to economic growth.

- Rajiv Kumar Bhatt's paper on "Recent Global Recession and Indian Economy" (2011) deals with impact of global financial crisis on Indian economy and how India came back on the track of growth. He states that India was affected by global financial crisis through three channels namely- financial sector, exports and exchange rates. Indian economy was adversely affected as GDP growth rate fall to 6.8 %. Industrial sector (manufacturing and infrastructure) and services sector were severely hit. FIIs were pulling out their money from stock markets leading to outflow of foreign exchange and therefore leading to drastic fall in stock prices. Locally raised funds were being converted into foreign currency leading to depreciation of Indian rupee making imports costlier and foreign exchange reserves started depleting. Contraction in global demand affected exports.

- RBI stepped in with certain monetary and fiscal policy measures for financial stability and boosting liquidity. Various tools such as CRR, SLR, OMO, LAF, reduction in repo rate and reverse repo rate were used to boost liquidity.

- Researcher mentioned that India's growth in 2009-10 was very impressive and indicated that India is recovering from the effects of crisis. All the sectors were recovering and trying to come out of the crisis situation with increase in investments, exports, imports and forex reserves. Certain suggestions were provided by researcher to avoid further collapse were shifting from neo liberalism to food first doctrine, building up institutions working on the basis of cooperation, injection of demand along with pumping liquidity.

- Mahanta Devajit (2012) in his study" Impact of FDI on Indian Economy" tries to find out how FDI act as a catalyst for economic growth of India. This paper talks about evolution of FDI in India since independence and certain incentives for boosting FDI and about various regulatory bodies for regulating FDI. Author also talks about top 10 countries investing in India through FDI. FDI helps a country in technology upgradation, global managerial practices and competing globally.

- Another form of Investment that provides liquidity and provides investor diversification is Foreign institutional investment. Author concludes that FDI as an important part of investment is very important for boosting Indian economic growth by increasing employment, expansion of manufacturing facilities and initiating various projects in various sectors.

- Another paper written by Soumya Guha Deb and Jaydeep Mukherjee "Does Stock Market Development Cause Economic Growth? A Time Series Analysis for Indian Economy" (2008) examines relation between stock market and economic growth and direction of relation, i.e., is it supply leading (development of financial services leads to economic growth) or demand following (economic growth leads to financial development). Indicators of stock market development are real market capitalization ratio (size proxy), real value traded ratio (activity proxy), and stock market volatility. Findings of paper suggest that development in stock market leads to economic growth, thus following “supply leading” hypothesis.

- P. Srinivasan in his paper “Causality between public expenditure and Economic growth” (2013) examined relation between public expenditure and economic growth in India based on two approaches, namely, Wagner’s law approach as per which national income causes public expenditure and the other being Keynesian approach which states that public expenditure causes national income. After carrying out the analysis, author concluded that there exists a long-term relation between public expenditure and GDP growth rate using cointegration approach whereas using error correction model it was found that there is one- way relation supporting Wagner’s law (economic growth causes public expenditure). This study also supports Wagner’s law and suggests that public expenditure is growing faster than GDP.

- In the paper “Credit Market Development and Economic Growth in India”, P. K. Mishra, K. B. Das, B. B. Pradhan, (2010) study relation between credit market development and economic growth and its direction. Indian credit market id mainly dominated by bank credit. They observed that there is a unidirectional positive relation between credit development and economic growth running from economic growth to credit market development.

3. HYPOTHESIS AND RESEARCH METHODOLOGY

3.1 Objective

This report will study the impact of aggregate demand on overall economic growth, i.e., GDP of India from FY 2010- FY 2020. Components of aggregate demand include Government Final Consumption Expenditure (GFCE), Private Final Consumption Expenditure (PFCE), Gross Fixed Capital Formation (GFCF), Net Exports. This report will also project the GDP growth of India for FY 2021.

3.2 Methodology and Data Collection

To measure the impact of aggregate demand on overall economic growth of India from FY 2010 to 2020, four components of aggregate demand (Government Final Consumption Expenditure (GFCE), Private Final Consumption Expenditure (PFCE), Gross Fixed Capital Formation (GFCF), Net Exports) have been chosen as independent variables and GDP is taken as dependent variable. The table below mentions the variables and the secondary data sources which are referred for the same.

Table 3.1: Data for hypothesis testing.

S. No.	Variable	Secondary Source
1.	Government Final Consumption Expenditure (GFCE)	Quarterly estimates of GDP at constant prices, (2004-05) series and (2011-12) series, Ministry of Statistics and Programme Implementation, Government of India. (http://mospi.nic.in/data)
2.	Private Final Consumption Expenditure (PFCE)	Quarterly estimates of GDP at constant prices, (2004-05) series and (2011-12) series, Ministry of Statistics and Programme Implementation, Government of India. (http://mospi.nic.in/data)
3.	Gross Fixed Capital Formation (GFCF)	Quarterly estimates of GDP at constant prices, (2004-05) series and (2011-12) series, Ministry of Statistics and Programme Implementation, Government of India. (http://mospi.nic.in/data)

4.	Net Exports	Quarterly estimates of GDP at constant prices, (2004-05) series and (2011-12) series, Ministry of Statistics and Programme Implementation, Government of India. (http://mospi.nic.in/data)
5.	GDP	Quarterly estimates of GDP at constant prices, (2004-05) series and (2011-12) series, Ministry of Statistics and Programme Implementation, Government of India. (http://mospi.nic.in/data)

(Note: - Data for year (2010-11) is from 2004-05 series. Data for year 2011-12 up to year 2019-20 is from 2011-12 series.)

Primary Source: There is no primary data collection in the project.

Secondary Source: The study conducted is analytical in nature and makes use of secondary sources of data. Data has been collected from the website of reputed government ministry (Ministry of Statistics and Programme Implementation).

3.3 Hypothesis

To fulfil the objectives of this study, the following hypotheses have been set:

H0: There is no significant relationship between the aggregate demand and the Gross Domestic Product.

H1: There is a significant relationship between the aggregate demand and the Gross Domestic Product.

3.4 Analytical Tools to Be Used

In order to analyse the collected data, following tools have been used using **Microsoft Excel.**

1. CORRELATION: Correlation analysis is a method of statistical evaluation used to study the strength of a relationship between two, numerically measured, continuous variables.

Correlation can have a value:

- 1 is a perfect positive correlation
- 0 is no correlation (the values don't seem linked at all)

• -1 is a perfect negative correlation

2. REGRESSION ANALYSIS: The Regression Analysis is used to estimate the relationship among independent and dependent variables. The results of the analysis are presented in tabular form containing various parameters showing how much the dependent variable is related to the independent variables under study. The parameters used here are as follows:

I. R square: This shows how much of the changes in the dependent variable could be explained by the changes in the independent variables. In other words, it explains the unknown variations in the dependent variable with the help of known changes in the independent variables.
II. P-value: The p-value is used to determine the significance of the independent variables in determining the dependent variable. Statistically, a p-value of less than 0.05 shows that the independent variable is significant in determining the dependent variable.
III. Statistical model: A linear equation showing the relationship between independent variables and dependent variable could be formed with the help of coefficients found in the regression coefficients table (tabular depiction of the Regression analysis).

3.5 Importance of the Study:

It is apparent from the discussion in chapter 1 that aggregate demand plays an important role in an economic growth (GDP growth rate). We have studied the trends in Indian GDP growth which are very much affected by trends in aggregate demand. Therefore, this empirical analysis will study the relationship between the aggregate demand and economic growth of Indian economy and will project GDP growth rate for Indian economy for FY 2021.

4. COVID- 19 AND ITS IMPACT

4.1 Background of Covid-19

COVID-19 is an infectious disease caused by corona virus, outbreak of which began in Wuhan, China, 2019. It is a communicable disease and transmits thorough close contact with an infected person. When an infected person coughs, exhales or sneezes, droplets produced may contain the virus and transmit it to others. People can catch this disease if they touch any object or surface (as virus can survive on the surface from few hours to few days) which has already been infected and then touching their eyes, mouth or nose which makes it highly communicable.

All economies today are open economies and involve free movement of people and goods from one country to another. Being a communicable disease, COVID-19, that originated in China has spread worldwide and reached almost all countries. As the number of people being infected and dying of it kept on increasing and, WHO declared the crisis as a pandemic. Pandemic refers to a global spread of an infectious disease at the same time.

Governments all over the world have taken concrete steps to limit the spread of virus such as stressing on social distancing, border closures, imposing travel restriction within and outside the country, nationwide lockdowns, halting almost all types of economic activity. Although these measures have put businesses to a halt, disrupted supply chains, led to unemployment and adversely affected economies all over the world but to save the lives of billions of people, these steps were the need of the hour. No medicines or vaccines to treat the virus are presently available. Only way to prevent being infected is to maintain distance from others and follow social distancing.

4.2 Global Outlook

Global macroeconomic outlook is overcast with the COVID-19 pandemic. The disruption of economic activity across geography is set to intensify in the form of disruptions in production, supply chains, trade and tourism globally. Global output is seen to be contracting in 2020. Financial markets across the geography are experiencing extreme volatility, equity markets have seen sharp sell-offs. Global commodity prices, especially of crude oil, have also declined sharply in anticipation of weakening global demand, and the failed negotiations of the Organisation of the Petroleum Exporting Countries (OPEC) and Russia.

As per RBI report, "Among advanced economies" (AEs) that have released GDP readings for Q1-2020, contractions were in the range of 3.4% to 14.2% (q-o-q, annualised), "for emerging market economies" (EMEs), the growth rate ranged between 2.9 % and (-) 6.8 % (year on year basis). Higher pressure is faced by EMEs in the form of capital outflows and volatility in asset prices.

Among the "key advanced economies" (AEs), economic activity contracted in- US, Euro area, Japan and the UK in Q1 of 2020. Among "emerging market economies" (EMEs), the Chinese economy went into a pronounced decline.
According to the "United Nations Conference on Trade and Development (UNCTAD), world trade contracted by 3.0 per cent in Q1 2020-2021. WTO projects that global trade can contract by 13-32 per cent in 2020. Global services trade declined in the Q1 of 2020 because of declined air travel, container shipping, financial and Information and communication services.

Due to decreased demand amid lockdowns, commodity prices have eased, but due to supply chain disruptions pressure on food price is visible in inflation prints. After facing a difficult time in March with global indices falling drastically, financial markets globally have now calmed down and volatility in financial markets has also gradually decreased.

As India is exposed to global economy, its exports to global economy have been severely hit. In April 2020, India's exports contracted by 60.28% to $10.36 billion. Reason for sharp fall in exports is the ongoing global slowdown which got amplified by lockdown across geographies owing to COVID-19. Due to lockdown which halted almost all economic activities, there had been sharp decline in demand from across the world which led to cancellation of orders and no new orders. Gems and jewellery, leather products, petroleum products, engineering goods and chemicals, all the sectors witnessed negative growth in exports. As per federation of Indian Export Organisation, this has been the highest ever decline in monthly exports.

Figure 4.2. (1): World Economic Outlook.

(Source: IMF, https://www.imf.org/en/Publications)

4.3 Disruption of Supply Chain

Efficient supply chain management is an integral part for smooth running of any business. For manufacturing concern, smooth supply of raw material is essential for timely production and to further maintain timely supply of output to wholesalers and retailers. All the backward linkages and forward linkages of a business are linked. It is a balanced process and disruption at any one of the stages is going to adversely affect the business.

Impact of coronavirus on supply chain and logistics is spreading across the world. China is the world's largest manufacturing hub and largest exporter of goods. Initially when there was coronavirus outbreak in China, there was month long closure of production units and shipping ports in China which disrupted the supply chain in all the countries as raw material and finished goods cannot be exported to other countries including India. This led to shortage of raw material for manufacturing units and finished goods for wholesalers and retailers globally. Supply of vehicles, smartphones, pharmaceuticals, jets any many more products was severely affected.

Now, let us look at China as an importer of goods. Countries for whom China is a customer are also facing lot of problems as imports were restricted in China and also the demand had fallen as consumers in China were reducing the consumption of unnecessary goods and manufacturers have shut down or slowed the production.

4.4 Impact on Indian Economy

We have already discussed in the introduction part- the state of Indian economy for last 10 years and how it evolved as one of the fastest growing economies. We have also discussed about slowdown in Indian economy in 2018-19 and 2019-20 and various factors responsible for the same.

India was trying to recover from the slowdown but coronavirus that was spreading all over the world, did not spare India and made its first appearance in India on 30 January 2020. As the cases of corona virus patients started increasing in the country, government implemented a 21day nationwide lockdown on 24 March 2020 (lockdown 1.0). All educational institutions, businesses, commercial establishments, places of worship etc. were shut down except for few essential services.

Almost all the economic activities came to a halt. When situation was still not under control, lockdown was extended till 3 May 2020 (Lockdown 2.0). After this, all cities were divided into red, orange and green zones depending upon the number of cases of corona positive. Lockdown was further extended till 17 May (Lockdown 3.0) but cities lying under orange zone and green zone were given certain relaxations. Lockdown 4.0 was implemented from 17 May to 31 May but with certain relaxations. Partial opening up of the economy has started in lockdown 4.0.

Economic activities such as industrial activities, air travel, e-commerce deliveries of essential and non-essential items, opening up of retail shops have started with precautionary measures. Idea behind opening up the economy was- *"Jaan Bhi Jahaan Bhi"*

4.5 Lockdown and Impact on Economic Activities

There is no doubt that this lockdown of almost 2 months had adversely affected the economic growth of the country resulting in dismal growth, if not recession. High frequency indicators indicate drastic fall in demand beginning in March 2020 across both urban and rural sectors. Electricity and petroleum products consumption that indicate day to day demand have shown steep declines. The loss in terms of demand and production has affected fiscal revenues. Investment demand has come to a standstill. This is evident by decline in production of capital goods by 36% in March and shrinkage of 27% in imports of capital goods in March and 57.5% in April, fall in 'finished steel consumption' by 91% in April and a fall of 25% in cement production in March.

The biggest component of aggregate demand affected from COVID-19 is private consumption, that accounts for about 60% of domestic demand. In March 2020, production of durable goods recorded a fall of 33% and 16% fall in non-durables.
We will analyse the impact of lockdown due to COVID-19 on different sectors of Indian economy.

4.5.1 Impact on Agriculture Sector

India is an agrarian country where the agriculture sector is considered as the backbone of its economy. There has been a detrimental effect of Corona on Indian farm economy. Although agricultural activities from harvesting to transportation of output are exempted from lockdown guidelines but agriculture sector suffers due to two major problems that are related to

a) Labour availability

b) Movement of goods due to halted transportation.

Non availability of migrant labourers, as they fled to their hometowns owing to lockdown and fear of coronavirus, halted harvesting activities and posed serious challenges to harvesting of rabi crops when they were at their peak. Over 30% of the crop lie unharvested, due to the acute shortage of labour and lack of access to the fields.

Shortage of labour led to increase in daily wages causing problems for producers as prices of output have gown down due to supply chain disruptions. In contrast to this, the areas where labourers have returned to, saw an increase in supply of labour leading to decline in wages. Rise in labour costs and lack of access to markets, made farmers let their crops to rot in fields.

Due to halted transportation the harvested crops remain stacked in the fields and houses of farmers, as they cannot transport the grains without logistics support and the agricultural produce could not reach the mandis, thus leading to supply chain disruption and leading to wastage of produce. Movement of trucks used for carrying essential commodities was hampered due to lockdown. Even cold storage and warehouses cannot function properly due to labour shortage. Workers are essential for both pre harvest and post-harvest activities and their shortage is causing severe supply chain disruptions in supply of perishable fruits and vegetables and dairy products milk, eggs.

India's farm sector is functioning smoothly despite COVID-19 lockdown and there will not be much impact on its growth in the current fiscal unlike other sectors. Agricultural sector and allied activities, have provided a ray of hope in hard times with increase in production of food grains by 3.7%. Forecast of good southwest monsoon, sufficient water level in reservoirs, increase in kharif sown areas by 44%, all these factors favour farm sector growth. Good harvest of rabi crops has resulted in full procurement of oil seeds, pulses and wheat. Supply chain disruption had contrasting impact on producers and consumers. Producers of fruits, vegetables are in stress selling mode and are ready to sell at low prices to get rid of excess produce.

4.5.2 Impact on Industrial Sector

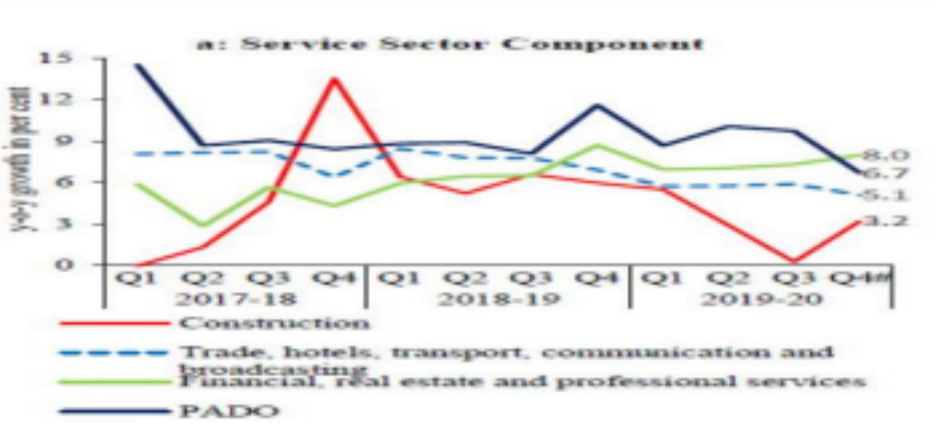
Industrial sector contributes around 23% to GDP which has significantly declined with intensification of COVID-19. Industrial sector has been very hardly hit with COVID-19 and witnessed contraction amid lockdown. Industrial production contracted by around 17% in March 2020 and manufacturing activity fell by 21%. Core industries output, constituting about 40% of overall industrial production, recorded a fall of 6.5%. Manufacturing PMI with 27.4 hit its highest fall in April.

When coronavirus started spreading in China, there were supply chain disruptions from foreign suppliers of auto components, electronics, smartphones, chemicals, pharmaceuticals due to border closure. As Indian manufacturers are heavily dependent upon imports for raw materials, manufacturing sector suffered. (India imports 45% of electronics, around one third of machinery, about two fifth of organic chemicals, around 70% pharmaceuticals, 90% smartphones and more than 25% of auto parts from China). Not only imports, exports also declined for the same reason. With regards to exports, China is India's third largest export partner and accounts for about 5% of India's exports.

4.5.3 Impact on Service Sector

Services sector had been significant contributor to in India's economic growth and contributes about 60% to GDP. Services sector is considered as lifeblood for economic growth and includes construction, trade, hotels, transport, communication, professional services, tourism, financial services. Under services sector, highest contributor are Financial, real estate and professional services and trade, hotels, transport and communication.

Figure 4.5.3.(1): Service sector's components percentage growth rate.



(Source: RBI Monetary Policy Report, April 2020

https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=19439)

Table 4.5.3. (1): Growth rate (%) of service sector and its components.

Growth %	2018-19	2019-2020	2019-2020 (Q1)	2019-2020 (Q2)	2019-2020 (Q3)	2019-2020 (Q4)
Services	7.5	6.5	6.7	6.8	6.4	6.1
***Of which* Construction**	6.1	3.0	5.5	2.9	0.3	3.2
Trade, hotels, transport, communication	7.7	5.6	5.7	5.8	5.9	5.1
Financial, real estate and professional services	6.8	7.3	6.9	7.1	7.3	8.0
PADO	9.4	8.8	8.7	10.1	9.7	6.7

(Source:- RBI Monetary Policy Report, April 2020

https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=19439#32)

In second half of 2019-20, there has been moderation in service sector due to slow growth in construction, trade, hotels, transport, PADO, communication.

Construction activities and PADO show a slowdown in Q3 and Q4 whereas growth in remaining activities was muted in second half of 2019-20.

Due to country wide lockdown amid coronavirus, services sector has been very hardly hit experiencing a complete halt to all major activities and witnessed a sharp rise in unemployment. There has been contraction in activities due to decelerated demand from domestic as well as external market. The incoming new businesses were very less and were insufficient to maintain the existing workforce. Companies responded to it by laying off employees and contracting the workforce which led to huge unemployment.

An all-time low in global services PMI was recorded at 5.4 in April 2020. Export of services has been severely impacted due to global lockdown. As per ICRA, growth of services sector may fall by 3-5% in FY21 against previously estimate growth of 6-8%. It has been very challenging for the sectors which primarily depend upon human interaction such as hospitality, tourism, banking and financial services, telecommunication, transportation, railways and flights services. Several organisations have taken certain measures like Work from home to continue operations along with practising social distancing.

4.5.4 Impact on Trade with External Sector

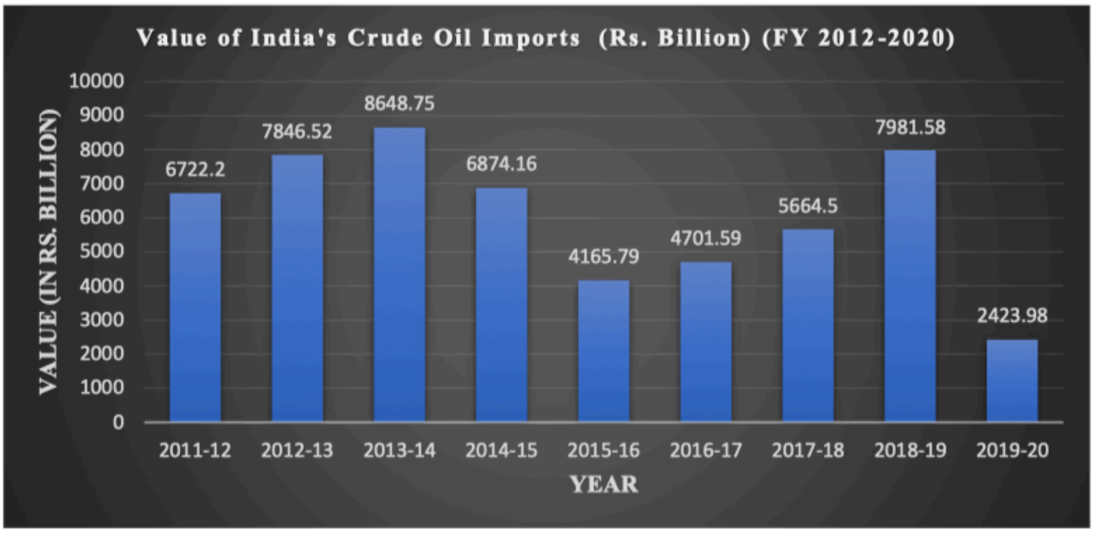
Being an open economy, India has trade relations with number of countries and carries out imports and exports with them. Global economies are severely hit by pandemic and witness slowing growth. Major trading partners of India (China, U.S.A, U.A.E., Saudi Arabia, Switzerland, Germany) are witnessing decline in their economic growth, thus India's trade with these nations is adversely affected.

India's merchandise exports and imports recorded their worst fall in the last 30 years as COVID-19 took a toll on world production and demand. India's exports contracted by 60.3% in April 2020 and imports fall by 58.6%. The trade deficit reduced to US$ 6.8 billion in April 2020, (lowest since June 2016).

4.5.5 Impact on Crude Oil Prices

Crude oil is one of the most important global commodity which is traded across the world in the form of spot contracts and derivatives (futures) contracts. Only few of the countries control large oil reserves and are leading producers of oil in the world. United States, Russia and Saudi Arabia (part of OPEC) are the largest oil producing and exporting countries. India is an oil importing country and depends heavily on other oil exporting nations.

Figure 4.5.5.(1): India's Crude Oil Imports (Rs. Billion) (FY 2012-2020).



Looking at the trend of oil imports, we can infer that in FY 2020, there has been a drastic fall in oil imports owing to border closures of most of the countries including oil exporting countries and sharp fall in demand of crude oil due to lockdown amid coronavirus pandemic.

From above data, we can infer that India imports about 84% of its crude oil requirements and of its total imports, oil imports account for about 24% which shows its high dependence on oil exporting countries and sensitivity to changes in oil prices and therefore current account balance.

4.5.6 Impact on Capital Market

In India, Nifty and Sensex are two most important indices of stock markets that keep on fluctuating as per investor sentiments about economic developments. There are different factors influencing the fluctuations and differ from time to time. Looking at the **trend analysis** since 2011, we figured out various factors responsible for fluctuations in stock markets.

5. MONETARY POLICY AND FISCAL POLICY MEASURES

5.1 Monetary Policy Measures (Measures taken by RBI)

In the wake of COVID-19, RBI as a monetary authority undertook several measures to inject liquidity into the economy and provide some relief from financial stress.

5.1.1. Accommodative policy

To revitalize growth, RBI adopted accommodative monetary policy which tends to increase money supply in the economy when growth is slowing.

5.1.2 Reduction in Repo Rate

In the economy, hit by COVID-19, where almost all economic activities are at halt due to lockdown, reduction in repo rate will make business loans and consumer loans more affordable, thereby injecting liquidity in the market and increasing money supply. Increased money supply will spur economic activity and give a kick start to the economy. It will increase purchasing power of people which helps in spurring aggregate demand. To businesses, it will help in increasing investments (part of aggregate demand), which ultimately will lead to increase in aggregate demand and aggregate supply.

5.1.3 Reduction in MSFR and Bank rate

Reduction in repo rate consequently leads to reduction in Marginal Standing Facility (MSF) rate (rate at which RBI lends overnight funds to commercial banks in emergency when interbank liquidity dries up) and bank rate (rate at which RBI lends long term loans to commercial banks) to 4.65% from 5.4%. Further, they were reduced from 4.65% to 4.25%.

Reduction in both these rates reduce borrowing cost for banks, the benefit of which is further passed on to the public in form of low interest rates and making loans to public more affordable.

5.1.4 Reduction in reverse repo rate

Reverse repo rate is the rate at which banks park their surplus funds with RBI. Reverse Repo rate was reduced by 90 basis points to 4.0 per cent. Due to various liquidity enhancing measures undertaken by the RBI and government spending, there were surplus funds with banks and to encourage banks to utilize these surplus funds for productive purposes, reverse repo rate has been further reduced by 25 basis points from 4.0% to 3.75 % and then from 3.75% to 3.35%.

By reducing it, it becomes unattractive for banks to park funds with the RBI and rather use the funds for lending out for productive purposes which increase money supply in the economy, which in turn will increase investment by businesses and stimulate economic activities. Also, increased money in hands of public gives a push to aggregate demand.

5.1.5 Reduction in CRR

CRR was reduced by 100 bp to 3% of net time and demand liabilities. This reduction in CRR will generate liquidity of about Rs.137000 crores across banking system CRR indicates the proportion of deposits that banks have to maintain with RBI. Reduction in CRR leaves banks with higher liquidity which in turn increases the lending capacity of banks. Again, increase in lending capacity of banks means more money in hands of public which can be used for investment activities and consumption spurring aggregate demand and supply in the economy.

5.1.6 Marginal Standing Facility

Keeping in mind high volatility in domestic financial markets which brings liquidity stress and to provide comfort to the banking system, accommodation under the marginal standing facility (MSF) has been increased from 2% of the statutory liquidity ratio (SLR) to 3%. This measure will be applicable up to June 30, 2020 and will provide comfort to the banking system by allowing it to avail an additional ₹ 1,37,000 crore of liquidity.

5.1.7 Moratorium on term loans

All commercial banks co-operative banks, all-India Financial Institutions, and NBFCs are permitted to allow a moratorium of three months on payment of instalments in respect of all term loans outstanding as on March 1, 2020. This implies that monthly instalments will not be deducted till moratorium period is over.

5.1.8 Ease of working capital financing

Providing ease of working capital financing requirements by recalculating drawing power by reducing margins or reassessment of working capital cycle for the borrower. This change in credit terms will not be treated as grant of concessions and will not result in asset classification downgrade.

In respect of moratorium of loans, deferment of payment of interest on working capital and ease of financing of working capital, rescheduling of payments will be exempted from being classified as 'defaulter' in supervisory reporting and reporting to credit information companies by lending institutions.

5.1.9 Distribution of dividend

Banks are not required to pay dividend from profits pertaining to the financial year ended March 31, 2020 to retain their capacity to support the economy and absorb losses in an uncertain environment.

5.1.10 Export credit

To address the difficulties faced by exporters in their production and realisation cycles, maximum permissible period of pre-shipment and post-shipment export credit sanctioned by banks has been increased from the existing one year to 15 months, for disbursements made up to July 31, 2020. This will provide some relief to exporters and conduct their operations smoothly as they will be able to use the credit for a longer period.

5.1.11 Extension of time for payment of imports

To provide flexibility to importers in managing their operating cycles, time period for completion of payments against normal imports (i.e. excluding import of gold/ diamonds and precious stones/jewellery) into India has been extended from six months to twelve months from the date of shipment for such imports made on or before July 31, 2020.

5.2 Fiscal Policy Measures (Measures taken by Union Government)

In response to COVID-19, Union government announced two fiscal relief packages with various benefits. It announced a 1.7 lakh crore relief package on 26 March 2020 for those who were hit hardest by COVID-19, the vulnerable sections — farmers, women, construction workers, senior citizens, widows and the disabled. It includes cash transfers, free food, and withdrawals from provident fund. Another package announced was for Rs. 20 lakh crores aimed at various segments of society. Announcements made under **first package** of Rs. 1.7 lakh crore package (also known as Pradhan Mantri Garib Kalyan Package) are as follows

5.2.1 Cash Transfers (Direct Benefit Transfers)

• Rs. 1500 to be transferred in three equal instalments of Rs. 500 each to the Jan Dhan accounts of 20.4 crore women.

• Rs. 1000 to be transferred in two equal instalments of Rs. 500 each to 2.8 crore senior citizens, widows and disabled.

• Under PM-KISAN scheme (income support of Rs.6000/- per year is provided to all farmer families across the country in three equal instalments of Rs.2000/- each every four months.), cash payments of Rs. 2000 to be made to farmers.

These cash transfers will provide liquidity to these vulnerable sections and help them meet their basic daily requirements. It will help the people who were earning daily wages and might have lost their employment and therefore had no source of income to meet their daily requirements.

5.2.2 Insurance cover

22.12 lakh frontline healthcare workers to be provided insurance cover of 50 lakhs for 90 days from march 2020. This will help motivate frontline workers to work in the time of crisis.

5.2.3 Free Gas cylinders

Free gas cylinders to be delivered to PM Ujjwala Yojana beneficiaries for three months. Additional liquidity equivalent to the cost of gas cylinders is provided to vulnerable sections which could help in boosting demand.

5.2.4 Food Grains

Under the Pradhan Mantri Garib Kalyan Ann Yojana, government will release 12 million tonnes of food grains. 5kg of wheat or rice and 1 kg pulses to be given to 80 crore poor people for free for 3 months from April to June.

Through this government tries to address the most basic need, i.e., food, of a large segment of population who might have no source of livelihood left.

Main challenge with this measure was delivery of food grains in situation of lockdown.

5.2.5 Non-Refundable Advance

Non-refundable advance of 75% of the corpus or three months of wages, whichever is lower was allowed. It will help people in the times when they have no regular incomes and need money to sustain their basic expenses by providing liquidity. Again, increased liquidity will give a boost to aggregate demand and therefore spurring the revival of economy.

5.2.6 Collateral free loans for women self-help group

Collateral free loans for women self-help groups to be increased from Rs. 10 lakhs to Rs. 20 lakhs.

5.2.7 Increased Wages under MNREGA

Daily wages under MNREGA have been increased from Rs. 182 to Rs. 202 which is expected to benefit 13.62 crore families. This might not help immediately as people have lost their jobs but it might have positive impact after crisis is over.

5.2.8 Relief to construction workers

For providing relief to construction workers, states will be using Building and Construction Workers Welfare Fund.

Another challenge with the package is reaching the people who do not have Jan Dhan Account, not registered as construction workers, not registered under PM Ujjwala scheme or are not MNREGA beneficiaries.

5.2.9 Revival of MSMEs

6 Major steps taken for revival of MSMEs are

1. Collateral free loans of Rs. 3 lakh crores. This will help in resuming work and saving jobs.
2. A provision of subordinate debt of Rs. 20,000 crore has been announced for stressed MSMEs.
3. Equity infusion of Rs. 50,000 crore for MSMEs through fund of funds. 4. Change in definition of MSMEs based on turnover and investments. 5. Global tenders will be disallowed up to Rs. 200 crores for government contracts. 6. Ensuring e- market linkages and clearance of receivables by government and PSUs.

These measure will provide relief more from a supply point of view as it will help MSMEs restart production with the help of loans. Creation of jobs will help in income generation for vulnerable sections and thus help in creating demand. Disallowing global tenders will help in reducing dependence on imports and becoming self-reliant, generating more business opportunities for MSMEs, giving a boost to MSMEs and making them more competitive and sustainable. Equity infusion would help in maintaining debt equity ratio, realising growth potential and becoming capable of being listed on exchange.

5.2.10 For employees (EPF)

• EPF support of Rs. 2500 crore where EPF contribution (24%) will be paid by government for employer and employee for another three months till August. Companies with 100 employees or less, out of which 90% earn less than Rs15000 a month are eligible for this provision.

• Statutory EPF contribution for all the organisations and their employees has been reduced to 10% from 12%. This will infuse liquidity of Rs. 6750 crore in these organisations. PSUs will continue to contribute 12% as employer contribution. This is applicable for those who are not eligible under 24% contribution by government.

5.2.11 <u>Measures for migrant workers, vendors, small farmers, self-employed individuals</u>

1. **Free food grain to be supplied** to all migrant workers, (even non-card holders), for the next two months. Rs 3,500 crore will be spent for this over the next 2 months.
2. **One Nation one ration card-** "One nation, one ration card" to be implemented.
3. **Affordable rental accommodation for migrant workers/urban poor**. It incentivises manufacturing units to build affordable rental housing complexes. This will spur construction activity and stimulate other industries linked with construction such as cement, electricity and will also help in job creation. This will lead to generation of aggregate demand and boosting economic activity.
4. Interest subvention of 2% for 12 months at cost of Rs. 1500 crore for Mudra Shishu loans. Liquidity generation leaving more money at the end of public will be the benefit of this measure.
5. Street vendors will be able to avail loan of Rs. 10000 from Rs.5000 crore special credit facility. It will help small vendors to buy inventories and start their businesses.

5.2.12 <u>Agriculture and allied sectors including dairy, animal husbandry and fisheries</u>

1. Rs 10,000 crore to be provided to formalize micro food enterprises.
2. Rs 20,000 to be provided to fishermen through Pradhan Mantri Matsya Sampada Yojana

3. Rs 500 crore to be provided for bee-keeping related infrastructure development. 4. Rs 1 lakh crore of agriculture infrastructure fund for farm-gate infrastructure including using it for setting up cold chains and post-harvest management infrastructure. 5. Rs 15,000 crore for Animal Husbandry Infrastructure Development Fund.

5.2.13 <u>Coal, minerals, defence, civil aviation, power distribution companies, space, atomic energy. Announcements made are</u>

1. FDI limit has been raised in defence manufacturing sector under automatic route from 49% to 74%.

2. Government will notify list of weapons and platforms which shall not be allowed for import but shall be bought from India.

3. Privatisation of power distribution companies.

4. Corporatisation of Ordnance Factory Board.

5. Six airports are put for auction and additional investments are likely to be made by private companies.

6. Restrictions on utilisation of Indian airspace will be eased which will bring total benefit of about Rs 1,000 per year.

5.2.14 <u>Consolidation of PSUs and making the environment conducive for the private sector companies to boost "ease of doing business".</u>

Steps taken were

1. Allocation of Rs 40,000 crore under "Mahatma Gandhi National Rural Employment Guarantee Act" (MGNREGA) was made for job creation in India. This will really help in creating jobs for jobless workers, migrant workers who have returned to their hometowns and have no jobs. Getting jobs will provide them stable source of income and generate purchasing power, thereby stimulating aggregate demand.

2. Debts related to COVID-19 to be excluded from "defaults" under IBC.

3. Minimum threshold for initiating insolvency proceedings has been raised to Rs 1 crore from Rs 1 lakh and no fresh insolvency proceeding will be initiated up to 1 year.
4. Borrowing limit of states to increase from 3% to 5% for FY21. This will give extra resources of Rs 4.28 lakh crore to states.

Figure 5.2.(1): Fiscal Stimulus provided by Union government.

Overall Stimulus provided by Atmanirbhar Bharat Package

SN	ITEM		(Rs. Cr.)
1	Part 1		5,94,550
2	Part 2		3,10,000
3	Part 3		1,50,000
4	Parts 4 and 5		48,100
		Sub-Total	11,02,650
5	Earlier Measures incl PMGKP	(earlier slide)	1,92,800
6	RBI Measures (Actual)		8,01,603
		Sub Total	9,94,403
		GRAND TOTAL	20,97,053

(Source:- https://timesofindia.indiatimes.com/business/india-business/covid-19-details-of-rs-20- lakh-crore-relief-package/articleshow/75785787.cms)

Figure 5.2.(2): Earlier Measures.

Some economists are of the view that- some measures that are taken could be a restatement of the existing schemes but they might have a positive impact on the economy. These measures will help in boosting up the supply side which in turn will drive economic recovery. But these supply side measures will be slow and take time to show an impact on income or earnings of an average person. It is sceptical whether these measures will address the demand downfall caused by COVID-19.

5.2.19 <u>Other Measures</u>

Union cabinet announced various other measures to support MSMEs, farmers and vendors. These measures are going to improve ease of doing business, attract investments and help in job creation.

MSMEs

• **Relaxation in definition of MSMEs.**

For micro enterprises, investment limit is Rs. 1crore and turnover limit is Rs. 5 crores. For small enterprises limit is Rs 10 crore for investment and Rs. 50 crores for turnover. For medium enterprises limit is Rs. 20 crores for investment and Rs. 100 crores for turnover.

Turnover limit and investment limit for medium enterprises have been increased. Now, for medium enterprises investment limit is Rs. 50 crores and turnover limit is Rs. 250 crores.

• **Approval of subordinate debt and equity infusion**

Rs. 20,000 package of subordinate debt and Rs. 50,000 crores that has been announced by finance minister, has now been approved by the cabinet. This will help in attracting investments, easy availability of capital, 'ensuring ease of doing business.'

FARMERS

• **Increased MSP**

There has been a hike in MSP for 14 kharif crops (cotton, paddy, jowar, bajra etc.).MSP has been fixed at a level of 1.5 times the cost of production. Farmers will get 50-83% more than the costs. This will help farmers decide which crops to grow. This will improve financial situation of the farmers.

• **Extended repayment dates**

Repayment dates for short term loans related to agriculture and allied activities have been extended which have become due or will become due between 1 march 2020 and 31 august 2020 which will provide more time to farmers to repay their loans. •

E-trading

A new law is proposed to be framed which will provide farmers with the option of choosing the market where they want to sell their produce and removing inter-state restrictions and trade barriers and providing e-trading of agriculture produce. This will a major boost to farmers by providing them liberty in choosing their market and reaching a wide audience through e trading of agriculture produce.

STREET VENDORS

• Working capital loans up to Rs.10,000, payable in monthly instalments in 1 year has already been announced by finance minister for street vendors.

• **PM SVANidhi**

Now, a micro credit facility scheme called PM-SVANidhi (PM Street Vendor Atma Nirbhar Nidhi) is announced by cabinet to provide affordable loans to 'street vendors.' This will enable vendors to resume their work and earn livelihoods.

- All the vendors will be integrated into formal financial system through IT system. This will encourage digital transactions by vendors and they will be provided monthly cashbacks.

6. IMPACT OF AGGREGATE DEMAND ON OVERALL ECONOMIC GROWTH (GDP): EMPIRICAL ANALYSIS

6.1 Regression analysis

This chapter analyses statistically the impact of aggregate demand in overall economic growth (GDP) of India. This has been done using regression analysis, as the statistical tool. The Regression Analysis is used to estimate the relationship among independent and dependent variables.

The results of the analysis are presented in tabular form containing various parameters showing how much the dependent variable is related to the independent variables under study. The parameters used here are as follows:

1. R square: This shows how much of the changes in the dependent variable could be explained by the changes in the independent variables. In other words, it explains the unknown variations in the dependent variable with the help of known changes in the independent variables. (Regression statistics table).
2. P-value: The p-value is used to determine the significance of the independent variables in determining the dependent variable. Statistically, a p-value of less than 0.05 shows that the independent variable is significant in determining the dependent variable. (Anova Table).
3. Statistical model: A linear equation showing the relationship between independent variables and dependent variable is formed with the help of coefficients found in the Regression coefficients table. (tabular depiction of the Regression analysis).

Following is the Summary output of Regression Analysis taking components of aggregate demand (Government Final Consumption expenditure, private final consumption expenditure, gross fixed capital formation, net exports) as the independent variables and GDP as a dependent variable. The summary below is based on the data points taken from year 2010-11 to 2019-20 quarterly.

The regression analysis shows that around 99.53% (which is the value of R square) or 99.47% (which is the value of Adjusted R square as more than 1 independent variable is used) changes in GDP could be explained by changes in the aggregate demand. (Note: - Adjusted R square is used when more than 1 independent variable is used.)

The overall p-value of entire model which is zero approximately (Column "Significance F"- 3.23014E-40) obtained in the ANOVA table, as a part of the regression result shows that the aggregate demand is highly significant in determining the GDP as p- value is less than .05.
(If p value < 0.05, it indicates that independent variable is significant in determining dependent variable, hence Null hypothesis is rejected and alternative hypothesis is accepted).

As 3.23014E-40< .05, thus, the null hypothesis (H0) which states that there is no significant relationship between the aggregate demand and Gross Domestic Product is failed to accept, whereas, the alternate hypothesis (H1) which states that there is a significant relationship between aggregate demand and Gross Domestic Product is accepted.
(Individual P-value of all the variables is also less than .05, therefore all the variables are significantly related to GDP).

The statistical model which could represent the interrelation between aggregate demand and GDP is as follows:

GDP = -66867.15952+0.67*(GFCE)+1.12*(PFCE)+1.06*(GFCF)+0.56*(Net Exports)

6.2 Correlation analysis

Correlation measures the strength of association between two variables. It measures the "degree to which two variables move in relation to each other" or "the extent to which two or more variables fluctuate together". Correlation ranges from -1 to +1 where -1 denotes weak relation between the variables whereas as we move from -1 to +1, relationship between the variables grows stronger. (-) denotes opposite relationship between variables whereas (+) denotes positive relationship.

This section analyses the association of each of the independent variables (GFCE, PFCE, GFCF, Net Exports) with GDP.

Following is the Summary output of Correlation Analysis taking components of aggregate demand (Government Final Consumption expenditure, private final consumption expenditure, gross fixed capital formation, net exports) as the independent variables and GDP as a dependent variable. The summary below is based on the data points taken from year 2010-11 to 2019-20 quarterly.

Table 6.2.(1): Correlation Matrix.

	GFCE	*PFCE*	*GFCF*	*NET EXPORTS*	*GDP*
GFCE	1				
PFCE	0.823581	1			
GFCF	0.838508	0.971262	1		
NET EXPOI	-0.00031	0.161838	0.078137	1	
GDP	0.849445	0.993798	0.981919	0.167369891	1

It is evident from the above table that GDP has positive relationship with all four variables which means the independent variables (components of aggregate demand) and dependent variable (GDP) move in same direction.
GDP is relatively more strongly correlated with PFCE with correlation measure of 0.99 denoting the strongest association with PFCE, followed by GFCF having a correlation measure of 0.98. Relation of GFCE with GDP ranks third with a measure of 0.85. Net Exports and GDP have a relatively low correlation of 0.16.

7. OPPORTUNITIES FOR INDIA AMID COVID-19

7.1 Impetus to Domestic Manufacturing Industry and Attracting Investors

India is very much dependent on China for raw materials and other manufactured goods. The problems of overdependence on imports is very much visible during corona crisis when due to border closure imports could not be made and Indian economy suffered because of it. Therefore, this is an opportune time to give impetus to Indian manufacturing industry through PM's Atma Nirbhar movement which could make India self-reliant and reduce dependency on other countries. India should fully utilize domestic potential for boosting manufacturing in India and at the same time attract global producers to produce in India.

PM Modi urged Indians to use more and more locally produced goods and also boost exports of Indian goods. We should follow the policy of "MADE IN INDIA, MADE FOR WORLD" and "LOCAL TO GLOBAL". Huge opportunities are there in sectors such as pharma, automobiles, electronics for India become self -reliant and become a part of global supply chain. India even founded a new opportunity of manufacturing PPE kits. Before COVID, not even a single PPE kit used to be produced in India whereas now India is producing 3,00,000 PPE kits on a daily basis.

7.2 Infrastructure Development

Lack of infrastructure facilities could be an obstacle in attracting foreign investments. Therefore, it provides opportunity for employment generation, growth and productivity benefits. Good infrastructure facilities would attract more investments from global companies and help in boosting India's economic growth and making it a manufacturing hub.

7.3 Opportune Time for Structural Reforms/ Economic Reforms

It is an opportune time for India to undertake tough structural reforms and economic reforms which were pending long due. Certain structural reforms have been announced such as commercial mining in coal sector, increasing FDI in defence manufacturing, privatisation of power distribution companies, private partnership in airports and space-based services. These structural reforms are going to benefit India in long run and give a boost to Indian economy by giving an opportunity for exploration in unexplored areas and help reduce dependency on imports.

7.4 Realty Sector

Realty sector has been experiencing slowdown for past some years and lockdowns owing to COVID-19 had made situation even worse causing slump in sales, halting ongoing construction projects and deferment of new projects. With job losses and salary cuts, homebuyers may refrain from buying houses and commercial. Even commercial real estate will be hit post due to economic slowdown post COVID.

But every challenge comes with an opportunity. So, is with the realty sector. RBI's reduction in repo rate by 115 basis points will reduce the interest on home loans and make them more affordable. This might help in reviving the realty sector. Things might not improve overnight but in longer run, this measure could prove crucial in increasing sales of property. Moreover, builders and owners might also reduce prices to sell inventory which could provide investors with a good opportunity to good deals.

7.5 Use of Artificial Intelligence in Financial Sector

New lending models based on 'artificial intelligence' (AI) could be introduced where disbursement of credit would be made on basis of business flows like invoices of Goods and Services Tax (GST) and not assets. This will turn out to be a boon for many start-ups and small enterprises whose funding gets denied due to lack of collaterals. AI will also help in more accurate determination of credit risk leading to realistic pricing of loans, for banks.

7.6 Expansion of Healthcare Infrastructure

Need for better health infrastructure is realised in times of this pandemic. There is a need for proper coordination between the Centre and states, strong ‘disease surveillance’ systems, stock of lifesaving drugs and medical equipment, well equipped diagnostic labs and hospitals with modern facilities in every district and fast tracking of telemedicine/e-consultations.

7.7 Opportunity For E-Retailers

The need of practicing social distancing for significant length of time would be a boon for e retailers as they could ensure contactless delivery of essential items at the consumers’ doorsteps. Companies providing software facilities for online education and other services could increase subscriptions. Working from home will increase demand for broadband and ‘virtual private network’ (VPN) services benefitting telcos. Digital entertainment industry will also get a boost and would create opportunities for over-the-top (OTT) players. Also, lot of opportunities are created for fintech companies with online transactions booming.

7.8 Opportunity for Migrant Labour

There is no doubt that migrant labours are the ones who have suffered most during this corona crisis as they were left with no jobs, no food, no roof over their head. The only option left with them was to migrate back to their home towns where at least they will get food to eat but they had no transportation facility to travel back to their home towns.

Somehow, many of them managed to flock back to their villages and there are no signs of their returning back anytime soon. This would prove to both a challenge as well as an opportunity. For the cities from where labours migrated to their villages are going to face labour shortage for considerable length of time which is going to affect manufacturing and pose problems for factory owners. This will also lead to rise in wage rates in cities. Increased wage rates is going to be a problem for producers but for the labourers, it is going to provide higher incomes which could provide relief to them to some extent.

8. CONCLUSION AND RECOMMENDATIONS

8.1 Conclusion

This paper is an attempt to study the impact of COVID-19 on different sectors of the Indian economy. Sufferings of Indian economy owing to economic slowdown got aggravated by COVID-19, therefore it becomes apparent to study the impact of nationwide lockdown owing to spread of coronavirus pandemic as most of the economic activities came to a standstill having detrimental effect on India economy.

This report studies the impact of COVID-19 on agriculture sector, industrial sector, services sector, capital market, trade with external sector,
crude oil prices.

GDP growth rate of India for the fiscal year 2020 is 4.2% against an earlier estimate of 5% and GDP growth rate for Q4 of FY 2020 is 3.1%. The biggest component of aggregate demand affected from COVID-19 is private consumption, that accounts for about 60% of domestic demand. In spite of facing the problems of labour shortage and movement of goods (supply chain disruptions), agriculture sector has outshone other sectors with an increase in food grain production and kharif sown areas. Due to supply chain disruptions food inflation spiked to 8.6% in April 2020.

Industrial sector has been worst affected by lockdown recoding a contraction of 21% as majorly all the manufacturing activities came to a halt with a contraction of 21%. Owing to low demand of capital goods, production of said goods fall by 33%. Manufacturing PMI hit its lowest in April with 27.4.

Service sector too, which is greatest contributor to GDP is adversely affected witnessing a sudden spike in unemployment. All-time low in global services PMI was recorded at 5.4 in April 2020. Service sector services are mainly dependent on human interaction posing a great challenge and giving rise to work from home culture.

India’s exports contracted by 60.3% in April 2020 and imports fall by 58.6%, giving a blow to India’s trade with external sector. Net FDI and FPI and India’s foreign exchange reserves saw an increase in March (FDI) and May (FPI) as compared to last year’s figures.

Owing to sharp fall in demand for fuel amid lockdown, prices of crude oil fell sharply. Also, prices of future contract for the month of May for WTI fell to negative. India is going to benefit on account of import bill. Capital markets globally have been very volatile falling drastically in March from all-time high in January due to panic selling by investor owing to uncertainty, weak investor confidence and unpredictability.

Accommodative Monetary policy measures undertook by RBI aimed at injecting liquidity in the system and providing more money in the hands of people to stimulate aggregate demand. Fiscal stimulus provided by government consist of various measures, few of them being, EFP contribution, loans for MSMEs, working capital loans for farmers and vendors, amendments in essential commodities act. Other measures are more of structural reforms. It is believed by some economists that these measures focus more on supply side which will take time to show its impact on economic growth and many of the schemes are credit focused.

This report also studies impact of aggregate demand on overall economic growth which states that 99.53% changes in GDP could be explained by changes in the aggregate demand which indicates significant relationship between aggregate demand and GDP.

8.2 Recommendations

- As significant relation is established between aggregate demand (GFCE, PFCE, GFCE, Net Exports) and GDP, therefore, for economic revival, it is necessary to focus more on stimulating aggregate demand.

- Cash transfers to poor and vulnerable sections could help in pushing aggregate demand as it will leave people with more money in their hands.
- It could help if schemes are more linked to providing cash rather than providing credit.
- Focus should be more on attracting foreign investors (by providing conducive business environment and ease of doing business) to make India a manufacturing hub.
- Following the lines of "Atma Nirbhar Bharat" could greatly help in reducing dependency on imports and expansion of manufacturing sector.
- Realising the importance of labours and working for their welfare could help us in getting our economic growth back.

8.3 Limitations of the study

All economic researches suffer from some or the other lacuna and this study is no exception.

1. For the period under study, the other factors contributing to economic growth of the country like social and political stability and technological development has been assumed to remain constant.
2. For studying the impact of aggregate demand on GDP, four components of aggregate demand have been considered, i.e., Government final consumption expenditure, Private final consumption expenditure, Gross fixed capital formation and Net Exports. 'Change in stock' and 'valuables' have not been studied.
3. As COVID-19 is an ongoing thing, new developments keep happening every day, therefore information and data in the report are last updated on 31 May 2020.

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