Industrial Engineering Journal
ISSN: 0970-2555
Volume : 52, Issue 11, No. 2, November : 2023

THE COVID-19 PANDEMIC'S SOCIAL AND ECONOMIC EFFECTS IN INDIA

Ms. Rani Thakur, Research Scholar, School of Commerce & Management, ARKA JAIN University, Jharkhand. rani.thakur602@gmail.com
Prof (Dr.) Angad Tiwary, Professor, ARKA JAIN University, Jharkhand.
dr.angad@arkajainuniversity.ac.in

Abstract
Purpose: The COVID-19 circumstances will undoubtedly have a negative impact on the internet of things (IoT) sector, in addition to health care-related concerns. IoT devices and sensors can be used to track and monitor people's movements in order to address all of the aforementioned problems and enable the taking of required precautions against the spread of the coronavirus disease (COVID-19). Mobile devices can be utilised to track down the impacted individual by looking up their journey history on a geomapped map. This will stop the epidemic from spreading and return the economy to normal.
Design/methodology/approach: This study examines the social economic effects of COVID-19 on particular facets of the global economy in response to the global COVID-19 pandemic. Conditions related to COVID-19 will undoubtedly negatively impact IoT market considerations outside health care. To get around these problems, people's movements can be tracked and monitored by IoT devices and sensors, allowing for the taking of the required precautions to stop the COVID-19 virus from spreading. Mobile devices can be used to analyse the journey history's map and find the affected person's contact information. By doing this, the spread will be stopped and the economy will return to normal. In this vein, this article offers a few reviews, methods, and recommendations.
Additionally, information is given regarding the pandemic's effects on a number of industries, including manufacturing, information technology, finance, agriculture, and the medical field. These insights may help top level management in the public and private sectors with their strategic decision-making and policy-making processes.
Findings –Key situations like these require strong and robust governance in the areas of health, business, government, and broad society due to the uncertainties of a new recession and economic crisis. It is necessary to start immediate support programmes and modify them for people who might fall between the gaps. During this recession, mid-and long-term plans are needed to keep the economy stable and stimulated.
Originality/value –It is vital to have a comprehensive social-economic development strategy that includes sector-by-sector plans and business-supporting infrastructure to guarantee the success of those with dependable and sustainable business models. Based on a review of the research and observations from the field, it can be said that wearable technology, sensors, IoT, and computational technologies are key components in keeping the nation's economy strong by halting the spread of Covid-19.
Keywords: COVID-19, Implication, Industry, IoT and wearable devices, Socio-economic growth

1.0 Introduction

In India, the effects of COVID-19 have had a very disruptive effect on the economy. India's development for the fiscal year 2021 has been downgraded by the World Bank and credit rating agencies, and the country has already experienced its lowest figures in thirty years—since trade liberalisation in 1990 (The Times of India, 2020). The Indian economy is expected to lose more than 32,000 crores a day during the 21-day lockdown imposed in response to the coronavirus outbreak (The Hindu Business Line, 2020). Approximately 53% of businesses nationwide will be impacted by lockdown (The Indian Express, 2020). The supply chain was strained by the lockdown restrictions

Industrial Engineering Journal
ISSN: 0970-2555
Volume : 52, Issue 11, No. 2, November : 2023

and the lack of transparency in the streamlining of necessary materials. The informal economy and daily earnings are the most specifically impacted and vulnerable groups (Das, 2020). A large number of farmers in the nation who grow food are dealing with uncertainty. Many companies, including hotels and airlines, are reducing employee compensation and laying off staff. Additionally, the live event sector has experienced losses of almost 3,000 crore (Goyal, 2020).

In order to focus on necessary supplies, Amazon and Flipkart, a Walmart subsidiary, said during the third week of March 2020 that they might discontinue selling non-essential products in India. Numerous quickly expanding consumer goods companies in the nation have drastically cut back on their company and focus on necessities. Aditya Birla, Tata Motors, and UltraTech Cement are a few of the well-known businesses that have temporarily reduced or stopped operations. A few Indian iPhone vendors have suspended their operations. The reduction in funding had an impact on numerous fledgling startups. India's stock markets saw the biggest decline in their history on March 23, 2020 (The Indian Express, 2020). A day after the PM announced a 21-day total lockdown on March 25, 2020, SENSEX and NIFTY saw its greatest increase in 11 years, adding a combined 4.7 lakh crore to shareholder capital (Shah, 2020). The Indian government has taken a number of actions to address the issues, beginning with ensuring food security and increasing financing for health care, support sectors, and extended tax schedules.

We have compiled a summary of COVID-19's effects in India according to three sectors: primary, secondary, and tertiary.

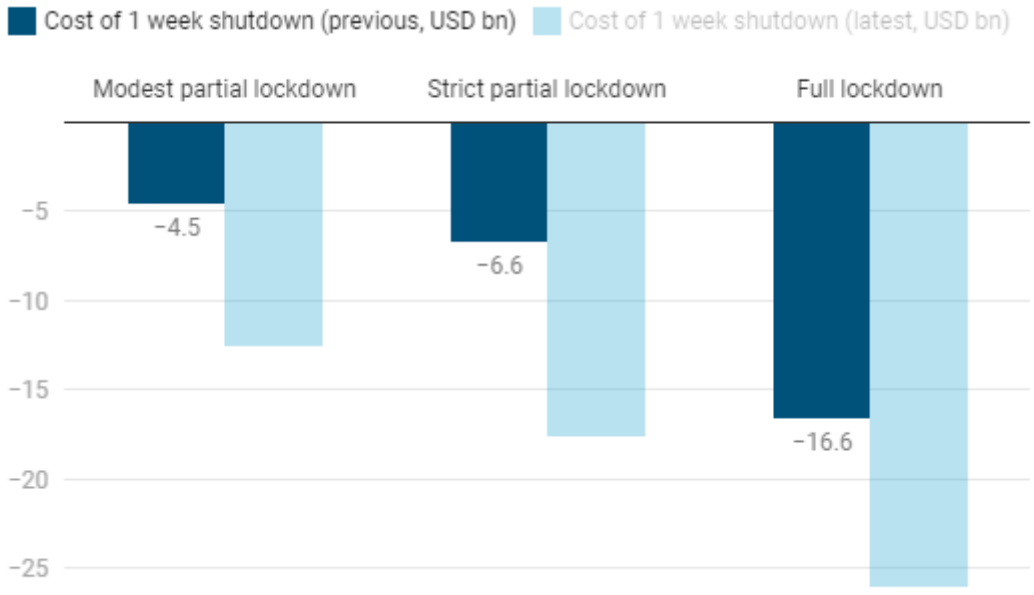
1.1 What is the economic cost of an extended covid-19 lockdown?

It is obvious that a lockdown reduces economic activity. However, a few economists now think that a lockdown will cost more per week than they originally calculated. In a note dated April 14, 2020, those at Barclays Research estimated that the weekly loss of output resulting from closed factories and offices comes to roughly $26 billion. This is far more than the $16.6 billion it had projected on March 24, the day the nationwide lockdown was officially declared.

1.1.1 What a lockdown costs

The cost of the lockdown is more than Barclays had initially projected, mostly as a result of higher-than-anticipated output losses in the construction, wholesale & retail, utilities, and agriculture sectors.

Figures in $ billion; Previous estimate as on 24 March; Latest estimate as on 14 April



Figures in $ billion; Previous estimate as on 24 March; Latest estimate as on 14 April
(Source: Source: Barclays Research estimates , https://www.datawrapper.de/_/N9xt4/)
They now project that the total economic damage will be $234.4 billion, or 8.1% of GDP, which is almost twice as much as their previous estimate of $120 billion. The June quarter is predicted to see the most of the losses. The estimate may be altered further based on the timing of the easing of various lockdowns and limitations. According to the current forecast, limitations will be loosened by early June. In a report released on Tuesday, Nomura Financial Advisory and Securities (India) Private Ltd projected India's GDP growth for 2020 to be negative 0.5%, taking into account the country's lockdown until May 3. Barclays predicts little growth this year.
In a previous note, Nomura had predicted that, in the worst-case scenario, India's GDP may contract by 2.6% for the year 2020. This prediction was based on the assumption of a worldwide financial crisis and a market collapse in the second half of the year
The economy has been shocked by both supply and demand as a result of the lockdown to stop the spread of COVID-19. Due to physical constraints and social exclusion, Indians are unable to spend, which results in factories operating at reduced capacity.

Undoubtedly, estimating GDP growth is challenging because it heavily relies on the timing and size of fiscal stimulus. Simply using linear assumptions, the estimations that point to a negative GDP growth are produced. Numerous moving elements are included. One of them is public spending and its multiplier effect, according to one economist who asked to remain anonymous.
However, economists pointed out that some services would no longer be consumed, even if the lockdown were to be lifted. "Once barbershops open, you can't have two haircuts," the aforementioned economist declared. Furthermore, cautious customers won't rush restaurants right once, which would cause a stretched demand slowdown. "We believe that prudent savings increases and decreases in discretionary spending, particularly on leisure and travel-related services, will have a longer-term impact on growth rates. In the note, Barclays stated, "This leads to the downward revision in our growth recovery outlook to show a shallower pick-up in Q3."
The national lockdown notwithstanding, covid-19 cases are mounting in India. What should worry more is that the economic cost seems to be rising faster.
(Source: https://www.livemint.com/market/mark-to-market/what-is-the-economic-cost-of-an-extended-covid-19-lockdown-11586852662704.html)

2.0 Primary industry
2.1 The supply chain and agriculture
A number of supply chain and agricultural practises are impacted by COVID-19. According to preliminary assessments, the scarcity of migrant labourers has an impact on several harvest practises, particularly in the northwest region of India where wheat and pulses were grown. The supply chain will face challenges as a result of issues with transportation and other issues. Although the cost of vegetables, wheat, and other crops has dropped, consumers still pay more. According to news reports, the shutdown of tea shops, restaurants, hotels, and confectionaries during the lockdown is already hurting dairy sales. Meanwhile, rumors—particularly on social media—that chickens are the COVID-19 transmitter have negatively impacted chicken farmers (Mahendra Dev, 2020).
The agricultural industry and supply chain operations require a few key safeguards, some of which are as follows:
(i) Farm practises and the supply chain are exempt from shutdown regulations, which the government has duly provided. In addition, difficulties with implementation result in a shortage of workers, therefore cutting expenses needs to be addressed.

(ii) Farm communities need to keep a close eye on social separation in order to protect themselves from COVID-19 as much as possible.
(iii) Market connectivity for farmers must be constant. It might combine government and commercial sector procurement.
(iv) Due to the present outbreak-related input supply and market access challenges, local dairy and poultry farmers require further assistance.
(v) Any social welfare programme that attempts to lessen the current circumstances should involve farmers and agricultural labourers.
(vi) The need for food delivery services and online shopping has surged in tandem with the rise in quarantine measures.
(vii) The government ought to promote trade by refraining from imposing import and export limitations.
The lockdown has stopped almost all economic activity. Both homeless people and migratory workers experience a major loss of income and employment in urban settings. According to the Centre for Monitoring the Indian Economy's prediction, during the first week of April, inflation rose from 8.4% in mid-March to 23%. On April 5, the jobless rate in major cities rose to 30.9%. The impoverished and migrant workers who live in uncertain conditions and are likely to experience hunger and hardship will suffer from the shutdown. The greatest strategy to address this urgent need is to heavily utilise social welfare programmes to provide them with money and food to ensure their survival. In response to the crisis, the Indian government moved swiftly and announced a $22 billion support programme that includes food and money transfers. The $22 billion in funding is a mere 0.85% of India's GDP, a far less amount than the plans put up by the United States, Europe, and other Asian nations. India ought to set greater goals and allocate 4%–5% of its GDP to spending (Mahendra Dev, 2020).
The Indian economy greatly depends on the agriculture and related sectors. It employs around half of the workforce and accounts for nearly one-sixth of the country's national income. It is essential for maintaining the country's food security and, because of its forward and backward links, also has an impact on the expansion of the secondary and tertiary sectors of the economy. Performance in the agriculture sector has a significant impact on numerous other fronts of achievement. For example, the World Bank's 2008 World Development Report highlights that growth in agriculture reduces poverty at least twice as well as growth outside of agriculture. Growth in the agricultural sector lowers poverty both directly—by increasing farm incomes—and indirectly—by creating jobs and bringing down food prices. Put another way, most areas of the Indian economy benefit from a strong agriculture industry.

Industrial Engineering Journal
ISSN: 0970-2555
Volume : 52, Issue 11, No. 2, November : 2023

Table 2.1 : India's Position in World Agriculture

Item	India (Million Tonnes)	World (Million Tonnes)	India's		Next to
			% Share	Rank	
1. Crop production					
(A): Total Cereals	294	2849	10.3	Third	China, USA
Wheat	93.5	749.5	12.5	Second	China
Rice (Paddy)	159	741	21.4	Second	China
Total Pulses	17.6	82	21.5	First	
(B): Oilseeds					
Groundnut (in shell)	7	44	15.6	Second	China
Rapeseed	6.8	69	10	Third	Canada, China
2. Fruits & Vegetables					
Vegetables & Melons	120	1075	11.2	Second	China
Okra	5.5	9	62.0	First	
Potatoes	44	377	11.6	Second	China
Tomato	18.4	177	10.4	Second	China
Onion (dry)	19.4	93.2	21	Second	China
Cabbages & other Brassicas	9	71.2	12.3	Second	China
Cauliflower & Broccoli	8.2	25.2	32.5	Second	China
Brinjal	12.6	51.3	24.5	Second	China
Fruits excluding Melons	91	866	10.5	Second	China
Banana	29.1	113.2	25.7	First	
Mango and Guava	18.8	46.5	40.4	First	
Lemon & Lime	3	17.3	17.2	First	
Papaya	5.6	12.6	44.4	First	

(Source: https://www.fao.org/faostat/en/)

2.2 Impact on COVID-19 – medical industry in India

The scarcity of oxygen and other medications needed to treat COVID-19 highlighted India's underdeveloped healthcare system. Furthermore, the number of people seeking healthcare treatments unrelated to COVID-19 sickness fell precipitously during the pandemic.

Despite India having a sophisticated healthcare system, the COVID-19 Pandemic severely damaged it by interfering with patients' access to necessary medical care. Additionally, it has brought attention to the notable disparities in healthcare quality between public and private healthcare providers as well as between rural and urban locations. The scarcity of oxygen and other medications needed to treat COVID-19 highlighted India's underdeveloped healthcare system. Furthermore, the number of people seeking healthcare treatments unrelated to COVID-19 sickness fell precipitously during the pandemic. This systematic review's goal is to ascertain whether COVID-19 has had an effect on India's healthcare system.

The current COVID-19 epidemic has had a significant negative impact on India, the second most populous country in the world, since its introduction. Every industry in the nation has been influenced by COVID-19, including healthcare. The enormous strain of the worldwide epidemic caused the Indian healthcare system to collapse, exposing the flaws and difficulties in the current health delivery system.

A highly contagious upper respiratory tract illness is called coronavirus, or COVID-19. It was caused by the SARS-CoV-2 virus and was earlier known as "2019-nCoV." 1. In December 2019, Wuhan City, Central Hubei Province, China, was the initial source of it. Epidemiological evidence linked multiple clusters of patients with viral pneumonia of unclear origin to the Hunan seafood market in Wuhan, China. 2. Pneumonia quickly spread beyond China's borders and instances were soon being recorded in other parts of the world. After it spread to other nations, a significant number of people began dying in China, and on January 30, 2020, the World Health Organisation (WHO) declared a public health emergency of international significance. In March 2020, the World Health Organisation (WHO) proclaimed COVID-19 to be a pandemic after over 118,000 cases in 114 countries and 4291 deaths. 3. Millions of individuals globally, including those in India, were infected by the virus outbreak as a result of the countries' ongoing struggles with capacity and resource shortages.

Approximately 70% of the enormous quantities of medications that Indian enterprises import come from China, where the COVID-19 pandemic has impacted supply chain services and the production of active pharmaceutical ingredients (APIs). The export of 26 substantial quantities of medications and their formulae has been restricted by the Indian government. In light of the COVID-19 pandemic, it is anticipated that the world's reliance on generic medications made in India will provide a difficult international problem. API supplies cannot be adequately replaced, nor can productive capability be increased. More importantly, any nation that can produce will likely prioritise meeting regional demands above promoting commerce and economic progress.

3.0 Secondary sectors

3.1 Information technology

The Covid-19 pandemic has inevitably resulted in a rise in the usage of digital technologies because of national lockdowns and social distancing practises. Globally, people and organisations have had to adapt to new lifestyle and work practises.

Work from home is becoming the new norm for industries whose business models are not manufacturing-based, including the education sector, KPO services, or BPO services. It's time for domestic software users to choose Indian software companies over their international rivals in order to make up for the revenue gap created by the decline in export figures. There has been less of an impact on the IT sector in terms of operating costs because the bulk of IT enterprises are able to rely on digital platforms to maintain company operations even throughout the lockdown period. The goals to research and replicate the issues facing the IT sector on the Nifty IT index.

The leading organisation for the domestic flex staffing sector, ISF, has reported that, by 2021, there would be 220,000 more flex workers in the IT sector than there were in 2018. In 2018, this number was 5 lac.Without a doubt, the short-term performance of IT companies took a hit, but the digital option laterIT corporations sighed with relief as they were the last resort for top corporates in an environment where work from home predominated. Nearly 4.5 million people work in the $181 billion IT sector. Even once the lockdown limitations are released, 90% of TCS's personnel will work from home, the company has previously said. The weaker currency allowed IT companies to realise more export revenue, which was a bright spot. Ironically, a declining rupee benefits IT companies more than the economy. IT firms may benefit from rising home consumption even in the face of declining worldwide orders. Veteran of the IT sector T V Mohandas Pai claims that most IT organisations will halt hiring due to the coronavirus outbreak. He claims that while promotions might

Industrial Engineering Journal
ISSN: 0970-2555
Volume : 52, Issue 11, No. 2, November : 2023

not end, those making Rs. 75,000 or more a month might experience pay reductions of up to 25%; others might not be impacted.

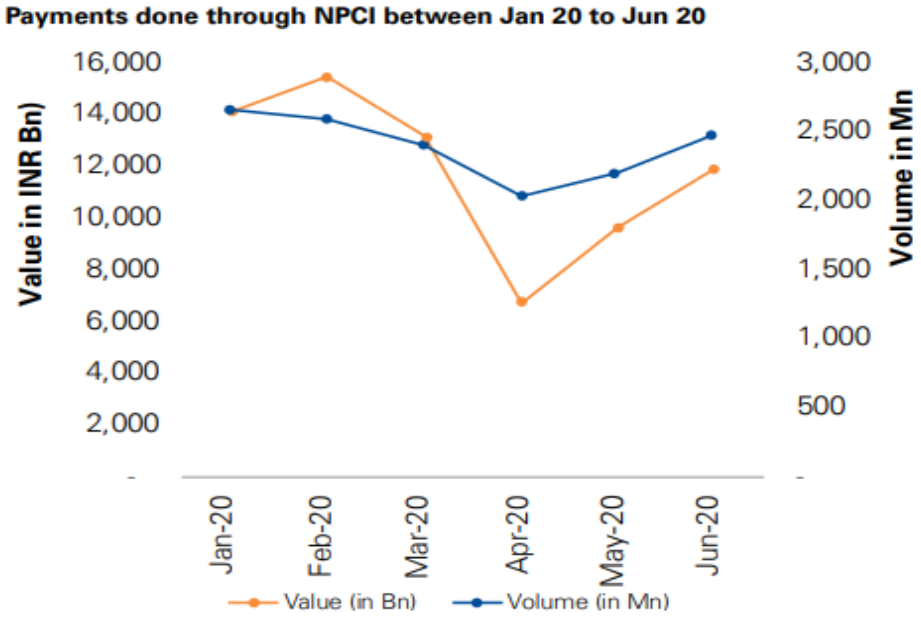
Due to limitations on air travel and state and city closures to manage the spread of the COVID-19, Indian enterprises have experienced a high number of customer project cancellations in several industries. The pharmaceutical business is also being impacted by COVID-19 outbreaks, since 70% of antibiotic medications that are effective are made in China. Many Indian companies that produce antibiotics rely heavily on these efficacious antibiotic medicines. The COVID-19 pandemic that has affected the nation since March 2020 is expected to have caused major damage to the banking, health, and real estate sectors, among other industries. Furthermore, it was predicted that the virus had a total economic impact of INR 8.8 trillion on India (Kumar, 2020).

3.2 Finance industry

3.2.1 Coronavirus influence on the Indian digital payment sectors

The landscape of digital payments in India has gradually evolved since the banking industry was liberalised in the 1990s and new technologies like ATMs and magnetic ink character recognition (MICR) were deployed.After that, in 2010 a number of products and services related to payments were developed, including stored value cards, recharge vouchers, and wallets. In comparison to many other developed, cashless countries, India is seeing a faster growth in digital payments.

Under the direction of the Reserve Bank of India, banks established the umbrella organisation known as NPCI. Payments made through NPCI occurred between January 20 and June 20. 1,500, 2000, 2001, and 2003 De-facto, volume in Minnesota is in charge of all retail payments made in India. It serves as a middleman in the processing of several digital payment methods, including Bharat BillPay, UPI, and IMPS. An analysis of these transactions' volume and value from January 2020 to June 2020 Value in INR Bn) 14,000 12,000 10,000 8,000 has shown a drop in payments in India due to COVID-19 and the containment efforts that go along with it, but it has also quickly recovered in the months that followed in all modes. During the lockdown period, consumers' spending was severely restricted and some regular monthly payments were postponed. January 20–February 20–March 20–April 20–May 20–June 20 Worth (in Bn) Volume (measured in millimetres) substantial ambiguity in judgements Source: The amount and time of consumer expenditure and payments as seen in the NPCI payments database as of July 2020. The value of all NPCI payment goods decreased by over 49% in April 2020 compared to March 2020 payments, as shown across digital payment methods.



Following 20 April 2020, places where the spread had been contained or was negligible were granted conditional relaxations. By adopting safer procurement practises like e-commerce and alternative payment methods like digital instead of cash, businesses and customers were able to launch their businesses. Beginning on June 1, 2020, the first unlock phase of the lockdown resulted in the restart of certain enterprises and overall consumption. Due to the cumulative impact of planned payment deferrals completed in April and May 2020, aversion to cash payments, and closure of small-scale cash-operated firms, large digital payments were completed in June 2020, or 2.1.2. 3,000 1,400 1,200 2,500 IMPS (Volume) UPI, BHIM, and IMPS Source: July 2020 access to the NPCI payments database When comparing April 2020 to January 2020, the values of UPI and BHIM transactions decreased by approximately 30% and 39%, respectively, while IMPS transactions decreased by approximately 44%. Individual peer-to-peer transactions are the main focus of UPI and IMPS. Therefore, it is possible that payments made through NPCI have decreased to approximately 91% of their March 2020 levels. Since ticket sizes for payments have increased by roughly 10% to 20% across procurement categories, mostly in an effort to restrict physical exposure as well as propensity to hold inventories, the value of payments has, on average, grown at a quicker rate than their volume. The growth trends in payments overall that were noted in June 2020 are anticipated to continue, supported mainly by the possibility of using digital payments to access underserved markets that rely primarily on cash and the satisfaction of accumulated consumption needs as companies construct the necessary infrastructure to resume operations in a safe and effective manner and as customers look for safer alternatives to meet demand.

With the help of the demonetization and ongoing legislative efforts to create a cashless Indian economy, digital transactions have increased dramatically over the last four years, from 5% to over 30% (Khosla, 2020). Nearly 40% of internet payments in India are made through movie websites, event booking portals, hotel booking websites, and entertainment media (Khosla, 2020). Telecommunication and electricity costs cover the remaining. Furthermore, specialists in financial technology feel that it is too soon to assess how COVID-19 will affect the sector if digital payments rise or have a temporary impact. Over the course of the next 15 to 20 days, it will be possible to ascertain whether digital transactions rise or fall in response to the decline in travel and tourism. The COVID-19 pandemic has had a negative impact on certain industries, but it has also led to a decrease in the use of online payments and the emergence of new marketplaces.

3.3 Manufacturing industry

Indian businesses have already been greatly impacted by COVID-19, and in the following weeks, employment is likely to be severely threatened as a result of corporations attempting to reduce staff. Furthermore, there has been an unexpected decline in financial activity in recent months due to the COVID-19 crisis. Nearly 72% of the participants in the current scenario indicate that it has a substantial impact on their firm (Goyal, 2020).

Furthermore, a majority of the examined enterprises, specifically 70%, anticipate a decrease in sales during the 2020–2021 fiscal year.

Many industries were forced to close as a result of the initial COVID-19 breakout wave, including manufacturing, services, retail, and tourism. India's manufacturing sector, which makes up 20% of the country's GDP, was already having trouble prior to the pandemic. The pandemic has had a significant impact on the Indian economy in a number of sectors, during different lengths of full, extended, and partial lockdowns, and at different capacities utilised. In an optimistic scenario, the Indian economy would only increase by 0.5%, but in 2022–2023, the second and third waves might cause a 3-7% decline in growth. The industrial and MSME sectors have suffered greatly as a result. In the worst-case scenario, COVID-19's expected impact (deceleration) on the industrial sector might be as low as 5.5 to 20%. The objective of this research is to evaluate the effects of COVID-19 on the

manufacturing sector in India from 2020 to 21 and to propose corrective measures to advance in the post-COVID era.

Industries faced a number of issues, including the suspension of operations, labour shortages brought on by labour migration, difficulties obtaining raw materials and completing goods due to supply chain disruptions, rising operating costs, inability to pay creditors due to cash shortages, and deterioration of machinery as a result of neglecting it both during and after the lockdown. Lockdowns had a negative impact on the labour market, supply chains for manufacturing, financial markets, and other essential business operations. In the last year, around 23 crore Indians have been forced into poverty. The national government proposed a ₹20 lakh crore bailout package for businesses and industries in an effort to revitalise the economy. Later on, other bundles were revealed. Nevertheless, the Indian economy suffered greatly in spite of these packages. The GDP grew by a negative 7.1% during the 2020–21 fiscal year. The manufacturing sector's share in the Indian economy has declined in recent years. It is also not producing enough jobs. As opposed to the agriculture industry, its contribution to employment creation has actually decreased. MSMEs were severely impacted both during and after lockdown. Because they lacked the resources to operate their businesses, many units had to close. Growth of MSMEs was hindered by factors such as cash shortage, supply chain disruption, lack of raw materials, labour force emigration, COVID restrictions, declining demand, etc.

The coronavirus pandemic in China has been demonstrated to pose a threat to a number of Indian businesses, including shipping, pharmaceuticals, cars, smartphones, appliances, and fabrics. In actuality, a supply chain may be the source of some market and economic disruptions. The impacts of coronavirus are particularly mild in the business.

5. Social impact

5.1 Family dynamics: domestic violence and hobbies

Threats of increasing domestic violence, including physical, emotional, and sexual abuse, have increased as a result of lockdown and social distancing measures used to stop the spread of viruses. The emphasis on shutdown time makes sure that those who are already marginalised by violence are more likely to experience it, and finding assistance becomes more difficult for them. The government must study how to recognise domestic abuse, report it, and locate all available services in order to address the growing epidemic. The online gambling industry has also been adversely damaged by the coronavirus epidemic. Online gaming has attracted a large user base for those who choose to live at home and isolate themselves from the outside world in accordance with strict government regulations. This has increased revenue for numerous businesses.

6. Conclusion

Vital circumstances like these, along with the difficulties of a fresh recession and economic crisis, demand strong and efficient policymaking in the fields of health, business, government, and Estimated gross value added impact of COVID-19 on India from April to June 2020 COVID-19 pandemic among the Indian community. It is necessary to start quick, but well-thought-out assistance programmes and modify them for people who might fall between the gaps. During this recession, the economy needs to be stabilised and stimulated, which calls for mid- and long-term measures. a thorough approach to social-economic development that includes sector-specific plans and infrastructure to support companies and guarantee their success if they have dependable and sustainable business models.

References

(i) Ghosh, A., Nundy, S., & Mallick, T. K. (2020). How India is dealing with COVID-19 pandemic. *Sensors International*, *1*, 100021.

(ii) Gopalan, H. S., & Misra, A. (2020). COVID-19 pandemic and challenges for socio-economic issues, healthcare and National Health Programs in India. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, *14*(5), 757-759.

(iii) Goel, I., Sharma, S., & Kashiramka, S. (2021). Effects of the COVID-19 pandemic in India: an analysis of policy and technological interventions. *Health policy and technology*, *10*(1), 151-164.

(iv) Rasul, G., Nepal, A. K., Hussain, A., Maharjan, A., Joshi, S., Lama, A., ... & Sharma, E. (2021). Socio-economic implications of COVID-19 pandemic in South Asia: emerging risks and growing challenges. *Frontiers in sociology*, *6*, 629693.

(v) Lahiri, S., & Sinha, M. (2021). A study of the socio-economic implications of the COVID-19 pandemic. *Australasian Accounting, Business and Finance Journal*, *15*(1), 51-69.

(vi) Gururaja, B. L., & Ranjitha, N. (2022). Socio-economic impact of COVID-19 on the informal sector in India. *Contemporary Social Science*, *17*(2), 173-190.

(vii) Goswami, B., Mandal, R., & Nath, H. K. (2021). Covid-19 pandemic and economic performances of the states in India. *Economic Analysis and Policy*, *69*, 461-479.

(viii) Perwej, A. (2020). The impact of pandemic COVID-19 on the Indian Banking System. *International Journal of Recent Scientific Research*, *11*(10), 39873-39883.

(ix) Ghosh, J. (2020). A critique of the Indian government's response to the COVID-19 pandemic. *Journal of Industrial and Business Economics*, *47*(3), 519-530.

(x) Gautam, P. (2021). The effects and challenges of COVID-19 in the hospitality and tourism sector in India. *Journal of Tourism and Hospitality Education*, *11*, 43-63.

(xi) Roy, A., Singh, A. K., Mishra, S., Chinnadurai, A., Mitra, A., & Bakshi, O. (2021). Mental health implications of COVID-19 pandemic and its response in India. *International Journal of Social Psychiatry*, *67*(5), 587-600.

(xii) Kumar, V., Alshazly, H., Idris, S. A., & Bourouis, S. (2021). Evaluating the impact of covid-19 on society, environment, economy, and education. *Sustainability*, *13*(24), 13642.

(xiii) Sharma, K. (2020). A surge in e-commerce market in India after COVID-19 pandemic. *Gap gyan-a global journal of social sciences*, *3*(4), 54-57.

(xiv) Pawar, M. (2020). The global impact of and responses to the COVID-19 pandemic. *The International Journal of Community and Social Development*, *2*(2), 111-120.

(xv) Das, K., Behera, R. L., & Paital, B. (2022). Socio-economic impact of COVID-19. In *COVID-19 in the Environment* (pp. 153-190). Elsevier.