



iJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** XI **Month of publication:** November 2023

DOI: <https://doi.org/10.22214/ijraset.2023.56608>

www.ijraset.com

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Impact of Pandemic on Foreign Direct Investment - A Study from Global Perspective

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Abstract: *The global economic landscape has been significantly influenced by health pandemics, leading to heightened uncertainties. Using data from past epidemics and economic downturns, this research paper examines the repercussions of these health crises on global economies. Prominent among these health crises is the 1918 influenza epidemic, which Garrett (2008) reveals had severe impacts on investment, human capital, and consumer behaviour. In more recent history, the SARS outbreak in 2003, as analysed by Lee and McKibbin (2004), cost the world an estimated USD 40 billion, highlighting the tangible economic costs of health pandemics. COVID-19, emerging at the end of 2019, has created another layer of global economic uncertainty. Containment measures such as lockdowns and social distancing have led to a ripple effect, causing a downturn in various economic sectors. To better understand the scale of this uncertainty, this study employs the newly developed World Pandemic Uncertainty Index (WPUI) – a tool introduced in 2020 specifically to measure the economic and political uncertainties introduced by pandemics. A crucial focus of the research is the impact of health pandemics on Foreign Direct Investment (FDI). FDI, a major non-debt financial resource, plays an instrumental role in the economic development of nations. It introduces technical know-how, generates employment, and can be seen as a barometer of a country's economic health. Using the WPUI, the study investigates the consequences of health pandemics on FDI in 142 countries from 1996 to 2019. It identifies patterns in different regions and economic brackets, adding new insights to existing literature.*

The COVID-19 pandemic has significantly impacted global foreign direct investment (FDI), causing disruptions in both inflows and outflows across countries and regions. This study, drawing from quantitative data from the World Bank and UNCTAD and qualitative insights from FDI experts, examines the extent and nature of this impact from 2019-2023. Results indicate a pronounced decline in FDI flows in 2020 and 2021, with varying impacts based on regional development, economic structures, and exposure to the pandemic. Factors such as digitalisation, diversification, and cooperation have influenced these FDI trends. This research offers valuable insights for policymakers navigating the post-pandemic FDI landscape, emphasising the need for further studies on the long-term effects of the pandemic on FDI dynamics. The study further narrows down its focus to India, analysing the FDI trends before and after the advent of COVID-19. Secondary data sources, including RBI bulletins and economic survey reports, provide insights into FDI equity inflows during the pandemic. Preliminary results suggest a considerable dip in FDI equity inflows at the onset of the pandemic.

However, there's a noticeable recovery in the second quarter of FY-20, aided in part by significant investments, such as Google's \$10 billion injection into the Indian market. In light of these findings, the study offers several solutions to mitigate the impact of pandemics on FDI.

These range from promoting investment stability, diversifying investment promotion, and supporting digital transformations, to ensuring global health preparedness and implementing robust economic recovery plans. Effective execution of these strategies, tailored to a country's specific needs, can create an environment more receptive to foreign investment.

Keywords: COVID-19, Foreign Direct Investment (FDI), World Pandemic Uncertainty Index (WPUI), United Nations Conference on Trade and Development (UNCTAD), Pandemic

I. INTRODUCTION

The global economy has been significantly affected by health pandemics, causing uncertainty. Garrett (2008) analyzed the consequences of the 1918 influenza outbreak using data from print media in 1918, as well as research by Brainerd and Siegler (2003) and Almond (2006). According to Garrett, the 1918 flu epidemic had long-term adverse effects on human capital, consumer spending, income, and savings. Lee and McKibbin (2004) calculated that the 2003 SARS outbreak resulted in at least \$40 billion in global medical and economic losses, emphasizing its impact on patients and changes in societal economic behavior.

In response to the Coronavirus Disease 2019 (COVID-19) pandemic, containment strategies like lockdowns, workplace closures, and social isolation were implemented, but these measures had negative social, economic, financial, and political consequences, leading to increased uncertainty in economic activities, as noted by Brodeur et al. (2020), Fernandes (2020), and Tisdell (2020).

Interestingly, prior to 2020, no indices existed to quantify pandemic-induced uncertainty. The development of an uncertainty index reveals that concerns about uncertainty are now a global phenomenon. In 2016, Baker et al. (2016) created the Economic Policy Uncertainty (EPU) index to measure uncertainty resulting from changes in economic policies, initially in 12 nations and later expanding to 26 countries in 2020. The World Uncertainty Index (WUI), created by Ahir et al. in 2018, measures the degree of political and economic unpredictability around the world among 143 nations with advanced, emerging, and low-income economies. The new World Pandemic Uncertainty Index (WPUI) was developed in 2020 as a result of the COVID-19 pandemic, which began in December 2019 and generated uncertainty worries (Ahir et al. 2018; WPUI 2020). Researchers and decision-makers may only assess the economic effects of health pandemics by distinguishing pandemic uncertainty (WPUI) from aggregate uncertainty (WUI).

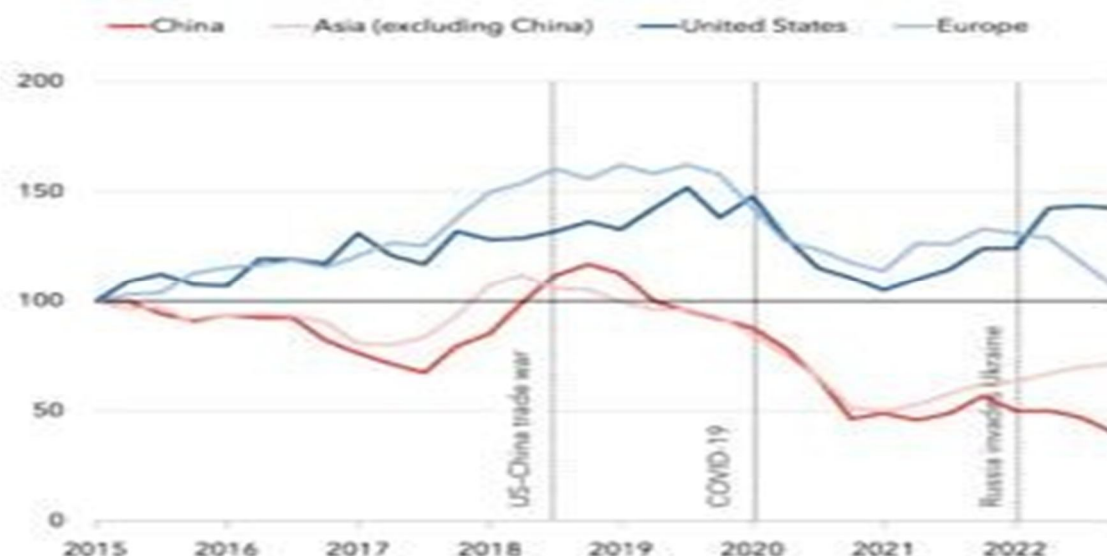
This study employs the new WPUI index to examine the repercussions of health pandemics on foreign direct investment (FDI) across 142 countries from 1996 to 2019. The analysis is conducted across different geographical regions (Africa, Asia and the Pacific, Europe, the Middle East and Central Asia, and the Western Hemisphere) and various socioeconomic categories (advanced economies, developing economies, and low-income countries). It contributes novel insights to the existing literature and builds upon the previous works of Nguyen et al. (2019) and Avom et al. (2020).

To the best of our knowledge, this study represents the first attempt to assess the impact of pandemic on FDI using the new WPUI, which is based on the WUI framework developed by Ahir et al. (2018). In addition to serving as a substantial non-debt financial resource for a country's economic progress, foreign direct investment is a vital driver of economic growth. Foreign corporations invest in various countries to capitalize on attractive incentives, such as tax advantages and relatively lower labor costs. Nations that successfully attract foreign investment benefit from technological expertise and employment opportunities. This is primarily due to the government's supportive policies and a conducive economic environment, which continue to draw foreign investment. In recent years, many countries have implemented measures such as reducing FDI requirements in various sectors, including stock exchanges, PSU oil refineries, telecom, and defense.

The global economic outlook indicates a decline in growth, with an estimated decrease from 3.5% in 2022 to 3.0% in 2023 and 2024. While this figure is slightly better than what was initially projected in the April 2023 World Economic Outlook (WEO), it remains below historical standards. Economic growth continues to be hampered by the ongoing efforts of central banks to raise policy rates in order to combat inflation.

II. FDI FRAGMENTATION

China's global market share in crucial sectors is diminishing as foreign direct investment (FDI) in these sectors is diverging across different regions.

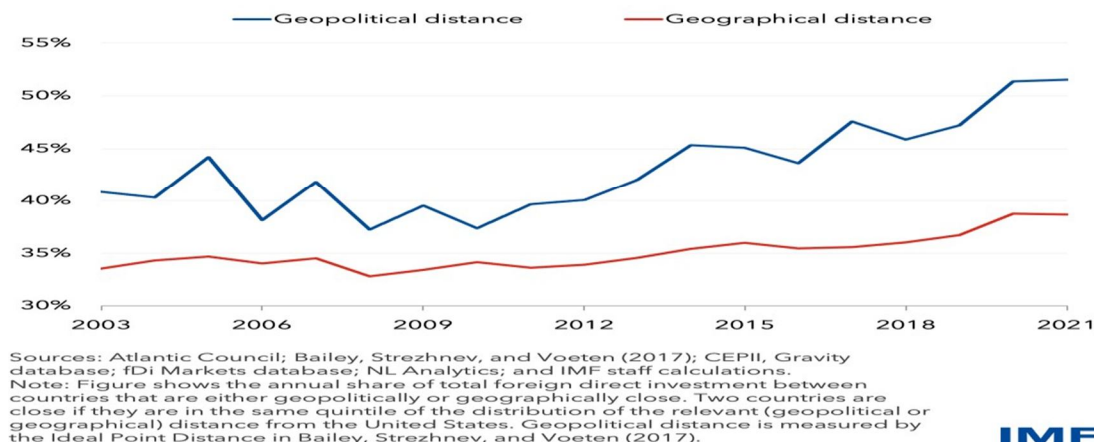


The graph presented shows the total number of investments made with a four-quarter moving average, with the base year set as 2015 (Q1=100).

Over the past ten years, FDI flows have been increasing among countries aligned geopolitically, surpassing the share of FDI flows in countries that are closer geographically. This suggests that geopolitical preferences are becoming increasingly influential in determining where FDI is directed.

Flows to friends

FDI is increasingly directed to geopolitically close countries.
(share of total FDI between geopolitically and geographically close countries)



These trends also indicate that if geopolitical tensions continue to escalate and countries further align along geopolitical fault lines, FDI is likely to become even more concentrated within groups of countries that share geopolitical alliances.

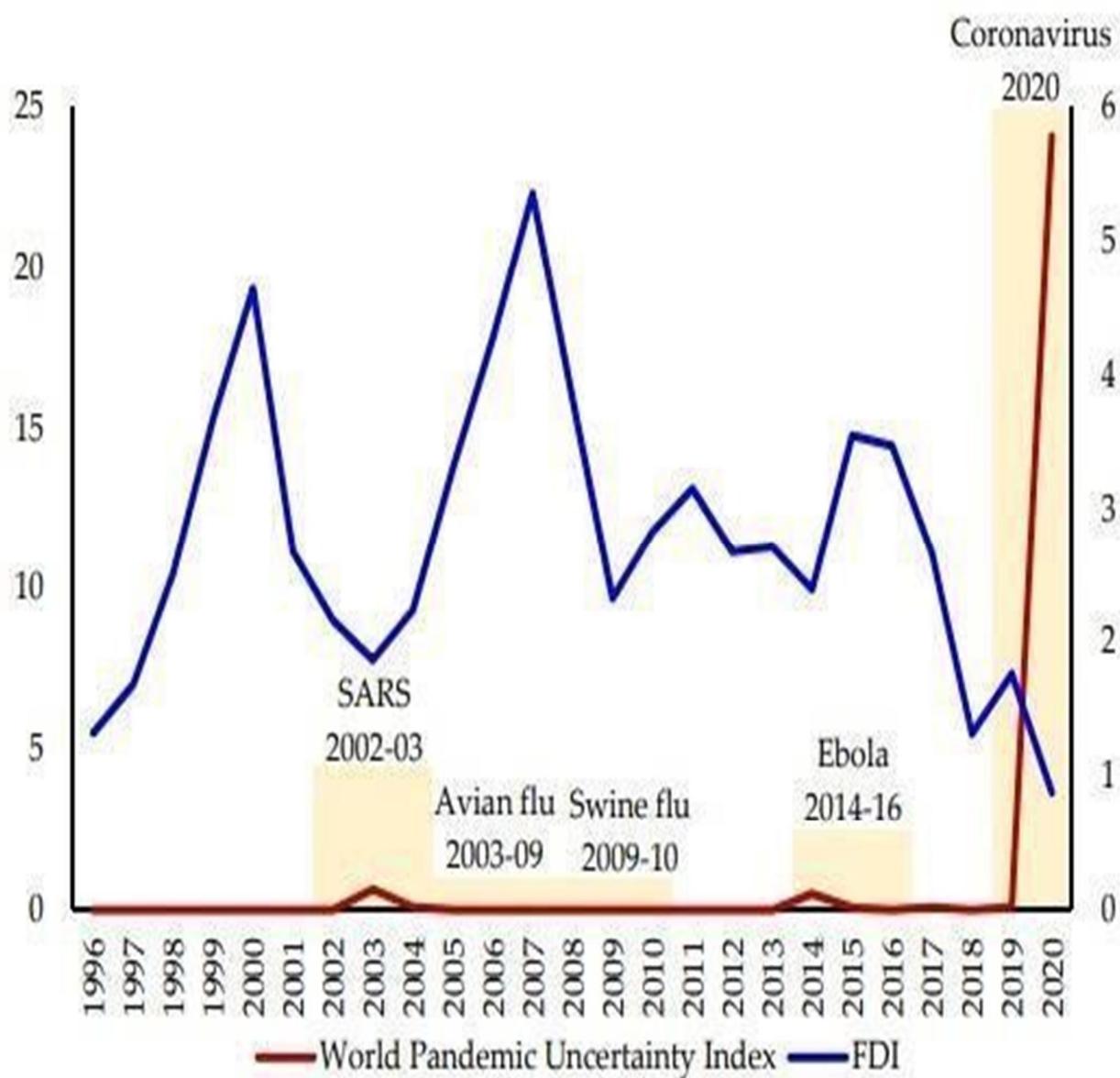
III. LITERATURE REVIEW

The literature has shown a connection among vulnerability and financial direct. Hassett and Sullivan (2015) lead a writing evaluation on the impacts of strategy vulnerability on the way of behaving of legislatures and organizations. The creators focus on the connection among venture and vulnerability as well as the commitments of the Pastry specialist et al. (2016) laidout EPU record to the comprehension of financial factors including homegrown venture, FDI, and monetary development. The writing on the impacts of EPU on corporate decisions and monetary business sectors is evaluated by Al-Thaqeb and Algarrobilla (2019). Nguyen et al. (2018) found that EPU impacts organization execution, which makes sense of why organizations spend more abroad than they do at home in countries with lower levels of EPU (decreased vulnerability).

The ascent in outbound FDI following a shock to the EPU record in the home country is affirmed by Hsieh et al. (2019). Shocks in FDI inflows are brought about by financial vulnerability welcomed on by things like conflicts, emergencies, and exchange clashes. To analyse their effects on FDI net inflows in 23 nations from 2003 to 2013, Nguyen et al. (2019) use EPU, which represents homegrown vulnerability, and WUI, which was laid out by (Ahir et al. (2018), which represents worldwide vulnerability. As per the review (Nguyen et al. 2019), there is a negative relationship between inner vulnerability and FDI inflows and a positive connection between worldwide vulnerability and FDI inflows into the host countries. World vulnerability (WUI) brings down FDI net inflows for the most part, as per Avom et al. (2020), who likewise utilize a more extensive dataset including 138 nations from 1996 to 2018. The concentrate additionally exhibits that arising and creating economies are more harmed byworldwide vulnerability than cutting edge economies are (Avom et al. 2020). The Coronaviruspandemic made the vulnerability around pandemics expansion in 2019 and 2020. To representvulnerability brought about by worldwide pandemics like SARS, Avian influenza (H5N1), Piginfluenza (H1N1), Centre East respiratory condition (MERS), Bird influenza, Ebola, Covid (Coronavirus), and Flu (H1V1), Ahir et al. (2018) presented the WPUI file at the worldwide and country levels in 2020. WPUI's larger number indicates a more prominent level of pandemic vulnerability. Figure 1 portrays different WPUI values from 1996 to 2020 that relateto a few pandemics. The Coronavirus infection has created an unrivalled measure of pandemicvulnerability and the most exceedingly awful throughout the course of recent years.

The WUI file assesses monetary and political vulnerability, while the WPUI record tends to pandemic vulnerability (Ahir et al. 2018; WPUI 2020), despite the fact that the two files weremade for 143 rich and emerging countries beginning in 1996. The WUI record is made by counting the events of the expression "vulnerability" and its varieties in country reports from the financial specialist Knowledge Unit (EIU).

Thus, the WUI record estimates generally speaking vulnerability welcomed on by all events, including wars, fear monger assaults, obligation and monetary emergencies, exchange questions, infection episodes, the US official decisions, and the Brexit (Ahir et al. 2018). The WPUI file, be that as it may, just records for the recurrence of the expression "vulnerability" according to wellbeing pandemics in EIU reports (Ahir. et al. 2018; WPUI 2020). At the end of the day, the WPUI list estimates pandemic vulnerability or specific vulnerability brought about by worldwide pandemics like SARS, Avian influenza, Pig influenza, Ebola, and Coronavirus. The 2020 WPUI file adds to the advancement of vulnerability record around the world.



IV. OBJECTIVE OF STUDY

- 1) Examine the impact of the Covid-19 pandemic on the inflow of FDI to India.
- 2) To gain a fundamental understanding of India's revised FDI policy.
- 3) Health pandemics, such as the COVID-19 pandemic, have introduced unprecedented levels of economic uncertainty on a global scale. Concerns have been expressed regarding this uncertainty's potential negative effects on foreign direct investment (FDI) across numerous economies and regions.
- 4) To address this issue, this study intends to investigate systematically the effects of health pandemics, with a particular focus on the COVID-19 virus, on FDI inflows.

V. RESEARCH METHODOLOGY

A research methodology refers to the strategies and procedures employed to discover and assess information relevant to a specific research subject. It serves as the blueprint through which researchers plan their study to achieve their objectives, encompassing elements like research design, data collection methods, data analysis techniques, and the overarching structure of the research project.

A. Data Collection

The majority of the information needed for a study on the consequences of the COVID-19 epidemic on foreign direct investment (FDI) comes from secondary sources, including reputable print and online sources. The technique for acquiring data and its limitations are described below:

- 1) *RBI Bulletin*: The Reserve Bank of India's (RBI) bulletin can shed light on how the pandemic has affected the Indian economy, changes to FDI regulations, and patterns of FDI inflows and outflows. Usually, reports, articles, and data about the state of the economy are included in the bulletin.
- 2) *Economic Survey Reports*: The Indian government's economic survey reports provide important information on the pandemic's overall economic impact and its implications on FDI. These studies contain data, analysis, and suggestions for public policy.
- 3) *DIPIT (Department for Promotion of Industry and Internal Trade)*: The studies and publications of DIPIT can provide information on shifts in FDI policies, government programs to encourage FDI, and trends in certain industries. Understanding India's FDI landscape during the epidemic will benefit from knowing this information.
- 4) *Internet Sites*: The Internet is a fantastic source of knowledge and facts from numerous various worldwide perspectives. You can look at reputable websites, publications from international organizations (including UNCTAD and the World Bank), academic studies, and news sources to find out more about how the pandemic is influencing FDI around the world.

B. Data Type

- 1) Conducted a thorough search of the mentioned sources to extract data about the pandemic's effects on FDI. Data on FDI inflows, outflows, policy modifications, and sector-specific trends are all included.
- 2) To examine patterns and changes, we gathered data over a specified time period (for example, prior to, during, and following a pandemic).
- 3) To present the gathered data effectively, we used tables, charts, and data visualization approaches.
- 4) Paired samples, line graphs, and other tools and techniques have been utilized in data analysis.

C. Limitations

- 1) *Data Availability*: The availability of global FDI data may vary, and some countries may not provide timely or comprehensive information. This can affect the completeness of the study.
- 2) *Data Quality*: While statistics on FDI is available from official sources like the UNCTAD, the accuracy and consistency of reporting by various countries can raise questions. Issues with data quality could develop as a result of inconsistent reporting standards and procedures.
- 3) *Timeliness*: For a better understanding of how the pandemic is affecting FDI over time, current data is essential. The study's capacity to record real-time changes may be constrained by delays in data dissemination.
- 4) *Country-Specific Factors*: Various country-specific factors, such as governmental policies, economic conditions, and political stability, have an impact on FDI trends. These elements may make it more difficult to analyze trends in global FDI.
- 5) *Sectoral Variation*: The pandemic's effects on FDI may varied dramatically across various businesses and sectors. To accurately capture these differences, the data may need to be de-identified.
- 6) *Causality and Attribution*: Establishing causality between the pandemic and changes in FDI can be challenging, as multiple factors can influence investment decisions. Additionally, attributing FDI changes solely to the pandemic may oversimplify the analysis.
- 7) *Generalization*: Studying a varied range of nations, each with its own set of economic circumstances, may necessitate taking a global viewpoint. It might not be fair to generalize results to all nations; regional differences should be taken into account.
- 8) *Subjectivity*: Depending on the viewpoint and presumptions of the researcher, data interpretation and effect analysis may be subjective.

VI. ANALYSIS AND INTERPRETATION

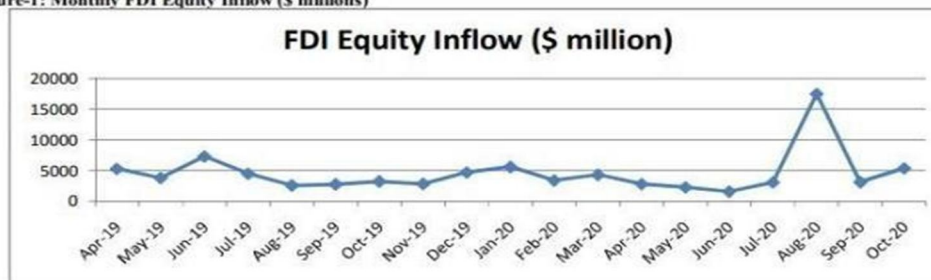
The objective of this study is to assess the impact of the COVID-19 pandemic on Foreign Direct Investment (FDI) inflow in India. Over the past 19 months, spanning from April 2019 to October 2020, including the periods before and after the onset of the pandemic, Table 1 illustrates the monthly FDI equity inflow trends.

Table-1 (Amount in \$ million)

Month	April-19	May-19	June-19	July-19	Aug-19	Sept-19	Oct-19	Nov-19	Dec-19	Jan-20
FDI Equity inflow	5252	3795	7285	4472	2553	2741	3211	2804	4659	5570
Month	Feb-20	March-20	April-20	May-20	June-20	July-20	Aug-20	Sept-20	Oct-20	
FDI Equity inflow	3361	4278	2772	2240	1550	3049	17487	2906	5331	

Sources: FDI Statistics, Department of Industrial Policy & Promotion, Ministry of Commerce & Industry

Figure-1: Monthly FDI Equity Inflow (\$ millions)



The data in the table and the accompanying graph reveal that FDI equity inflow remained relatively steady for the fiscal year 2019-20. However, a noticeable decline in FDI equity inflow became evident in February and persisted through June due to the COVID-19 outbreak. Figure 1 illustrates the monthly pattern of FDI equity inflow, showing a substantial 60% decrease, with inflow dropping to \$6,562 million between April and June 2020, down from \$16,329 million during the same period in the previous year. Interestingly, FDI equity inflow experienced a significant upswing during the second quarter of the fiscal year 2020-21. The highest monthly FDI inflow recorded was \$17,487 in August 2020, which is quite remarkable.

Figure-2 last 5 years average FDI Equity inflow for the considered months

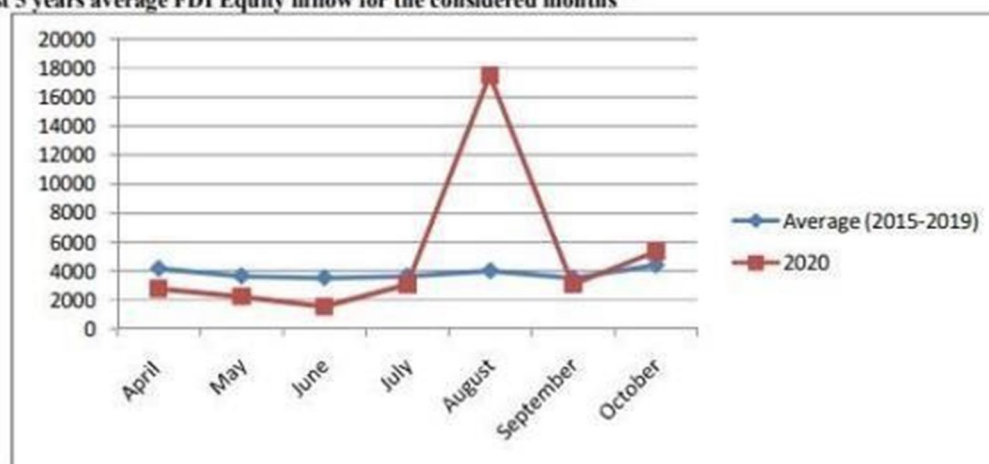


Figure 2 illustrates a comparison between the monthly FDI equity inflow from April 2020 to October 2020 and the average FDI equity inflow for the same months over the previous five years. The graph clearly indicates that the decline in FDI equity inflow from April to June 2020 can be attributed to the impact of the Covid-19 outbreak when compared to the average inflow over the preceding five years. However, it's worth noting that there was a substantial recovery in FDI inflow from July to October 2020. Notably, the largest FDI equity inflow occurred in August 2020, primarily due to Google's substantial \$10 billion investment in the country.

VII. RESULTS

- 1) In the initial quarter of FY-20, the COVID-19 pandemic led to a gradual 60% decrease in FDI equity inflow when compared to the previous year. Nevertheless, there was a remarkable surge in the second quarter.
- 2) When we contrast the FDI equity inflow for April to June in FY-20 with the five-year average of the same months preceding it, we observe a significant drop. However, from July 2020 onwards, FDI inflow has rebounded at an astonishing rate.

VIII. SOLUTIONS

- 1) Promotes Investment Stability: Governments can provide assurances of investment stability by implementing transparent policies and reducing regulatory uncertainty.
- 2) Establish safeguards to protect foreign investors from sudden policy shifts.
- 3) Diversify Investment Promotion: Encourage investment promotion agencies to diversify their efforts by focusing on a broader range of industries, including those that are resilient to economic downturns.
- 4) Support for Digital Transformation: Encourage digital transformation initiatives to entice FDI in technology-driven industries. Invest in digital infrastructure to facilitate business operations conducted remotely.
- 5) Incentives for Green Investment: Provide subsidies and incentives for environmentally sustainable initiatives to align with global ESG trends. Create favorable conditions for investments in renewable energy and sustainable technology.
- 6) Supply Chain Resilience: Develop strategies to strengthen supply chain resilience, which can attract FDI from companies seeking to mitigate disruption-related risks.
- 7) Investor Outreach: Conduct proactive investor outreach campaigns to promote investment opportunities and reassure potential investors about the outlook for the economy's recovery.
- 8) Public-Private Partnerships: Promote collaboration between governments and the private sector to identify and finance strategic investment initiatives, particularly in vital sectors such as healthcare.
- 9) Skill Development: Invest in Education and Skill Development to Ensure a Qualified Workforce and Make the Country More Attractive for Foreign Direct Investment in Knowledge-Intensive Industries.
- 10) Trade Facilitation: Simplify trade procedures and reduce trade barriers to promote that leverages international markets.
- 11) SME Support: Create targeted support programs for small and medium-sized businesses (SMEs) in order to encourage local and international investments in this vital sector.
- 12) Geopolitical Diplomacy: Engage in diplomatic efforts to reduce geopolitical tensions and trade disputes, which can negatively impact FDI decisions.
- 13) Global Health Preparedness: Collaborate internationally to enhance health crisis preparedness, reassuring investors of a secure future investment environment.
- 14) Economic Recovery Initiatives: Implement comprehensive economic recovery plans that prioritize infrastructure development and innovation in order to attract FDI.
- 15) Transparency and Accountability: Enhance governance's transparency and accountability to inspire investor confidence in the investment climate's stability.
- 16) International Cooperation: Demonstrate a commitment to global stability by engaging in international cooperation and partnerships to collectively address economic challenges.

These solutions can assist in mitigating the negative effects of the pandemic on FDI and fostering a more favorable environment for foreign investors. However, the efficacy of these strategies may vary based on a country's unique conditions and obstacles

IX. CONCLUSION

This study is the first to explore the effects of health pandemics on foreign direct investment (FDI) net inflows in 142 countries from 1996 to 2019, with a focus on the new pandemic uncertainty measure called WPUI. It also takes into account the heightened uncertainty in 2020-2021 due to the COVID-19 pandemic. The results indicate that global FDI net inflows decrease in the face of pandemic-related uncertainty. Specifically, between 1996 and 2019, emerging economies in the Asia-Pacific region saw a negative impact on their FDI inflows due to pandemic uncertainty, which was mitigated by using income and area subsamples in the analysis.

The research suggests that pandemic-related uncertainty leads to reduced FDI transfers to host countries, influencing the behavior of multinational corporations. Moreover, the economies of emerging countries in the Asia-Pacific region are more susceptible to economic shocks resulting from FDI and multinational business activities compared to other regions.

This unpredictability can lead to significant unemployment and a decline in GDP. Therefore, governments in emerging economies in the Asia-Pacific region must take swift action to support sustainable development and economic recovery during the period from 1996 to 2019.

In contrast, the COVID-19 pandemic had a different impact on India. After an initial decrease in FDI equity inflow in the first quarter of FY-20, India experienced a rebound in the second quarter, thanks to a business-friendly environment and timely FDI rule revisions by the government. India's advantages, such as infrastructure and a sizable local market, positioned it well to attract major manufacturing companies. In summary, the COVID-19 pandemic did not negatively affect India's foreign direct investment inflow, unlike some other Asia-Pacific countries and developing economies during the period from 1996 to 2019.

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