



**PBME**

# **PERSPECTIVES ON BUSINESS MANAGEMENT & ECONOMICS**

**Volume VII • December 2022**  
**Single-Blind Peer-Reviewed Edited Book**

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# PERSPECTIVES ON BUSINESS MANAGEMENT & ECONOMICS

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# PREFACE

We are happy to announce the **Seventh Volume** of our **Perspective of Business Management and Economics (PBME)**. The volume has brought in some fresh perspectives and research views related to Business Management and Economics. We notice the return of business to the pre-COVID-19 days. However, fresh fears of a recession globally are appearing.

The first paper in the volume is a research article by **Dr. Sathish Kumar B, Aiswarya Jayesh, and Sneha Rose K.S** entitled ***Impact of the Russia-Ukraine War on the Indian and US Stock Markets***. It examined the contagion effects of the war on the Indian the U.S. Stock markets. The event study used VAR model and found that India had a substantial return spillover on the USA during both pre-post periods.

The second paper by **Mihika Pal and Tapas Pal** entitled ***Challenges faced by University-level students of Delhi NCR due to the sudden transition from online mode of education to offline mode of education*** dealt with the advantages and disadvantages of the online and offline modes of education. The study finds that most students agreed that the offline mode of study is more effective, while a significant number of students also benefitted from online education.

The third paper by **Bhavya Satish Patel** discusses ***Inflation Management Techniques in the Post-Pandemic Era: An Examination of Top 10 Economies***. It dealt with the various inflation management strategies the top ten global economies used to combat inflation.

The fourth research paper is by **Dr. Harshada Satghare**, who discussed the ***Role of Smart city mission in the development of smart tourism destinations in India: A need of an hour after the COVID-19 pandemic***. The research states that the Government of India is considering forwarding the Smart city model developed from these 140 cities to all the proposed four thousand cities in India.

The fifth paper is by **Ms. Mousime Xalxo**, who discussed the ***Tourism Management Practices at Loktak Lake, Manipur***, from the perspectives of sustainable tourism and water management practices.

## Editorial Team

**Perspectives on Business Management & Economics**

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**Mr. Vijaya Kittu Manda** is an academic researcher and trainer. He has 11+ years of experience in capital markets, financial planning, and investing. He is an Advocate, an I.T. Entrepreneur, and a Capital Market Trainer. His investing journey started in his college days. As a firm believer that knowledge can make a difference, he is forever a student and has ten University Postgraduate Degrees in different subjects. He is NISM Certified in multiple topics. His passion for investing made him study MBA and M.A. (Economics), and he submitted his Ph.D. thesis in Management with a specialization in Mutual Funds. He always encourages everyone to learn any subject that drives them towards their life goals. He also guides Undergraduate and Postgraduate students of Management and Engineering disciplines in their project work. As a securities market researcher, he is the author of several research papers that were published in reputed International Journals and Case outlets. He is a Web of Science Publons *Certified Peer Reviewer* and a *Certified Publons Academy Supervisor*. He reviews papers for several international journals, including *Sage Journals* and *Science Domain International*.

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**Dr. H M Matharu** is a Doctorate in Management, PGDEM, MBA with dual specialization in Finance & Marketing and Commerce. She is working as an Assistant Professor at St. Claret College, Bangalore. She has 15 years of vast teaching and industrial experience. Having pursued her education from Punjab, she has rich experience in the academic industry catering to graduate and postgraduate students' needs in Commerce and Management streams. She has guided many postgraduate students in their project work.

Dr. Matharu has shown her expertise in finance and marketing-related subjects. She has several papers published in National and International journals and presented at conferences. She authored a book on Banking Law and Operations for Bangalore University and on Organisational Behaviour for Mysore University. She was awarded as Indo Global Exemplary Educator award from the Indo-Global Chamber of Commerce and Agriculture Industries, Pune. She is a Review member of the *Journal of Emerging Technologies and Innovative Research* and the Associate Editor of the *International Journal of Commerce and Management Studies*.




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# IMPACT OF THE RUSSIA-UKRAINE WAR ON THE INDIAN AND US STOCK MARKETS



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## ABSTRACT

The Russian-Ukraine war started on January 24, 2022, creating contagion effects in the global financial market. The study investigates the stock market reactions of India and the USA to the Russia-Ukraine War using an Event study and the VAR Model. During this study, it was transparent that the war-affected different stock markets in different ways. The level of impact depends upon how much these countries are involved in the War. The event study found that both Indian and USA stock markets were positively impacted after the War. From VAR, it was also seen that the Indian stock market had a positive return spill over from USA stock market post-war. The chapter contributes for the effective decision making of investors and stock market analyst.

<b>Keywords</b>	Russian-Ukraine War, Return spill over, Event Study, VAR
<b>JEL Classification</b>	C58, C87, D53, E44
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## INTRODUCTION

On February 24, 2022, the Russian invasion took place. The Russo-Ukrainian Cold War almost turned into World War III. The conflict between the two countries is increasing and affecting the whole world, including the stock market. Disasters in Russia and Ukraine could worsen the economic system and markets. Russia produces significant commodities, including palladium, in catalytic converters for gasoline vehicles, and their load contributes to excessive inflation in the United States and India. During this war outbreak, firms that can withstand transition risk did well, especially in U.S. It is seen that there is a transition to a low-carbon economy.

Europe's high-conversion risk stocks did not show such a notable upswing. From an industry perspective, these stocks have underperformed during the hatching period. The result may be due to more robust expected policy responses. In Europe's relative dependence on Russian oil and gas, supporting renewable energy sources is believed to be the only way for Europe to improve energy security. In short, the transition rate to a low-carbon economy appears to be the difference between the USA and Europe.

India's benchmark fell 3% in the initial stage of the war, prompting investors to dump high-risk assets into safer assets. The current situation in Russia and Ukraine is also affecting mature markets like the United States, where the S & P 500 fell more than 7%. US Fed has implemented quantitative restrictions to reduce inflation, but the current scenario of commodity price increases will have a cascading effect. With the two largest economies globally, the impact is visible in the Indian stock market with escalating geopolitical tensions that could force foreign investors to repatriate capital, which will be negative for stocks and the rupee.

## REVIEW OF LITERATURE

The War in Ukraine was a challenge for the economy, shocking everyone and leaving the losers out of certain energy exporters (Liadzel, Macchiarelli, Lee, Juanino 2022). The war added fuel to already rising fuel prices and inflation. Central banks do not know what to do in the face of rising interest rates. There is complete uncertainty about business operations and possible gas supply disruptions in Europe. India has adopted a neutral position created from a historic strategic partnership with Russia (Meena 2022). The Cold Storage Alliance is a multifaceted diplomatic, defense, nuclear energy, and technology organization that puts Russia at the heart of India's nation-building process, especially during this time. However, this is unlikely to protect India from the ravages of a war of such magnitude. Especially in global



geopolitics, India and Russia today find themselves increasingly attached to two other great powers, China and the United States.

Although major geopolitical events have worldwide consequences, their economic influence varies dramatically across space. A high "proximity penalty" was identified when analyzing stock market reactions to the situation in Ukraine. In the few weeks leading up to the start of the conflict, neighboring countries experienced an abnormal drop in equity indices of 23.1 percent on average. The influence is reduced by 2.6 percentage points when a country's distance from Ukraine is increased by 1,000 kilometers. Even when trade-related spillovers are considered, an extra 1,000 kilometers in the distance equates to 1.0 percentage points in equities returns. A probable driver of the proximity penalty is military spillover risk (Federle, Müller, Meier, & Sehn, 2022).

The consequence of the Russian charge of Ukraine in 2022 created negative cumulative abnormal returns for global stock market indices, albeit with varied consequences, using an event study methodology. According to cross-sectional analysis, economic globalization, as measured by GDP-scaled trade, is inversely associated with event-day and post-event returns. Markets in NATO countries showed greater returns, corresponding to the predicted economic stimulus of military preparation. According to the findings, markets in more globalized economies are more vulnerable to foreign wars, although substantial differences exist (Boubaker, Goodell, Pandey, & Kumari, 2022).

The stock market reaction of 381 companies with Russian exposure during the first 20 (30) trading days after the conflict was that there were significant negative average abnormal returns of -2.65 percent (-4.06 percent), showing that all enterprises with Russian operations were significantly affected. Focusing on companies' strategic decisions about their Russian activities, enterprises that decide to leave Russia earn significantly less than those that remain to operate or have not made a definitive decision. Furthermore, we discover that the adverse market reaction is stronger for European manufacturers who have announced their plans to leave Russia and European service firms who have decided to stay, implying that the industry plays a role. (Berninger, Kiesel, & Kolaric, 2022)

In their study, Kang and Meernik (2005) investigated the effect of the Civil War on several economies from 1960 to 2002. They have found that the war has a negative impact on economic basics, and the international community's response to the Civil War substantially impacts economic growth.



Previous studies on the consequences of war have shown that conflict has significant economic consequences, which raise concerns about the duration of the war or conflict, how Russia will respond to sanctions, the impact on the global economy, and the reaction of global financial markets. The Standard and Poor (S &P) 500 index recorded the first correction since October 2020, as it fell by more than 10% from the recent peak.

Country-level analysis confirms that firms in European countries have experienced a considerable decline in cumulative abnormal returns. In contrast, firms in countries far away from Ukraine and Russia are not significantly affected. Sector-level analysis shows that the manufacturing sectors of European countries are mostly affected by the war. Finance and services have been negatively affected more significantly than manufacturing. Other scholars pointed out that developing countries will likely suffer from civil war and get income shocks.

The study on the Russo-Ukrainian War and its effects on the stock market (Ahmad 2022) focuses on the US stock market. He believes that the war directly affects US profits and other developed markets. Moreover, Russian exports have been at the heart of the recent rise in inflation, including energy products used in cars and trucks. Thus, the increase in petrol prices will increase the price of cars, further exacerbating the situation.

Further study on stock prices and the War between Russia and Ukraine, which concerned sanctions, energy, and legislation by (Deng, Leipold, and Wang) (2022), mentioned how Russia's invasion of Ukraine puts stocks at risk of shifting into a weak economy which is true in the case of the US stock market. After the invasion, US stocks underperformed their previous performance. Linking different environmental, social, and governance (ESG) metrics to stock price performance yielded different results, suggesting that investors cannot easily rely on these metrics. Common to demonstrate the resilience of companies in the face of a crisis.

The study examines the stock market's response to the Russian invasion on February 24, 2022 (Sun, Song, Zhang 2022). We note that war affects stock markets from country to country using the event research approach—moreover, sectors depend on the degree of involvement of nations or sectors in the war. Country-level analysis confirms that companies in EU countries have experienced a significant drop in extraordinary cumulative profits, while companies in other countries far from the battlefield are unlikely to be significantly affected. . Industry-level analysis shows that the manufacturing sector in EU countries was heavily affected by the war and the financial and service sectors were negatively affected to a greater extent than the industry sector.



Since Russia invaded Ukraine, Russian sanctions' direct and indirect impact on international equity markets was calculated. Sanctions-levying countries have more substantial institutional quality and lower corruption rates than non-sanction-levying countries. On average, sanctions on Russia cost each country's stock market 0.11 trillion dollars or -2.39 percent. According to a back-of-the-envelope assessment, the Russian stock market lost between 137 billion and 353 billion dollars or 7% to 20% of the country's annual GDP which is caused alone by the mentioned sector and the combined effect of the invasion and sanctions. The average equities market loss for countries that impose sanctions on Russia is close to 3% of GDP, whereas the loss that Russia suffers as a percentage of its entire GDP is between 16 and 43 percent. (Huang & Lu, 2022)

## RESEARCH OBJECTIVES

1. To identify the impact of the Russia-Ukraine War on Indian and US stock markets.
2. To understand the return spillover of S&P 500 to NIFTY 50 before and after the war.

## RESEARCH METHODOLOGY

In this study, daily closing values of India and United States indices, shortened Nifty 50 and S&P 500, are respectively taken. The historical data was collected from the database of Yahoo Finance and Market Watch. The data from January 21 to 24th (2 months) March is used. An *event study* is a tool used to understand the impact of the Russia-Ukraine War on India and the US stock market. An event study involves analyzing whether the past occurrences of a given type of event create a significant effect on the financial market.

Vector automatic regression (VAR) is a statistical model used to capture the relationships between many quantities as they change over time. Vector Auto Regression (VAR) is also used to understand the impact of India on US stock market returns pre- and post-Russia- Ukraine war.

## RESULTS

The Event Study results, descriptive statistics, and Vector Auto Regression (before and after the war) are presented in Table 1. The sample means are positive for Indian and USA stock returns. As measured in Standard deviation, the volatility decreased during the post-Russia-Ukraine War period in both stock markets. From the Jarque-Bera test statistics, the null hypothesis that the return series is normally distributed is accepted. From figure 1, it was found that there were fluctuations in both countries' stock markets. Further, it was noticed that there



was a more significant decline in the Nifty compared to the S&P 500 on the day of the War (February 24, 2022).

**Table 1: Descriptive Statics of index return**

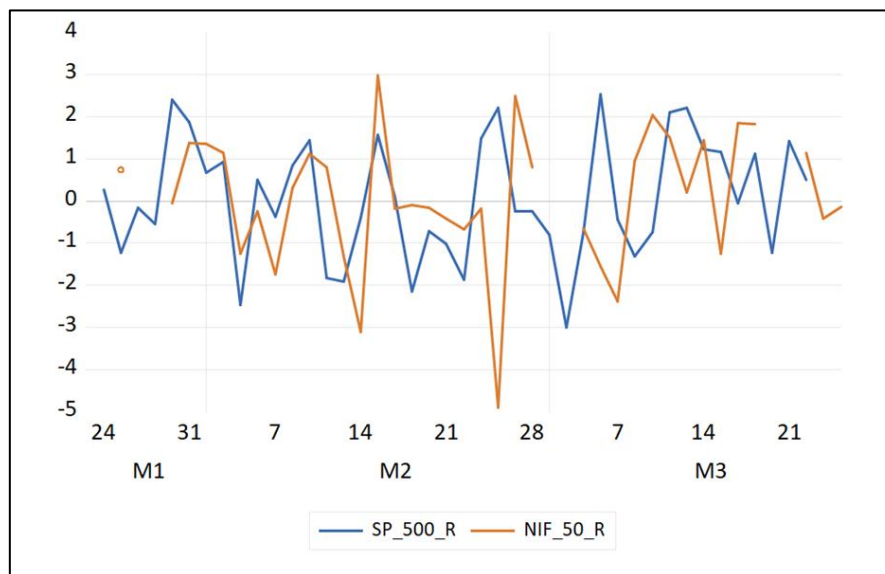
**Pre-war period**

**Post-war period**

	NIF_50_R	SP_500_R		NIF_50_R	SP_500_R
Mean	-0.210570	-0.012610	Mean	0.496061	0.197172
Median	-0.163667	-0.030846	Median	0.876565	-0.141339
Maximum	2.981035	2.405589	Maximum	2.494786	2.537367
Minimum	-4.896027	-2.469348	Minimum	-2.380786	-2.996252
Std. Dev.	1.678816	1.446152	Std. Dev.	1.431339	1.450121
Skewness	-0.930771	-0.041748	Skewness	-0.497325	-0.181852
Kurtosis	4.532131	1.915577	Kurtosis	2.166899	2.551607
Jarque-Bera Probability	5.086171 0.078623	1.182944 0.553512	Jarque-Bera Probability	1.122257 0.570565	0.250002 0.882496
Sum	-4.421971	-0.302644	Sum	7.936972	3.549099
Sum Sq. Dev.	56.36845	48.10117	Sum Sq. Dev.	30.73099	35.74848
Observations	21	24	Observations	16	18

Data Source: Author compilation

**Figure 1: Daily Index series for the study period**



Data Source: Author compilation

While studying the event's impact (Table 2), it was inferred that post-war Nifty performed 0.155% positively compared to the pre-war period. However, this positive performance does not show a sizable difference between the pre-war period. A similar positive performance of 0.41% was observed when moving to the USA stock market, which made more impact than the Nifty (Table 2.1).

**Table 2: Event study for NIFTY 50**

Dependent Variable: NIF_50_R				
Method: Least Squares				
Date: 05/09/22 Time: 12:37				
Sample (adjusted): 1/25/2022 3/24/2022				
Included observations: 37 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023703	0.361372	0.065591	0.9481
@AFTER("02/24/2022")	0.155176	0.533127	0.291068	0.7727
R-squared	0.002415	Mean dependent var		0.095000
Adjusted R-squared	-0.026088	S.D. dependent var		1.595426
S.E. of regression	1.616103	Akaike info criterion		3.850451
Sum squared resid	91.41260	Schwarz criterion		3.937527
Log likelihood	-69.23334	Hannan-Quinn criter.		3.881149
F-statistic	0.084721	Durbin-Watson stat		2.250298
Prob(F-statistic)	0.772717			

Data Source: Author compilation

**Table 2.1: Event study for S&P 500**

Dependent Variable: SP_500_R				
Method: Least Squares				
Date: 05/09/22 Time: 12:46				
Sample (adjusted): 1/24/2022 3/22/2022				
Included observations: 42 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.109359	0.299512	-0.365124	0.7169
@AFTER("02/24/2022")	0.412607	0.445310	0.926562	0.3597
R-squared	0.021012	Mean dependent var		0.077297
Adjusted R-squared	-0.003463	S.D. dependent var		1.433930
S.E. of regression	1.436410	Akaike info criterion		3.608619
Sum squared resid	82.53096	Schwarz criterion		3.691365
Log likelihood	-73.78100	Hannan-Quinn criter.		3.638949
F-statistic	0.858517	Durbin-Watson stat		1.666461
Prob(F-statistic)	0.359711			

Data Source: Author compilation

In order to understand the spillover effects of the Nifty 50 and S&P 500, a vector autoregression tool was used. The lag length considered for pre- and post-war periods is 1 and 2. During the pre-war period, India's first and second lag has a significant negative return spillover on the USA and its stock market. It was also observed that USA's second lag has a more significant spillover effect on Indian stock market returns. On the contrary, India's lags have a significant positive spillover return on the USA stock market.



**Table 3: Vector Auto Regression estimates before War**

Vector Autoregression Estimates		
Date: 05/09/22 Time: 12:57		
Sample (adjusted): 2/01/2022 2/24/2022		
Included observations: 18 after adjustments		
Standard errors in ( ) & t-statistics in [ ]		
	NIF_50_R	SP_500_R
NIF_50_R(-1)	-0.718464 (0.35740) [-2.01025]	-0.646456 (0.29942) [-2.15904]
NIF_50_R(-2)	-0.790767 (0.35052) [-2.25601]	-0.701496 (0.29365) [-2.38887]
SP_500_R(-1)	0.109408 (0.31597) [ 0.34626]	0.219430 (0.26471) [ 0.82894]
SP_500_R(-2)	1.092273 (0.34550) [ 3.16146]	0.326656 (0.28945) [ 1.12855]
C	-0.211681 (0.35741) [-0.59227]	-0.092759 (0.29942) [-0.30979]
R-squared	0.450685	0.444870
Adj. R-squared	0.281665	0.274061
Sum sq. resids	28.82713	20.23251
S.E. equation	1.489118	1.247536
F-statistic	2.666460	2.604489
Log likelihood	-29.77940	-26.59317
Akaike AIC	3.864378	3.510352
Schwarz SC	4.111703	3.757677
Mean dependent	-0.361336	-0.163429
S.D. dependent	1.756975	1.464210
Determinant resid covariance (dof adj.)		3.201869
Determinant resid covariance		1.670111
Log likelihood		-55.69780
Akaike information criterion		7.299755
Schwarz criterion		7.794406
Number of coefficients		10

Data Source: Author compilation





**Table 3.1: Vector Auto Regression estimates after War**

Vector Autoregression Estimates		
Date: 05/09/22 Time: 12:59		
Sample (adjusted): 2/25/2022 3/17/2022		
Included observations: 11 after adjustments		
Standard errors in ( ) & t-statistics in [ ]		
	NIF_50_R	SP_500_R
NIF_50_R(-1)	-0.226399 (0.23679) [-0.95610]	0.370971 (0.10056) [ 3.68894]
NIF_50_R(-2)	0.300481 (0.30428) [ 0.98752]	0.355583 (0.12922) [ 2.75171]
SP_500_R(-1)	-0.845193 (0.46287) [-1.82597]	0.143626 (0.19658) [ 0.73064]
SP_500_R(-2)	0.218264 (0.37079) [ 0.58864]	-0.024849 (0.15747) [-0.15780]
C	1.478870 (0.67759) [ 2.18255]	0.485497 (0.28776) [ 1.68715]
R-squared	0.374961	0.821077
Adj. R-squared	-0.041732	0.701795
Sum sq. resids	13.82537	2.493522
S.E. equation	1.517969	0.644660
F-statistic	0.899849	6.883490
Log likelihood	-16.86568	-7.445228
Akaike AIC	3.975578	2.262769
Schwarz SC	4.156440	2.443630
Mean dependent	0.865455	0.439626
S.D. dependent	1.487253	1.180520
Determinant resid covariance (dof adj.)		0.799870
Determinant resid covariance		0.237978
Log likelihood		-23.32097
Akaike information criterion		6.058359
Schwarz criterion		6.420082
Number of coefficients		10

Data Source: Author compilation





## CONCLUSION

The paper studies the impact of the war between Ukraine and Russia on India and the USA's market returns and investigates the spillover effects concerning pre- and post-war using an event study and VAR model. Even before war broke out in Ukraine, investors around the world were faced with a unique and challenging combination of events: economic activity restarting post-COVID19, fears about new virus strains, soaring inflation, and new central bank and monetary policy frameworks, among others which can be seen through the fluctuation before the war. Since the study was confined to a short period, the results showed a positive effect of the Ukraine-Russia war on the stock indices. However, India had a substantial return spillover on the USA during both pre-post periods.

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# CHALLENGES FACED BY UNIVERSITY-LEVEL STUDENTS OF DELHI NCR DUE TO THE SUDDEN TRANSITION FROM ONLINE MODE OF EDUCATION TO OFFLINE MODE OF EDUCATION



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## ABSTRACT

The genesis of COVID-19 disrupted the normal functioning, daily routine, and habits of all people around the world. The social distancing measures resulted in the world's most significant revolution of digitalization – starting from schools to colleges and MNCs, everything and everyone was online in front of a screen. The new normal was the digital screen, working in pyjamas, PowerPoint presentations, online quizzes, and work-from-home culture. However, with the global decrease in the overall cases of COVID-19 in late 2021 and 2022, the inevitable transition was again set in motion. The only difference this time was going to be from online to offline mode. The most affected section of people during both transitions were students. As most of the educational institutions are reopening, students have buckled up to attend the schools and colleges so that they can interact with their friends, classmates, professors, and teachers in person rather than talking to them across a screen. Considering this, research has been conducted to identify the challenges faced by university-level students of Delhi NCR due to the sudden transition from an online to an offline mode of education.



The study aims to identify and examine the causes and suggestions for the challenges faced by students due to sudden changes. The research focuses on the advantages and disadvantages of the online and offline modes of education. This study is a reflection of the minds of university-level students. It also aims to provide suggestions to college and government authorities to aid students to acclimatize to this transition smoothly.

<b>Keywords</b>	Online mode of education, offline mode of education, students, learning, challenges
<b>JEL Classification</b>	I2, I21, I23, I28
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## INTRODUCTION

The sudden outbreak of COVID-19 in December 2019 has impacted the lives of billions globally. As of the beginning of April 2022, there were 52 crore cases, and 62 lakh deaths reported globally. The usual normal was restricted and the new normal was the lockdown. Everything familiar, starting from meetings, education, festivals, and personal care, everything changed! As of October 2022, the total COVID-19 cases in India reached 4.46 crore with 5.30 lakh deaths. The pandemic is not only a global health problem but has also transformed the education landscape in almost every country.

One of the most affected sectors was the education sector. The students and teachers had to suddenly shift from the classical pedagogy methods to digital methods, which made it very difficult to adjust. It was new and unconventional as no one was prepared and nothing like this had ever happened in India since the beginning of education. Universities and teaching institutions around the world were on the run to modify their typical timetables and teaching methods to prepare for a safe and productive learning environment.

But restrictions and lockdown were lifted from March 31, 2021, and it became a thing of the past. Everything started to come back on track including the educational institutions. Soon, colleges and schools started to reopen, and students were also ready to get away from



the screen, and back to their physical classes where they could interact with their peers and teachers face-to-face.

## RESEARCH OBJECTIVES

1. To identify the challenges faced by university-level students in the transition from an online mode of education to an offline mode of education.
2. To enumerate the advantages and disadvantages of the online mode of education.
3. To enumerate the advantages and disadvantages of the offline mode of education.
4. To suggest measures at the Government and University level for the welfare of children.

## LITERATURE REVIEW

A study titled “Face-to-face or face-to-screen? Undergraduates’ opinions and test performance in classroom vs online learning” (Kemp N.; Grieve R., 2014) found out whether students’ preferences and favourites for learning psychology varied upon the method used to deliver the teachings. It was observed that the students have a general choice for face-to-face learning, even relating to academic discussions. However, the results showed no noticeable differences in academic performance during online learning compared to offline learning.

A study titled “Online versus Offline Mode of Education – Is India ready to meet the challenges of Online Education in lockdown?” (Khatak S.; Wadhwa N., 2020) shows that there are a lot of benefits to online learning such as flexible studying hours, less travelling time, ease of submission of assignments, hassle-free storage, and saving of documents and study material, time for self-care, etc. It also allows one to pursue studies with a job or internship. Enrolment in a side course is also feasible in addition to classroom teaching for gathering knowledge in a better way. The only problem with the online mode is that it lacks face-to-face interaction and exchange of ideas with classmates and teachers in real time. On the other hand, the offline mode of education inculcates a sense of discipline and responsibility in a student. It necessitates the physical presence of students and teachers along with face-to-face interaction and makes the interaction more fruitful and helpful. Another important aspect is that the exams are taken physically on paper which significantly reduces the chances of copying, thus making student independent.

A study, “COVID-19 Pandemic and Online Education: Impact on Students, Parents, and Teachers” (Gupta R., 2021), contained questions relating to ease of accessibility, attentiveness, learning outcomes, stress levels, and preferred learning mode. The



questionnaire was circulated via online channels revealing that almost all the respondents have access to virtual platforms. The results showed that 71.6% of students were not able to grasp the topics that were taught to them and 48.3% of students were inattentive during the online classes. Only 11.3% of students were sure that no cheating or unfair means were used during the exam; therefore, the integrity of the education provided has also been questioned. An additional concern was shown by parents relating to increased screen time (94.2%) and workload (57.7%) of the children. Online education has provided a solution to the current scenario, but it cannot replace offline learning, which ensures the holistic development of young minds for a better future.

The study, “Perception of Students towards the Offline and Online Modes of Learning during COVID-19 Lockdown” (Horo A.; Biswas N.; Das J., 2020), indicates that the respondents believe in the offline mode of study to be more effective as they could interact and coordinate better with their classmates and teachers. According to them, the study material is quickly accessible and can be circulated among peers aiding the learning and memorization of the concepts easily, especially during their examinations. Most of the students (70.5%) feel that a hybrid mode, including both online and offline methods, should be incorporated after the lockdown period ends.

A study titled “The Effectiveness of Online Learning: Beyond No Significant Difference and Future Horizons” (Nguyen T., 2015) proposes that the online mode of education is as effective as the conventional method when it comes to academic performance and understanding of subjects. Although there are some shortcomings in the online mode, those can be corrected with effective policies and efforts from the government and educational institutions in India. Online mode of education cannot be neglected as this is the future of education and learning, therefore it should be involved and embraced.

Meta-research conducted by Cook et al. (2008) titled “Internet-based learning in the health professions: a meta-analysis” selected 76 articles that compared internet and non-internet-based interventions and 130 articles containing no-intervention control for health professional learners. Through a meta-analysis, this study concluded that internet-based interventions were associated with positive effects compared to no interventions, still, the results and statistical heterogeneities were generally minor compared to offline teaching.

According to the article “Challenges faced by students while switching from online to offline classes” by Jyothi Menon, students are happy to go back to schools and colleges physically because they are going to interact with their classmates and teachers physically rather than via a screen. It was also noted that the student’s interest had been lost in physical,



and social activities and they refrain from them since they have been away from them for a long time.

## RESEARCH METHODOLOGY

**Research Design:** A descriptive study was conducted to identify the characteristics and gather data that described events, followed by organizing, tabulating, depicting, and analyzing them.

**Target respondents:** The target respondents of this study include university-level students of Delhi NCR.

**Sampling technique:** Convenient sampling was used. A Google form questionnaire was sent to university-level students in various regions of Delhi NCR via email and other digital media like WhatsApp, Facebook, and Instagram.

**Sample size:** The Google form was filled out by 179 respondents, out of which four responses were deleted. Therefore, the total number of respondents is 175.

**Data Collection:** Data collection was done by both primary and secondary methods. This research problem is contemporary; therefore, no exact secondary study is available on the Web. However, we have conducted secondary research by searching keywords like “online mode of education”, “offline mode of education”, “India”, “world”, “education”, “COVID-19”, etc. Primary research was conducted using a Google form questionnaire.

**Period of Study:** The study was conducted from April 2022 to October 2022.

**Questionnaire design:** The questionnaire contained close-ended questions with a multitude of multiple-choice questions, checkboxes, and Linkert’s scale based on variables identified from the literature review. All the questions are written in simple English language. The content and face validity of the questionnaire were done in discussion with academic experts and students through focused group discussions on Google Meet.

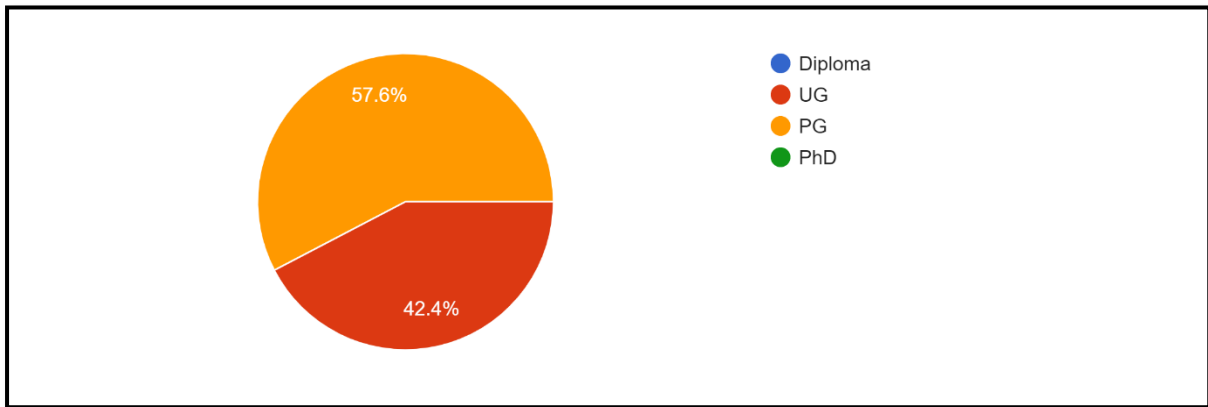
**Data Analysis Tool:** MS Excel was used for organizing, depicting, tabulating, and analyzing data.



## DATA INTERPRETATION AND ANALYSIS

The data collected from the structured questionnaire is analyzed in the following section.

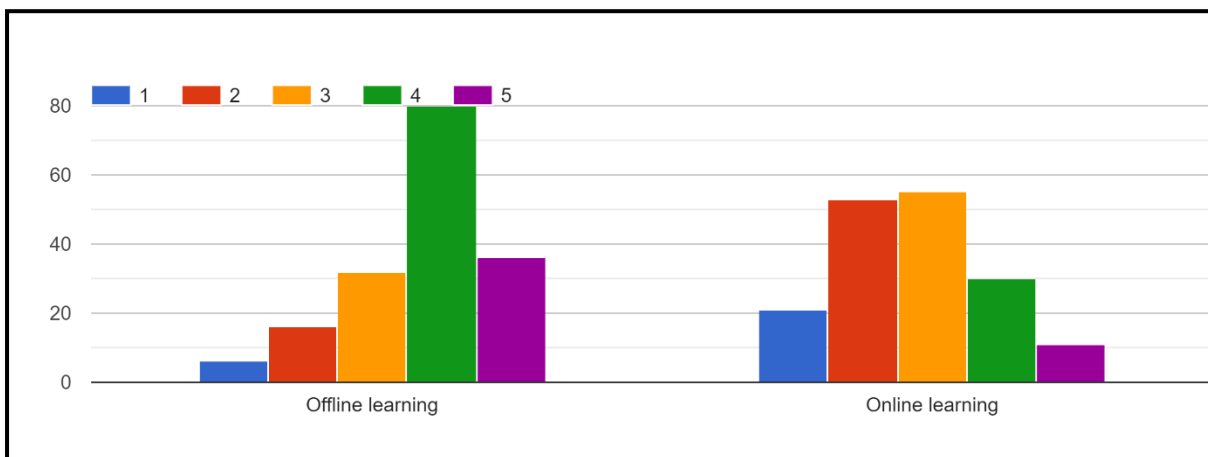
**Figure 1: Current Degree of respondent**



Data Source: Author compilation

According to the pie chart in Figure 1, 42.4% of the respondents are undergraduate students, and 57.6% are postgraduate students. None of the respondents is pursuing Diploma courses or a PhD. This shows that all the respondents are University level students only.

**Figure 2: Effectiveness of offline and online learning**



Data Source: Author compilation

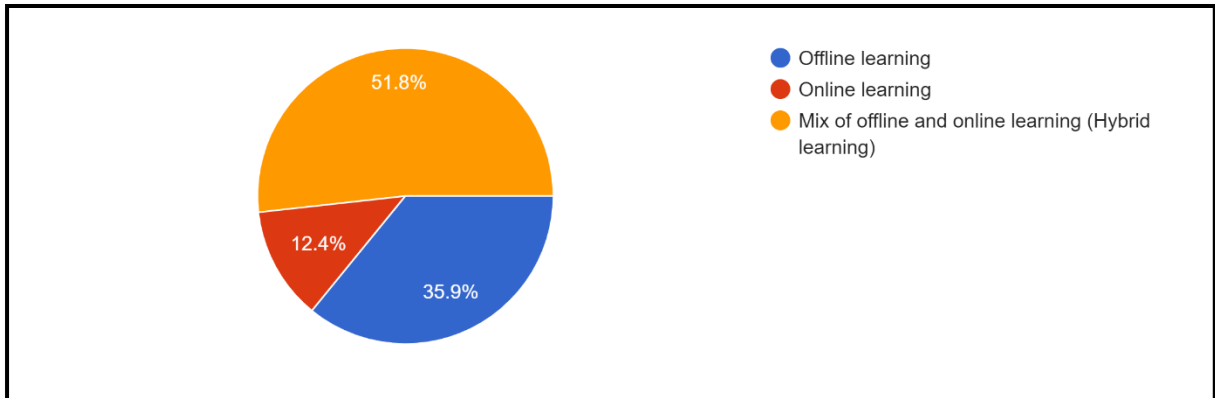
(Likert scale: 1-Very ineffective, 2-Ineffective, 3-Pretty effective, 4-Effective, 5-Very effective)

Figure 2 shows that most of the respondents (80 respondents) agreed that offline learning is effective for them, whereas only 36 respondents agreed that offline learning is very effective. On the other hand, 55 respondents feel that online learning is pretty effective, 30 respondents think that online learning is effective, and only 11 respondents feel that online



learning is very effective. All in all, this shows that many students have benefitted from offline education, but we cannot ignore that many students also benefitted from online education.

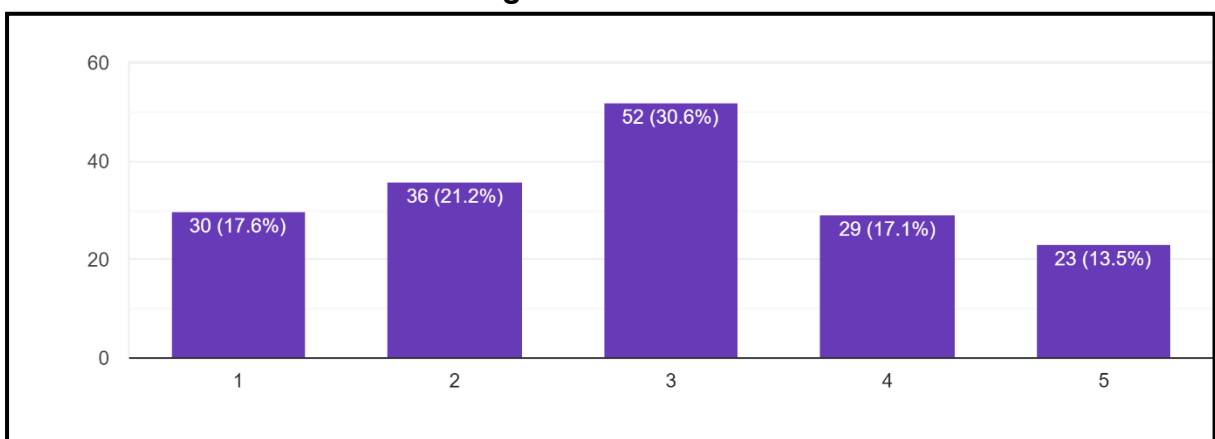
**Figure 3: Preference of learning  
(assuming appropriate safety measures are in place)**



Data Source: Author compilation

The pie chart (Figure 3) shows that 51.8% of respondents prefer hybrid learning which is a mix of offline and online learning, while only 12.4% of respondents prefer online learning and 35.9% of respondents prefer offline learning. This is an indicator that the viewpoint of students in terms of the mode of education has considerably changed post-pandemic. This is because many students have benefitted from online learning (Figure 2) and want to continue with the same.

**Figure 4: Respondents' view on "Learning on the Internet is more motivating than a regular course in class"**

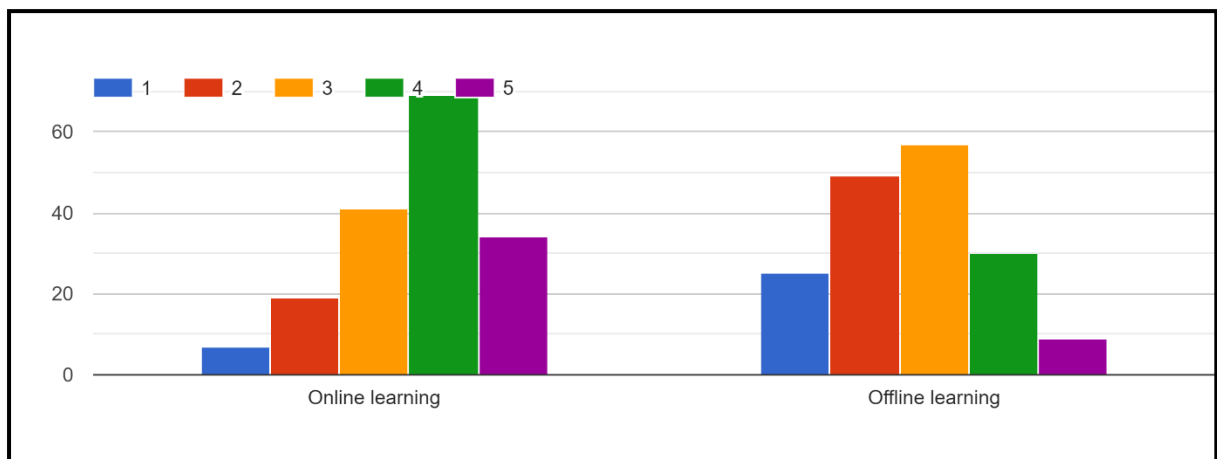


Data Source: Author compilation  
(Likert scale: 1-Strongly Disagree, 2-Disagree, 3-Neither agree nor disagree, 4-Agree, 5-Strongly Agree)



Ironically in Figure 4, the majority of respondents that is 30.6% of respondents neither agree nor disagree with the idea “Learning on the Internet is more motivating than a regular course in class”, which means that they are indecisive about choosing one mode of education over the other. This is why 51.8% of respondents prefer hybrid learning, as shown in Figure 3. Although 17.6% of respondents strongly disagree and 21.2% of respondents disagree with the idea, a fair number of respondents are in its favour. 17.1% of respondents agree, and 13.5% strongly agree with the idea, which proves that online education is gaining momentum among the youth of Delhi NCR.

**Figure 5: Time management (in terms of playtime, leisure, academics, self-development, and family responsibilities) during offline and online learning**

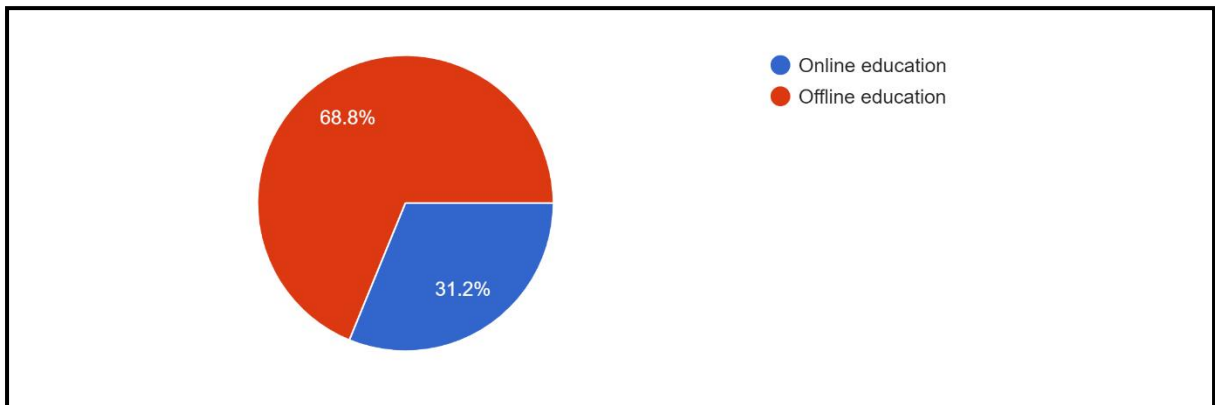


Data Source: Author compilation

(Likert scale: 1-Unmanageable, 2-Hardly manageable, 3-Reasonably manageable, 4-Manageable, 5-Well manageable)

Playtime, leisure, self-development, and family responsibilities are integral to one’s life. As per Figure 5, during online learning, the majority of respondents (69 respondents) were able to manage their time in between academics, leisure, self-development, and family responsibilities while 34 respondents chose the “well manageable” option. During offline learning, 57 respondents were reasonably able to manage time, 30 respondents were able to manage time, and only nine were able to manage their time very well. The data shows a healthy balance between academics and other activities during online learning as opposed to offline learning. This also might be a reason why many respondents prefer hybrid learning over offline or online learning.

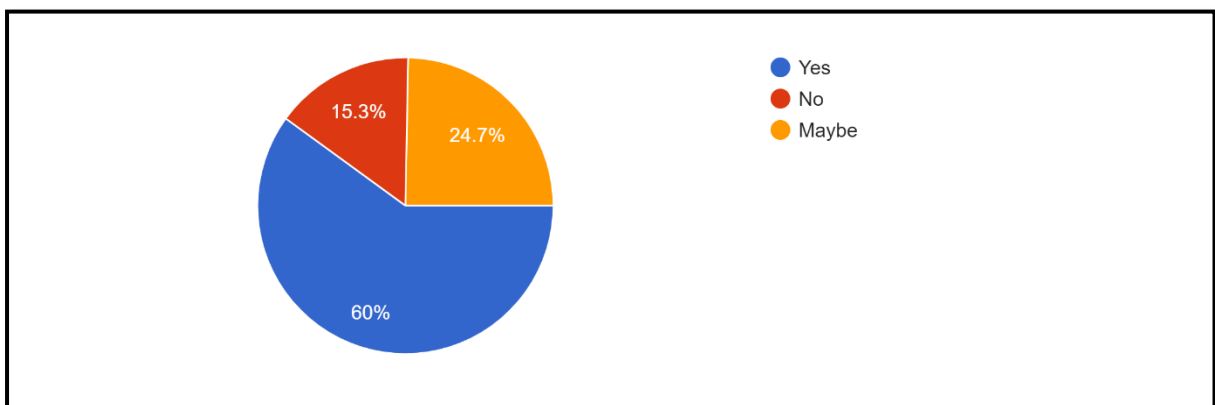
**Figure 6: Productivity of respondents**



Data Source: Author compilation

Figure 6 depicts the productivity of respondents during the online and offline modes of education. While 68.8% of respondents were more productive during the offline mode of education, a fair percentage of 31.2% were also productive during the online mode of instruction. This shows that the productivity of a student in terms of learning is more in the offline mode of education. However, overall productivity is subjective to their own will and decisions (as shown in the above pie chart).

**Figure 7: Challenges in the transition from online to offline mode of education**

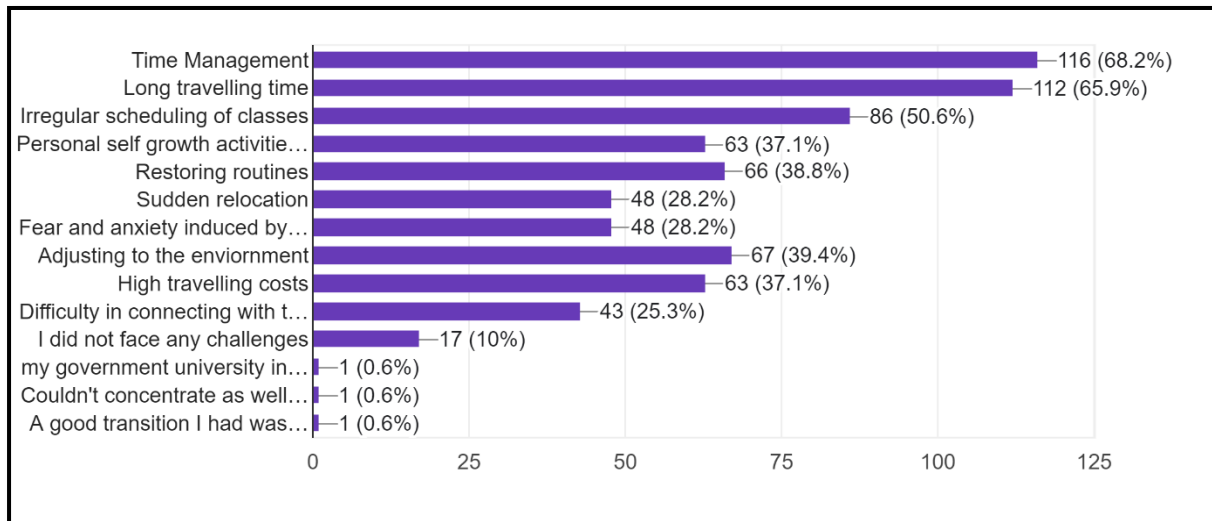


Data Source: Author compilation

Figure 7 shows that a whopping 60% of respondents (102 respondents) faced challenges in the transition from the online to offline mode of education. In comparison, 15.3% of respondents (26 respondents) did not face any challenges in this transition. 24.7% of respondents (42 respondents) were indecisive and chose the “maybe” option. This shows that a vast number of students faced challenges in the transition from online to offline mode of

education, which calls for intervention, help, and guidance from family, professionals, Universities, the Government, etc.

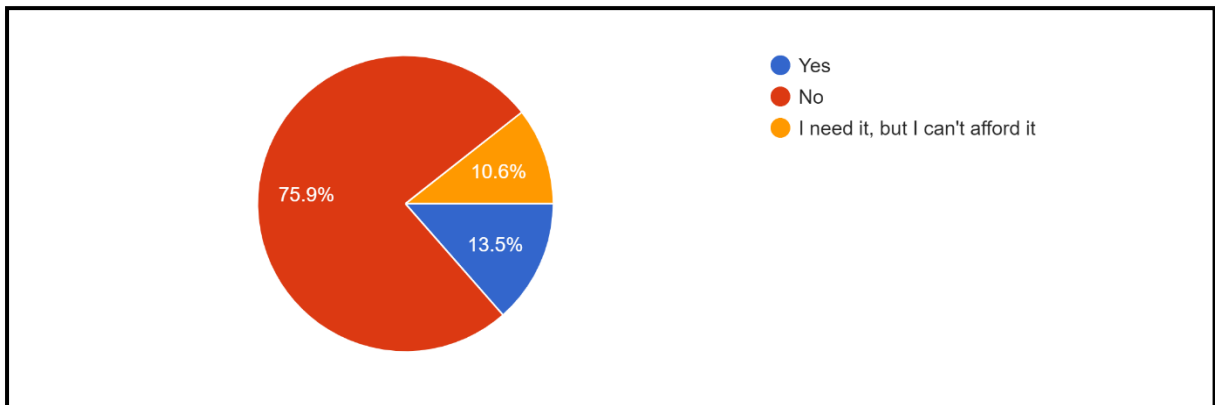
**Figure 8: Challenges faced in the transition from online to offline mode of education**



Data Source: Author compilation

Figure 8 highlights the challenges faced by students in the transition from online to offline mode of education. Time management and long travelling time were the most common challenges faced by the respondents, followed by irregular scheduling of classes. 39.4% of respondents had problems adjusting to the environment, 38.8% of respondents had difficulty in restoring routines, 37.1% of respondents felt personal and self-growth activities suffered, 37.1% of respondents were troubled with the high travelling costs, 28.2% of respondents were troubled due to sudden relocation, 28.2% of respondents faced fear and anxiety induced by the virus, and 25.3% of respondents faced difficulty in connecting with teachers. One respondent pointed out that they had trouble concentrating, and another respondent is unhappy due to a hike in college fees post-pandemic. However, only 18 out of 170 respondents did not face any challenges; one of the respondents pointed out that this was a good transition for them to restore their routine. This is contradictory to Figure 7 where 15.3% of respondents (26 respondents) did not face any challenges in this transition; therefore, 18 respondents are the revised number of respondents who did not face any challenges.

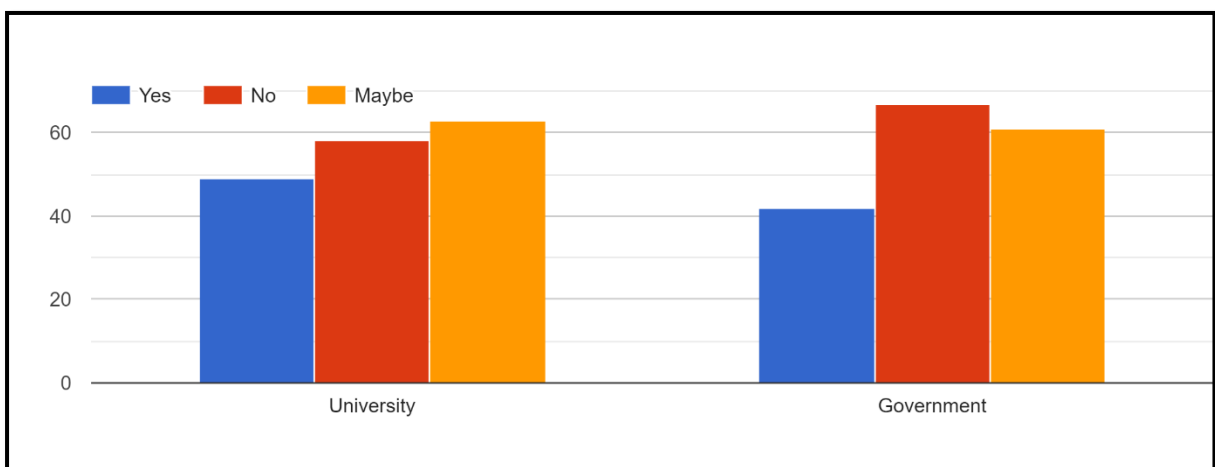
**Figure 9: Socio-emotional care and support received by respondents**



Data Source: Author compilation

The pie chart in Figure 9 shows that 75.9% of respondents did not receive socio-emotional care and support from family, friends, teachers, and professionals to deal with the transition from online to offline mode of education. Only 13.5% of respondents received socio-emotional care and support to deal with this transition, while 10.6% of respondents needed help and support but couldn't afford it. This lack of resources, awareness, and self-care among students could eventually affect their mental health.

**Figure 10: Assistance provided to respondents to adjust to the sudden transition from online to offline mode of education**

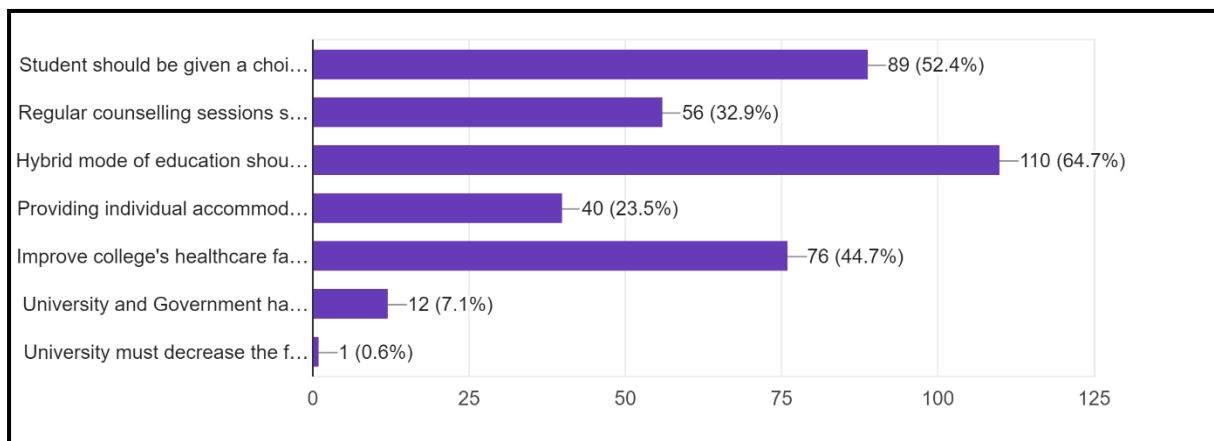


Data Source: Author compilation

As per Figure 10, 49 and 42 respondents concurred that the University and Government, respectively were doing their best to aid them with this transition. However, 58 and 67 respondents were not satisfied with the measures taken by the University and

Government respectively. At the same time, some respondents could not decide between 'yes' or 'no' options and therefore, chose 'maybe'. 63 and 61 respondents were not confident if the University and the Government, respectively had aided them in acclimatizing in any way possible. As more than 70% of respondents chose the 'no' or 'maybe' option, this shows that the administration of the Universities and Government is unable to provide student-centric care in acclimatizing to this online-to-offline transition.

**Figure 11: Measures that should be undertaken by Universities and Government**



Data Source: Author compilation

Figure 11 suggests some measures that should be undertaken by the Universities and the Government. According to 64.7% of respondents, a hybrid mode of education should be allowed. At the same time, 52.4% of respondents feel that students should be given a choice if they want to start offline classes; 44.7% are concerned about their health and urged to improve the college's healthcare facility. Another 32.9% of respondents want regular counselling sessions, and 23.5% want individual accommodation to maintain social distancing. Only 7.1% of respondents (12 respondents) feel that the University and Government have done their best and that no measures need to be taken. This is incongruent with the results of Figure 10, where 49 respondents and 42 respondents agreed that the University and Government, respectively were doing their best to aid them. Finally, we can conclude that only 12 respondents are content with the measures and initiatives undertaken by the Universities and Government.

## CONCLUSION

According to Deloitte's Annual Status of Higher Education (ASHE), 34.3 million students were enrolled in higher education in India in 2021. Looking at this vast number of students, it is vital to take care of their needs and grievances. This study compared the effectiveness of offline and online modes of education; it was found that most of the students agreed that the offline mode of study is more effective, while a significant number of students also benefitted from online education. 51.8% of respondents agreed that a hybrid mode of study is more effective overall. Students in the Delhi NCR region are confident that neither online nor offline mode of education is more efficient; rather it is the combination of both.

One interesting finding was related to time management in terms of playtime, leisure, self-development, and family responsibilities. It points out that during online learning, many respondents were able to manage their time efficiently. This was not possible during the offline mode of education. In terms of productivity, students believed they were more productive in offline mode than in online mode. However, this is true only when academic productivity is concerned. Overall productivity is high in the online mode of study. If we look into the challenges faced by students in transitioning from the online to the offline mode of education, it is clear that a massive number of students faced challenges in this transition, which calls for intervention, help, and guidance from family, professionals, University, Government, etc. Time management and long travelling were the most common challenges faced by the respondents, followed by irregular scheduling of classes.

## MANAGERIAL SCOPE

While the online and offline mode of education has their advantages and disadvantages, the shift from online to offline mode of education has been socially, mentally, and physically challenging for students. This study has identified the challenges faced by university-level students in the transition from an online mode of education to an offline mode of education. This data can be used by Universities and Government agencies to formulate measures and initiatives for the welfare of students. The Universities can conduct parent-teacher meetings to sensitize and educate parents about the need for socio-emotional support.



## LIMITATIONS

1. As of 2019, 2.9 lakh students were enrolled in the colleges of Delhi. The sample size of this study is minuscule compared to the population.
2. Due to the small sample size, statistical tests would not be able to identify significant relationships within the data set.
3. An unbiased random sampling technique could not be followed.

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# INFLATION MANAGEMENT TECHNIQUES IN THE POST-PANDEMIC ERA: AN EXAMINATION OF TOP 10 ECONOMIES



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## ABSTRACT

Countries globally are fighting inflation after Governments have printed monies to meet their COVID-19 expenditure. However, slower economic growth rates, geopolitical tensions, sanctions, elevated prices of crude oil and other commodities, and supply chain bottlenecks are making this fight more difficult. This research article examines the inflationary control approaches followed by the governments and the authorities of the top 10 economies of the world according to their GDP in controlling the rising inflation. The study sample includes the United States of America, China, Japan, Germany, India, the United Kingdom, France, Brazil, Italy, and Canada. This study examines the question: Can developed countries, despite having most of the necessary resources with them, be able to manage rapidly rising inflation? A clear research gap arose because of the falling economic growth in the world post-pandemic. Therefore, this paper focuses on how countries have changed their monetary and fiscal policies to manage high inflation rates. Lessons from this inflationary study can help Governments and administrations handle saving their economies better.

<b>Keywords</b>	macro inflation, GDP, central banks, monetary policy, fiscal policy
<b>JEL Classification</b>	E42, E52, E58, E24, E63
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## INTRODUCTION

The global outbreak of economic instability due to the abrupt increase in the post-pandemic inflation rate for various reasons has caused havoc in all countries. Some countries are facing the worst inflation rates to be ever recorded in the last 30-40 years. As a result, central banks are changing their former monetary and fiscal policies to achieve price stability to control the sudden rise in inflation. Achieve this, they believe, can be by structural analysis of inflation commodities to undermine the monetary policy coordination.

Inflation can be studied from a microeconomics perspective (such as individual price expectations and employment rate measured at a personal level) or from a macroeconomic perspective (such as price changes of goods and services as a basket). This research focuses on inflation from a macroeconomic perspective.

Many people misunderstand inflation as a bad sign for the country's growth, believing that it reduces the purchasing power of the individual. However, data finds that a moderate inflation rate is linked to the growth of the countries. Japan, for instance, has been facing deflation for several years or a low inflation rate standard of living of people has not quite improved and is predicted to get worse. However, every country has a different accepted inflation rate according to its economy. Therefore, a further increase in the inflation rate than the accepted rate of inflation or hyperinflation is proven bad for all countries.

## LITERATURE SURVEY

Inflation has brought disruption in the capital market and labor market instability. As the problems started in the Eurozone with the supply side and having an effect of it on demand, it is stated that it could be cushioned with the changes in the fiscal policy. Many banks have forcefully responded to the inflation targeting and have increased the rates accordingly. The countries face continuous rate hikes, and it is said to possess an underlying threat that could have a domino effect on the developing country. Many countries use inflation targeting to control inflation rate hikes, but that could not be proven beneficial to all countries. All the countries have faced oil price shocks, and with the research, it has been found with the research of China that countries should focus on core inflation instead of headline inflation. The public's inflation expectations differ from the central bank targets, and it is a major challenge for policymakers.



**Table 1: Coverage on “inflation” by various research databases**

Research Database	Total Results	Publication in 2019	Publication in 2020	Publication in 2021
Google Scholar	47,20,000	132000	107000	90400
Science Direct	229244	11461	12654	15093
Springer Link	238693	11583	12348	15627
Proquest	9291387	456964	687765	1115796
Wiley Online Library	258262	9842	10921	11263
Emerald Insight	32949	2267	2357	3227
JSTOR	6712	15	15	13
BASE	106870	3727	3683	3770
Semantic Scholar	367000	8860	8475	7329
Taylor & Francis Online	2346	91	78	98

Data Source: Author compilation

**Table 2: Inflation-related themes**

Inflation Theme	Theme Description
Global Commodity	Analysis of the impact of global commodities on inflation.
Agriculture	The relation between inflation of agricultural goods and its prices on the economy.
Trade	The relationship between trade openness and inflation.
Inflation expectation	The expectation from the household toward inflation.
Determinants of Inflation	The factors affecting the inflation rates to rise or fall.
Supply Chain	Supply chain disruption due to constant inflation pressure.
Economic Growth	The effect of inflation on economic growth.
Monetary Policy	The effect of change in monetary policy to curb inflation.
Inflation Targeting	Control of inflation through a goal-based approach
Unemployment	The nexus between inflation and unemployment.

Data Source: Author compilation



## **INFLATION MANAGEMENT TOOLS**

Sanctions imposed on the country can hinder the country's growth rate. They can bring the worst economic instability leading to an increase in the inflation rates causing poverty and social tensions.

Now the Global Commodity and exchange rates have a significant impact on determining inflation such as Crude oil itself is one of the crucial commodities in the global economy as a change alone in its prices of it can bring change in the cost of producing goods which will lead to inflation. Adhere to that, and some countries could face very high inflation rates compared to others; with the change in the prices of commodities and exchange rates, the U.S. is more sustainable to rising crude oil prices than European countries.

Output gap can help predetermine the inflationary pressure on an economy and indirectly affect crude oil prices. This data is found to be more relatable to developing countries.

Impetuous printing of money can cause havoc in the demand and supply as the supply stays limited and precipitously demand increases causing demand Pull inflation.

Weak monetary policy or improvident policies by the central banks can trigger inflation may, not in the short run but over a longer period of time. Even it may be the most critical reason for triggering inflation.

"Real wage is found to have a positive impact on emerging countries but a negative impact on the industrialized country."

"Budget balance for emerging economies and I.T. industrialized economies reflect a negative effect on inflation. However, the sign is reversed for non-IT industrialized economies, which may be attributed to the special conditions of these economies, such as abundance in capital and/or the ability to find funds via being a member of a monetary union."

## **RESEARCH GAP**

Past research focused mainly on the history, root causes, and current scenario. However, due explanation of different factors of inflation and having done the microscopic analysis of the factors and inflation on the economy, there has been little or no comparative study on the inflation management policies approached by the top 10 GDP countries after the post-pandemic surge in the inflation rates around the globe.



## **RESEARCH METHODOLOGY**

### **AIM**

- To study the changes in the monetary and fiscal policies, country liquidity, and exchange rates and their impact on inflation.

### **OBJECTIVE**

- To have an outlook on the overall economic perspective of the world.
- To study the Macroeconomic approach towards inflation.
- To examine any new approaches used towards controlling inflation.

## **RESEARCH METHODOLOGY & METHOD**

The study follows the Comparative Research Methodology to compare the policies and approaches taken by the Central Banks and the Governments of the respective countries.

### **DATA SOURCES**

Data is sourced from print and electronic media such as newspapers, magazines, and online websites, policy documents of the central banks, and reports from various governments.

### **STUDY PERIOD**

The COVID-19 pandemic first appeared at the end of January 2020, and several waves of the pandemic affected countries through the middle of 2021. Inflationary pressures from the pandemic were shown from the end of 2021 through the middle of 2022. Hence, the period of the study is taken as 2021-2022

## **DISCUSSION**

### **INDIA**

India being a developing nation, is facing higher than usual inflation rates. This recurred several times, as can be seen during the years 2008-2013. The inflation rate was higher than the 9% mark, but after 2014, the central bank managed the inflation well by keeping it below 6% till COVID-19. A quick check soon after the pandemic, inflation came into control showed that the inflation rate peaked at 7.79% as on April 2022. On June 8, 2022, the Monetary Policy Committee (MPC) decided to increase the policy repo rate under the liquidity adjustment facility (LAF) by 50 basis points to 4.90 percent with immediate effect, and many more rate hikes were introduced.



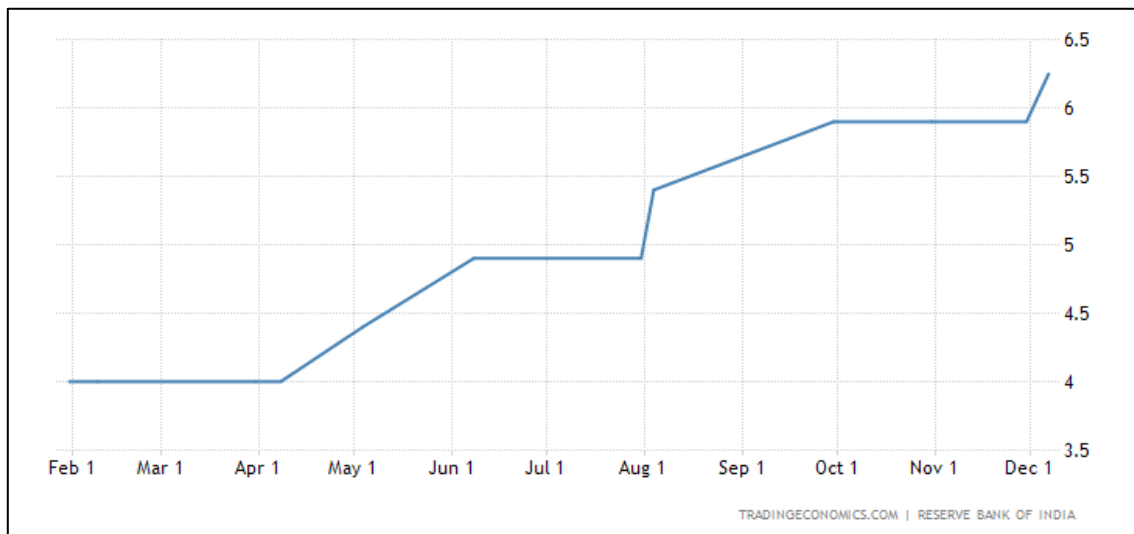
Consequently, increasing the interest rates, the currently standing deposit facility (SDF) rate is adjusted to 6 percent, the marginal standing facility (MSF) rate is 6.5 percent, and the Bank Rate to 6.5 percent. Furthermore, to support growth while controlling inflation MPC decided to control the withdrawal of accommodation for consumer price index (CPI) inflation of 4 percent within a band of +/- 2 percent. In addition, a tax cut on petrol and diesel was being decided to manage the rising prices of fuels. The government tried reducing the prices of importing crucial raw materials relating to the steel and plastic industry to reduce the prices of the final product as well as the permitted duty-free import of 20 lakh tons of crude sunflower and soybean oil till March 2024 and limiting exports of commodities such as sugar and wheat. The interest rate on the Floating Rate Bond 2024 (FRB 2024), applicable for the half year November 07, 2022, to May 06, 2023, is to be kept at 6.75 percent per annum. The effectiveness of the policies has been proven by bringing down the inflation rate to 5.72% as on December 2022.

**Figure 1: Inflation in India over the years**



Data Source: TradingEconomics / Ministry of Statistics and Programme Implementation (MOSPI)

**Figure 2: Interest rate in India**



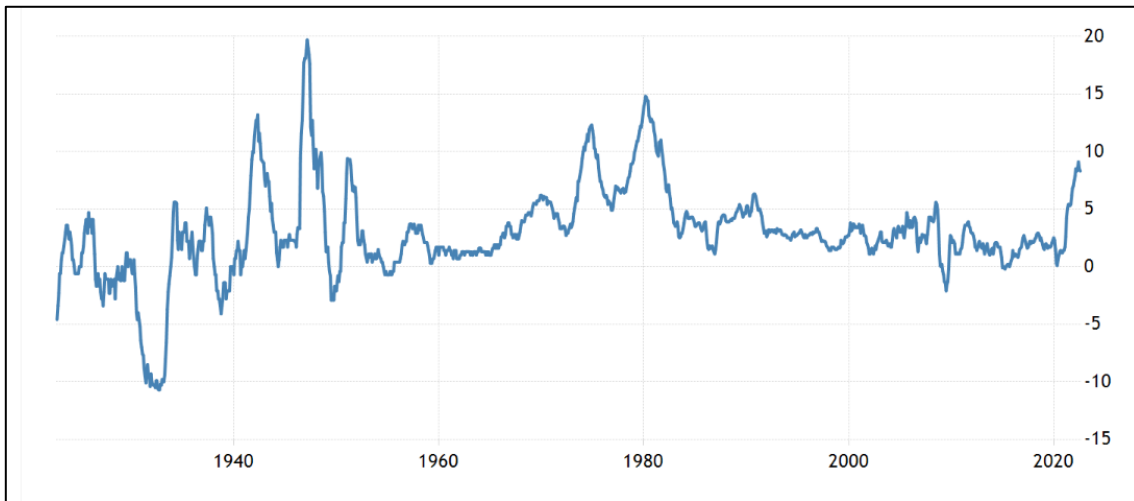
Data Source: TradingEconomics / Reserve Bank of India

## UNITED STATES OF AMERICA

The post-pandemic economic stress became visible after the United States of America entered into a recession. Despite being a developed country, the annual inflation rate on June 2022 peaked at 9.06%. To recover from the falling economy, Federal Reserve System (Fed) made some arduous adjustments to its policies, affecting the whole world. On September 22, 2022, the Board of Governors of the Federal Reserve System voted unanimously to raise the interest rate paid on reserve balances to 3.15 percent and approve a 3/4 percentage point increase in the primary credit rate to 3.25 percent. In addition, they have decided to unwind their holdings of Treasury bonds and mortgage-backed securities to increase the cost of borrowing. Fed expects this policy action to slow the growth in consumer spending to around zero by early next year, easing the strain on supply chains. At the same time, higher mortgage rates will reduce housing prices, which have grown enormously during the pandemic. Finally, slowing demand will increase unemployment to around 5 percent by the end of 2023, which should decrease wages and PCE inflation to fall back toward 2 percent by late 2023, and economic activity to slow from 3.5 percent in the first quarter of this year to 0.6 percent by end-2023. Fed has constantly been focusing on the rate hike to control inflation, four constant 75 basis rates hike were introduced, but looking at the current situation and ease of inflation rates to 6.45%, they decided to continue with the diminishing rate hike on December 14, 2022, a 50-basis point increased 2023 rate hike interest rates. From December 15, 2022, the interest paid on the reserve balance was raised to 4.4%. Households and firms will face all impacts caused by changes in the rates, and controlling these fiscal measures can be impactful in reversing the effects.

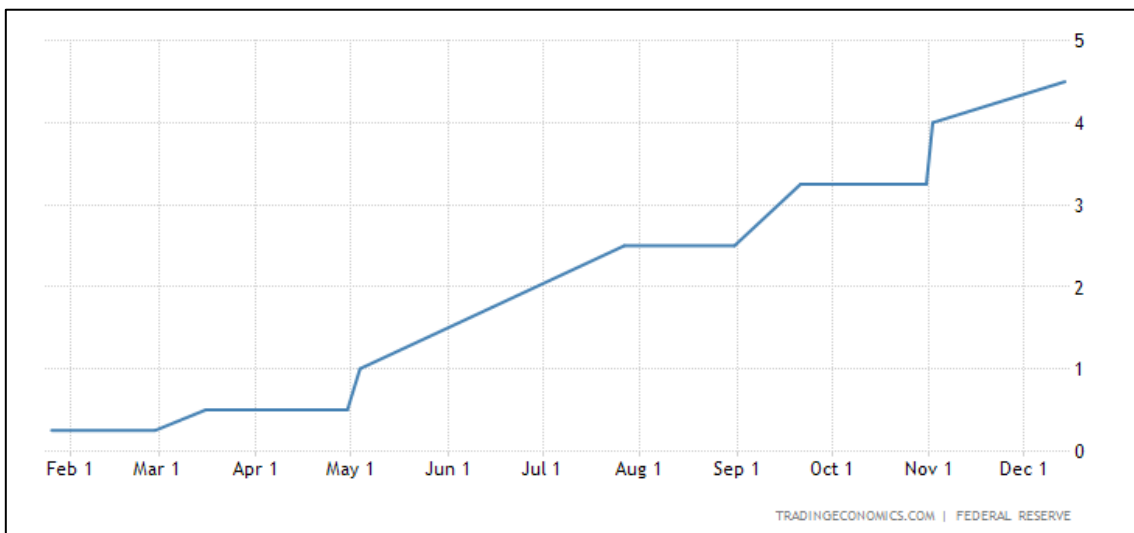


**Figure 3: Inflation in the U.S. over the years**



Data Source: TradingEconomics / U.S. Bureau of Labor Statistics

**Figure 4: United States Fed Funds Rate**



Data Source: TradingEconomics / Federal reserve

## CHINA

The case of China is slightly different from other countries. Unlike others, it is seen to manage the inflation rates very successfully, keeping it to 2.80% as of September 2022, and has projected that inflation rates will fall to the 2.00% mark around 2023. The People's Bank of China (PBC) has decided from October 1, 2022, the interest rates on personal housing provident fund loans for first-time home buyers will be reduced to 0.15 percentage points. The interest rates on 5-year-and-below loans and 5-year-above loans will be adjusted to 2.6 percent and 3.1 percent. China is experiencing slightly excess liquidity and forecasting that its liquidity will rise above the required mark. It might be an indication that The People's Bank of China (PBC) may cut down interest rates further. China is closely watching changes in other



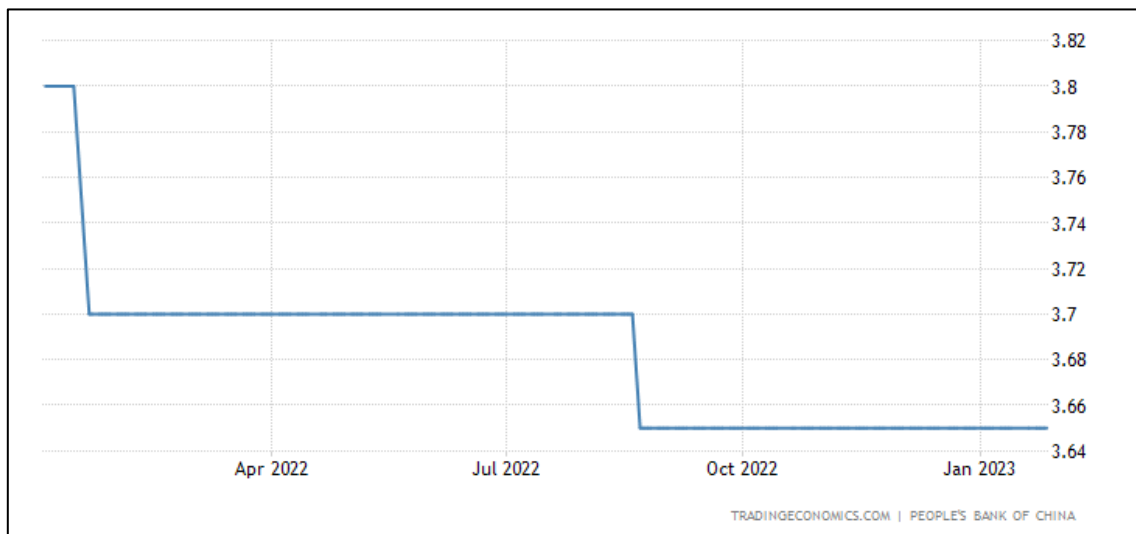
countries' monetary policies as it might impact the Chinese Yuan weakening from U.S. Dollar. China has already reduced its foreign reserve twice this year, seeing that its Yuan has depreciated to 8%, two years low against U.S. Dollar.

**Figure 5: Inflation in China over the years**



Data Source: TradingEconomics / National Bureau of Statistics of China

**Figure 6: China Loan Prime Rate**



Data Source: Trading Economics / Peoples Bank of China



**Figure 7: China's one-year-medium-term Lending Facility rate**



Data Source: TradingEconomics / People's Bank of China

## JAPAN

Japan's economy is more distinct from other countries because its past monetary and fiscal policy has focused not on controlling inflation but improving people's standard of living because of its decade of the low inflation rate. Net exports remain the same, which constitutes a significant factor for the growth. With the rise in inflation, the Japanese Yen has depreciated but looking at a macro level, currency appreciation is viewed negatively in Japan, but currently, it is affecting the people's standard of living.

Japan has one of the finest monetary policies in the world it has developed its monetary policy in such a way that helps to reduce price fluctuations wherein their gas and electricity prices cannot be revised as asked for but need to take out long-term contracts. The same happened for wheat prices were fixed for six months, wherein maintaining stagnant prices. The effect of this policy might be a potential threat to the economy. After the Russia-Ukraine war, oil prices shot up. Japan government provided subsidized oil prices in order to prevent Consumer Price Index. Subsidies provided by the government on a large scale were financed by the extensive government bond purchased by the Bank of Japan. It is estimated that around 50% of the 50 percent of goods and services in the Japanese consumer bracket used to measure consumer price inflation are subsidized. The estimated value of this in 2021 is around 130 trillion yen (US\$98 billion). Japan has been controlling inflation rates, but the rates have gradually increased to 4 percent as of December 31, 2022. They will continue to enhance Funds-Supplying Operations against Pooled Collateral.



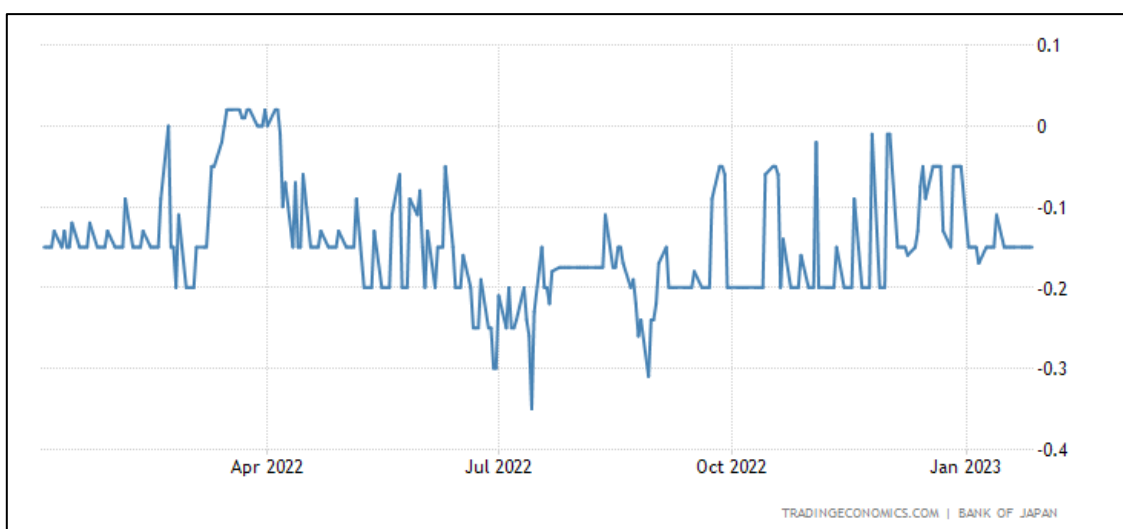
Japan used a double edge sword recovery technique after the COVID-19 pandemic. Restrictions imposed on economic activity were lifted slowly compared to other G7 countries, which impacted their economic growth but kept inflation under control. There is a continuous outflow of capital to the United States and other countries, being invested in the U.S. Dollar by private households, life insurances companies purchasing US Bonds, and extending loans to Southeast Asia by Japanese banks the main reason for the outflow of capital is that The Bank of Japan's expansionary policy had kept low-interest rates steadily below the United States. But due spike in their interest rates, they announced a sudden increase in the 10-year bond yield from 0.25% to 0.5% through a fixed-rate purchase option. The cost increase in imports has affected the consumer price index in the short run, further impacting growth.

**Figure 8: Inflation in Japan over the years**



Data Source: TradingEconomics / Ministry of Internal Affairs & Communications

**Figure 9: Deposit rate in Japan**



Data Source: TradingEconomics / Bank of Japan

## GERMANY

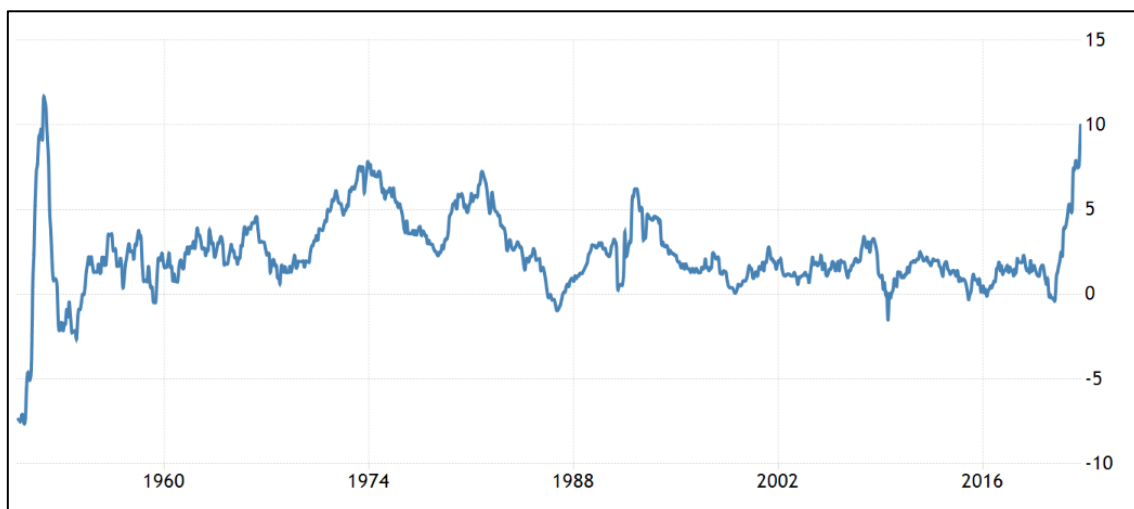
A sudden spike in the inflation rate of Germany has been seen from 0.37% in 2020 to 10.9% as of September 2022, the highest ever recorded since 1951. This is mainly due to an increase in food and energy prices due to the Russia-Ukraine war. In contrast, they have a medium-term target of 2%. To regulate the further increase in energy prices, The German government gave cushioning of 200 billion euros to tackle the energy crises. Accordingly, the interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will be increased to 2.5%, 2.75%, and 2%, respectively, with effect from December 2022, and the governing council may increase it further if the situation aggravates.

The Governing Council intends to continue reinvesting, in total, the principal payments from maturing securities purchased under the APP for an extended period past the date when it started raising the key ECB interest rates and, in any case, for as long as necessary to maintain ample liquidity conditions and an appropriate monetary policy stance.

As concerns the PEPP, the Governing Council intends to reinvest the principal payments from maturing securities purchased under the program until at least the end of 2024. In any case, the future roll-off of the PEPP portfolio will be managed to avoid interference with the appropriate monetary policy stance.

Redemptions coming due in the PEPP portfolio are being reinvested flexibly to counter risks to the monetary policy transmission mechanism related to the pandemic. As a result, inflation rate has eased to 8.6% as of December 2022.

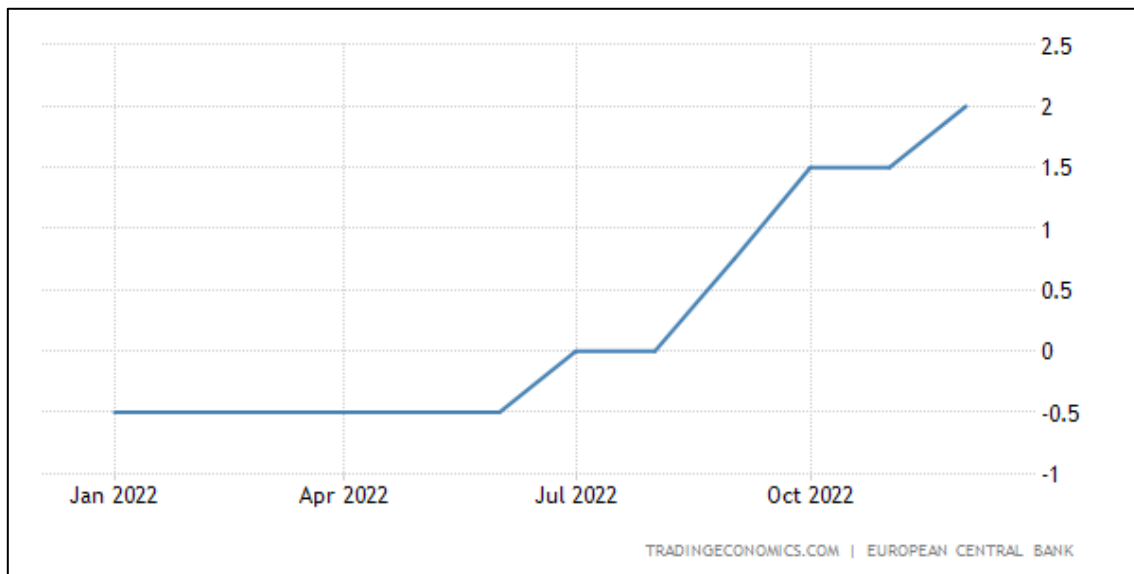
**Figure 10: Inflation in Germany over the years**



Data Source: TradingEconomics / Federal Statistical Office



**Figure 11: Euro Area Deposit Facility Rate**



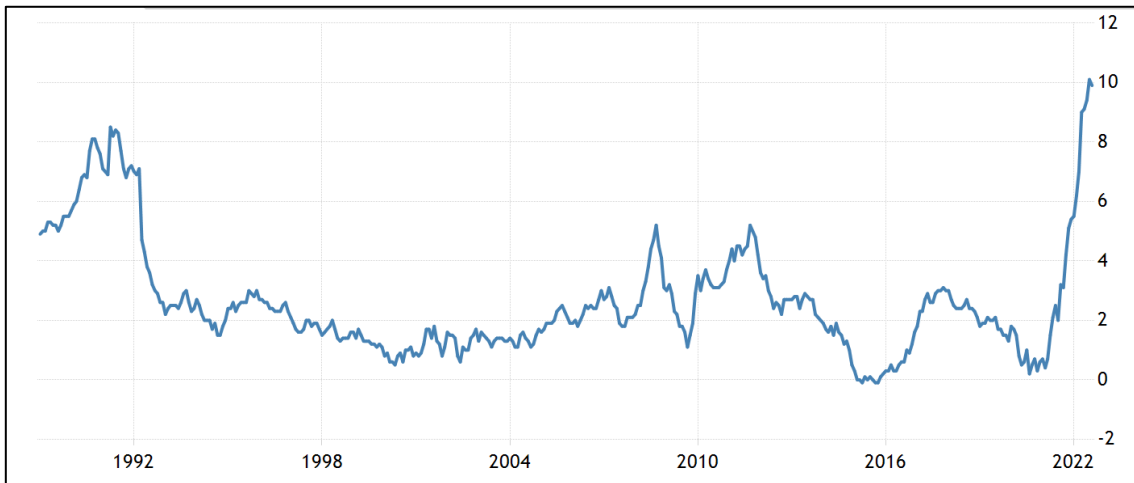
Data Source: TradingEconomics / European Central Bank

## **UNITED KINGDOM**

The inflation rate in the U.K. peaked at 11.1% on October 2022 to control the extent of the inflation rate. The Bank of England has decided on a total of nine consecutive rate hike, bringing the current interest rate to 3.5% by December 14, 2022. The main factor for rising inflation is due to the Russia-Ukraine war limiting the supply of crude oil, and European countries have seen a sudden increase in oil and energy prices. Seeing this, the government decided to introduce an Energy price guarantee, the biggest challenge, by announcing the Energy Price Guarantee, which includes a stable price for energy even if the price of crude oil rises. The government also introduced a tax cut, but the following day, they faced the consequence, the pound dropped to an all-time low, mortgage deals were pulled from the market, and U.K. government bonds began to sell off at a historic rate, causing the Bank of England to begin a temporary purchase program to calm volatility. Political instability has also impacted the growth and also substandard GDP data.

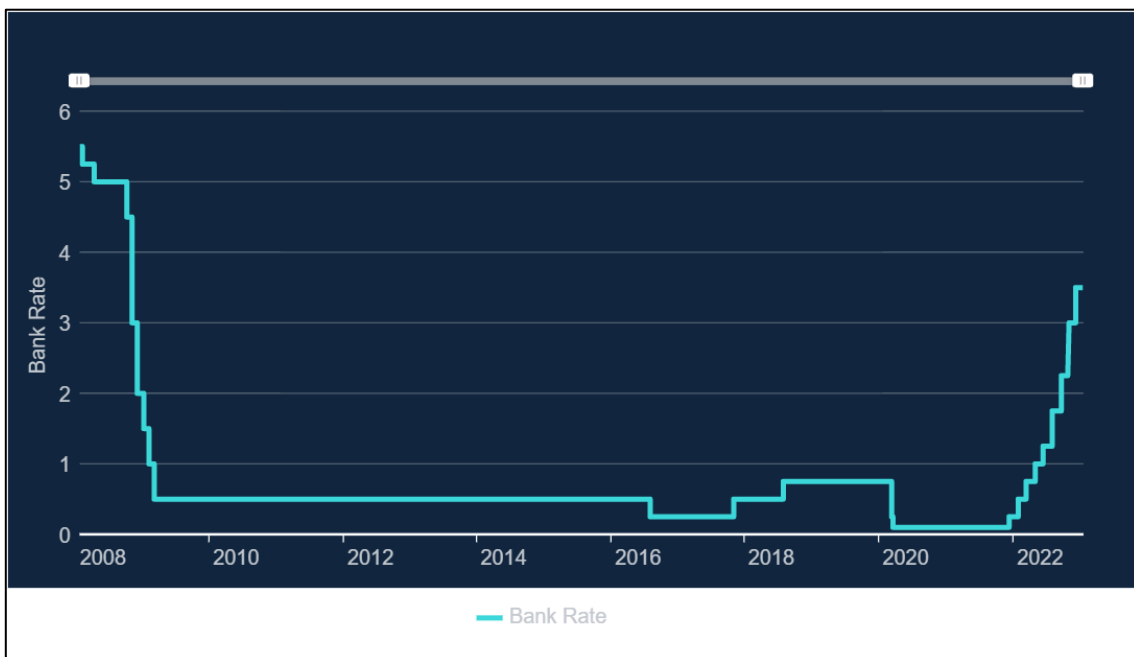


**Figure 12: Inflation in the U.K. over the years**



Data Source: TradingEconomics / Office of National Statistics

**Figure 13: Bank rates of United Kingdom**

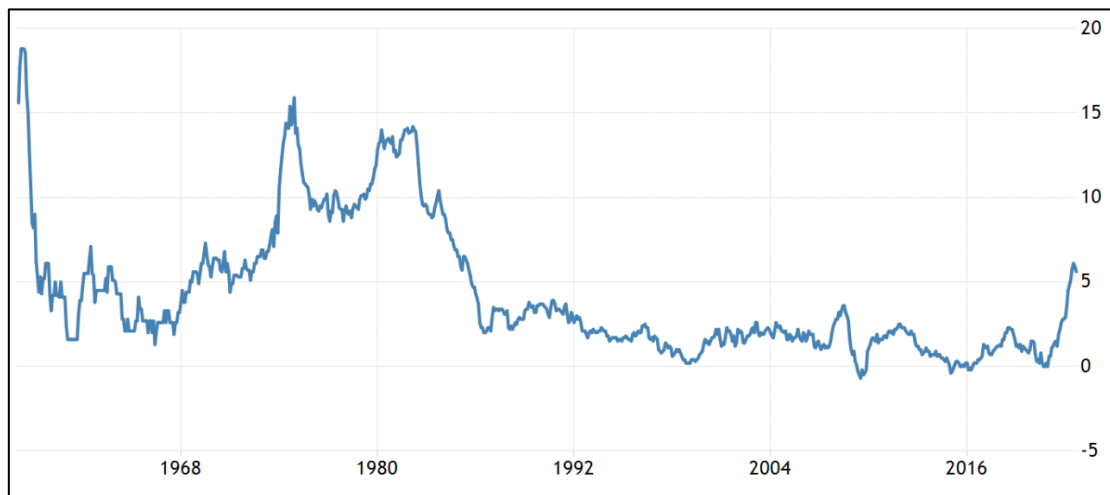


Source: Bank of England

## FRANCE

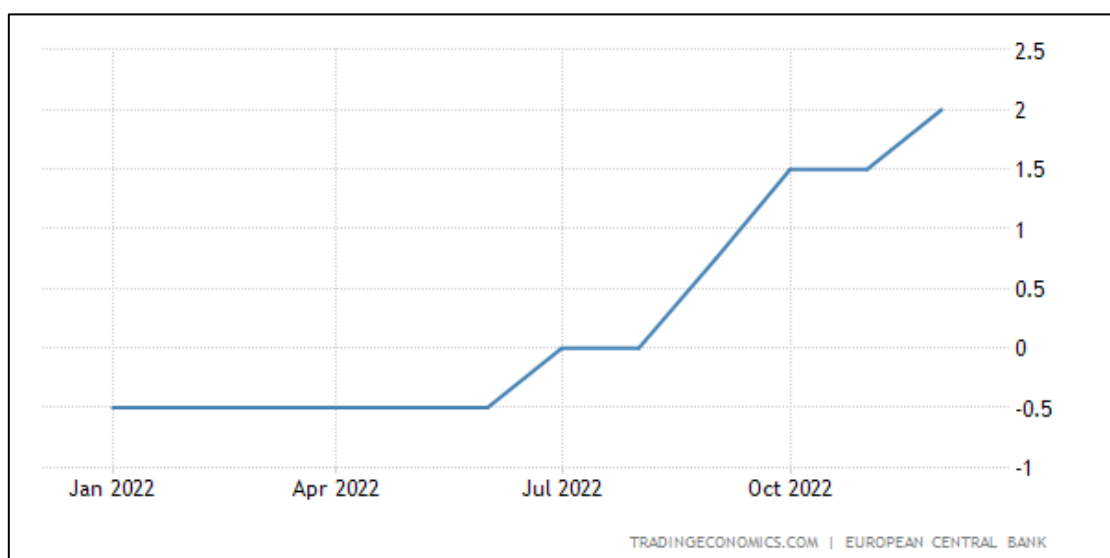
The inflation rate for France on October 2022 has touched a whopping 7.1% since 1991. Inflation has spiked since the Russian invasion of Ukraine on February 24, 2022, which has drawn unprecedented Western sanctions, including on some of its energy exports and supply of grains being blocked to the world. To tackle this, they increased the composite cost of borrowing for new loans to corporations increased to 1.86% and the household house purchase loans to 2.88%. The main refining operations, deposit facility, and marginal lending facility were increased to 2.5%, 2%, and 2.75%. The short-term rate as of January 25, 2023, stands at 1.904.

**Figure 14: Inflation in France over the years**



Data Source: TradingEconomics / INSEE, France

**Figure 16: Euro Area Deposit Facility Rate**



Data Source: TradingEconomics / European Central Bank

## BRAZIL

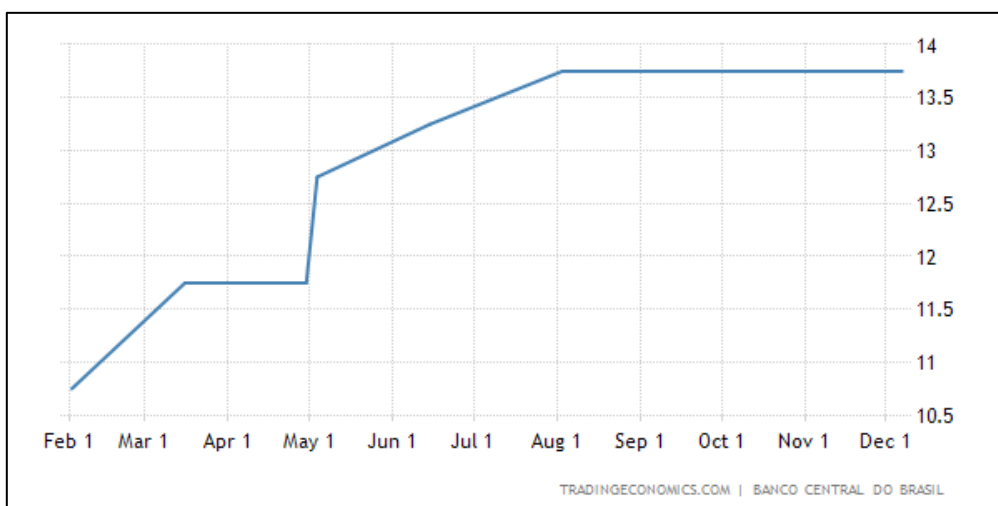
The annual inflation rate is cooling down in Brazil to 5.79% in December 2022 from 12.13% as of 12.13%, a major reason being the transportation cost cut due to the government cut in fuel prices. Brazil has observed 12 consecutive interest rate hike hikes, with the Selic interest rate reaching 13.75% to battle inflation pressure. Banks continue to optimize their liquidity management to eliminate excesses, adapt to current market conditions, and compete for funding. The central bank is doing a considerably better job in managing enough liquidity and capitalization to sustain in grim situations. Treasury assets neutralized the historic low of credit margins. However, the credit flow in the household is still higher than expected in the portfolio, composing very high risk, but the condition is stable for micro, small and medium-sized enterprises.

**Figure 17: Inflation in Brazil over the years**



Data Source: TradingEconomics / IBGE

**Figure 18: Brazil interest rate**

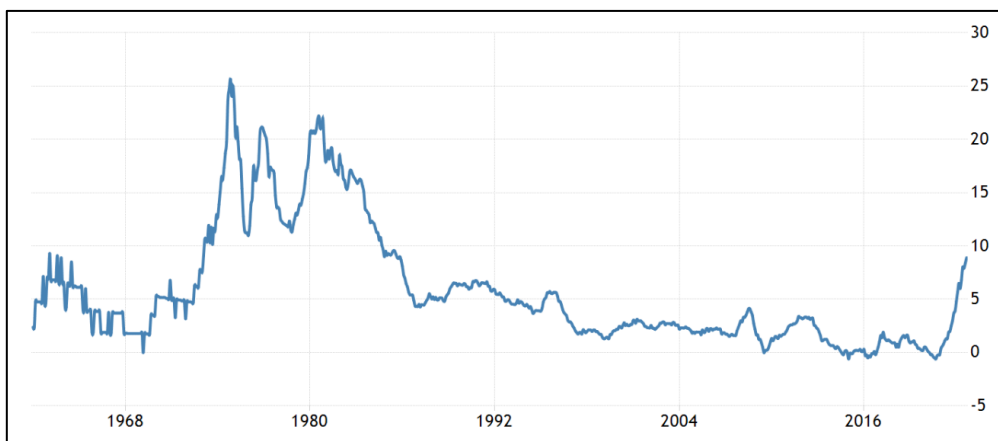


Data Source: TradingEconomics / Banco Central Do Brasil

## ITALY

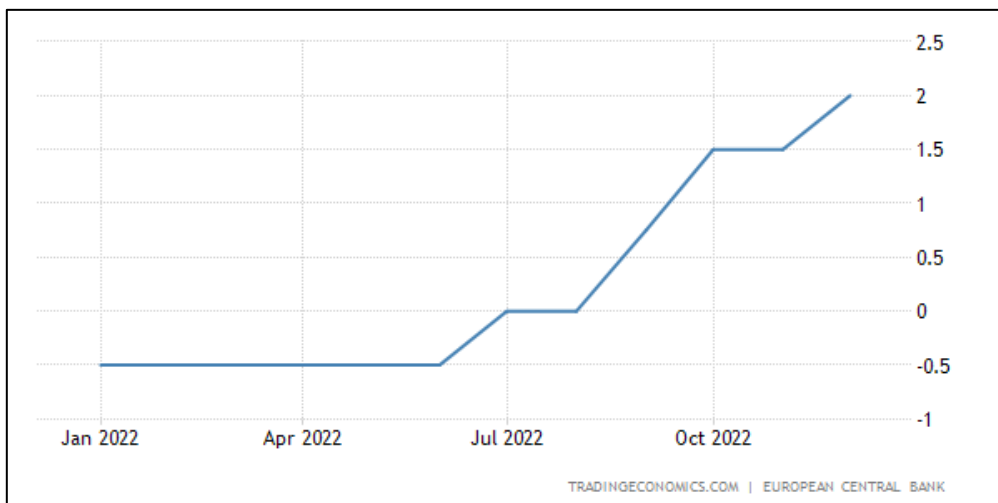
The annual inflation rate in Italy is gradually rising. It currently stands at 11.6% as of December 2022, the highest in nearly 37 years, picking up from the 4.8 percent in January 2022. 17 billion euros package was approved for economic aid due to energy cost and consumer price. European Central Bank raised the main refinancing operations, deposit facility, and marginal lending facility rates to 2.5%, 2%, and 2.75% and sovereign yield was up by 27 basis points to 4.0%. The government also provided fiscal support in 2022 by cutting tax and providing means-tested child allowance and some substantial additional fiscal support activity by providing Superbonus and other tax credits, 14 retroactive pay-outs on recently agreed public administration wage contracts, and large planned new hiring to support the implementation of the NRRP.

**Figure 12: Inflation in Italy over the years**



Data Source: TradingEconomics / ISTAT

**Figure 20: Euro Area Deposit Facility Rate**



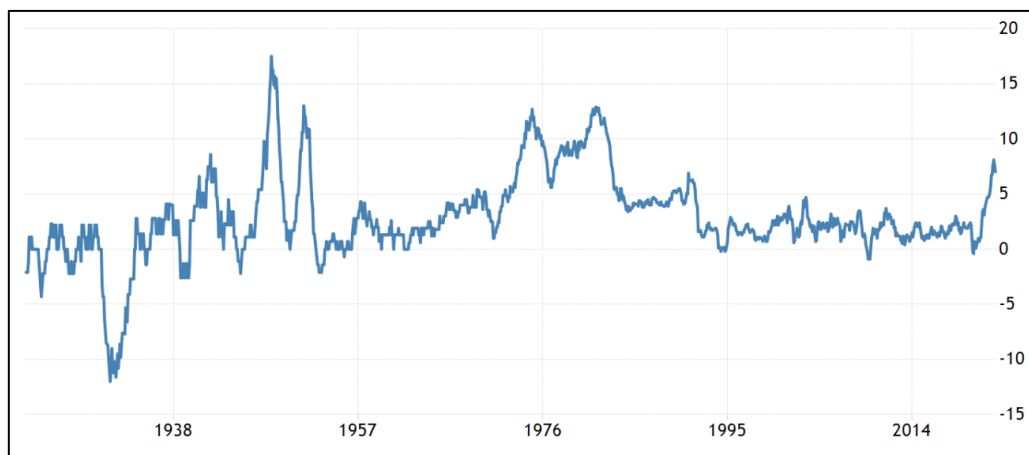
Data Source: TradingEconomics / European Central Bank



## CANADA

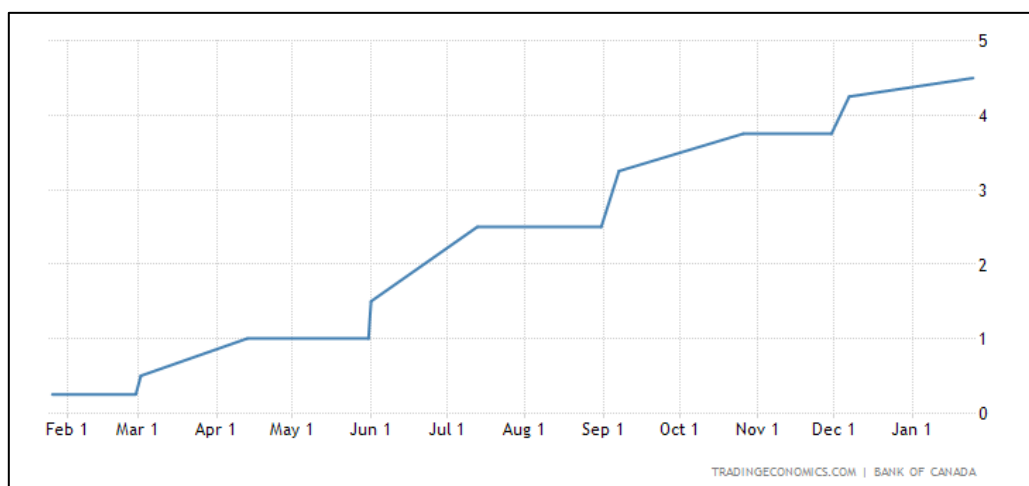
The inflation rate in Canada rose to 8.1% as of June 2022 from just 0.72% in 2020. The central bank increased its policy repo rate to 4.5 percent from 1.5 percent. Government and the Bank of Canada are in sync with each other to achieve the target of bringing down the inflation rate to 2% by 2022, but due to global pressure and understating of CPI measures, it could not be achieved, while at present, the Bank of Canada is taking responsibility to reduce the burden on the economy where in from fiscal policy authority there is not much support for inflation but rather to protect it from the economic impact of the pandemic. Many businesses are currently facing issues due to inflation finding it hard to attract workers with wages because of business and consumer inflation expectations. 10-Year Government Bond Yields increased by 101 basis points to 2.85%.

**Figure 21: Inflation in Canada over the years**



Data Source: TradingEconomics / Statistics Canada

**Figure 223: Interest rates in Canada**



Data Source: TradingEconomics / Bank of Canada

## FINDINGS

- There have been many changes in monetary policies, but there are fewer changes in fiscal policy.
- Countries are giving priority to inflation rates over their growth rate.
- All countries are consequently increasing their interest rates, potentially threatening their economies in a bid to control inflation.
- Japan and China possess different overviews of their economy than all the other countries.
- All the countries have increased the interest rate and 10-year government bond yield.

**Table 2: Comparison of inflation of various countries pre, during and post-pandemic**

Country	Inflation		
	Feb-20	Aug-21	Aug-22
India	6.70%	5.30%	7%
United States of America	2.20%	5.60%	8.30%
China	5.30%	0.80%	2.50%
Japan	0.40%	-0.30%	3.00%
Germany	1.90%	3.90%	7.90%
United Kingdom	1.90%	3.30%	9.90%
France	1.70%	1.90%	5.90%
Brazil	4.01%	9.70%	8.73%
Italy	0.40%	2%	8.40%
Canada	2.30%	4.20%	7%

Data Source: Author compilation

## CONCLUSION

This paper discusses how the top 10 GDP countries' central banks and governments reacted to the sudden inflation hikes, changing their monetary and fiscal policies to fight inflation. Increasing the interest rates, managing their foreign reserves, changing liquidity ratios, and cutting tax rates were executed by central banks of India, the United States, Germany, the United Kingdom, France, Brazil, Italy, and Canada, but this was not the case for China and Japan they were seen to manage inflation rates quite well, biggest solitude was their depreciating currency and liquidity rate while for Japan is even their net export growth has stalled, and both the countries could have the potential of inflation risk due to unstable



economy of the world. The main reason for the economic instability is the Russia-Ukraine war possessing increased the prices of Crude oil and food prices.

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# ROLE OF SMART CITY MISSION IN THE DEVELOPMENT OF SMART TOURISM DESTINATIONS IN INDIA: A NEED OF AN HOUR AFTER THE COVID-19 PANDEMIC



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## ABSTRACT

The tourism industry is facing serious and long-term effects of the COVID-19 pandemic globally which has resulted in a tremendous monetary loss to the tourism economy. The rigorous research studies have highlighted the need for a big shift in the industry in the application and innovation of tourism technology. Indian tourism industry which is also going through the negative impacts of the pandemic can rise above by developing smart tourist destinations in the country. Thus, this exploratory research aimed to analyse the smart city mission initiatives for transforming Indian tourism destinations into a smart destination. The analysis put forward that many crucial tourist cities are selected for the smart city mission of India. Further the initiatives of the smart city mission will help transform these destinations into smart destinations which will improve the destination competitiveness and support the revival of the industry from the pandemic effect. Further, suggestions are provided to gear up smart destination development in India. It will be a guiding note to destination developing and planning agencies.

<b>Keywords</b>	smart destination, smart city, tourism development, tourism technology
<b>JEL Classification</b>	L83, Z32, Z30
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## INTRODUCTION

There is a positive relationship between social stability and tourism development (Wang et al., 2021). Unfortunately, the world has seen huge instability during and even after the COVID-19 pandemic. Globally till mid-January 2022, there have been 326,279,424 confirmed cases resulting in 5.5 million deaths (WHO, 2022). This pandemic has affected tourism demand at large for mainly because of two reasons, one is that tourists are refraining to avoid infection and travel restrictions imposed by governments which includes border closures and lockdown to reduce transmission (Wang et al., 2021). Due to this, tourism has been identified as a susceptible industry during the pandemic (P. Lee et al., 2020).

The worst effects of COVID-19 have been witnessed in India during May 2021 when three cases per second and three deaths per minute were observed (UNICEF, 2021). In response to control the spread, the country implemented visa restrictions for high COVID-risk countries and advised home quarantine for asymptomatic travellers entering India. From 25<sup>th</sup> March 2020, the country imposed a complete 21-day lockdown, including the closure of internal transport, recreational places, events and gathering and many more (Ghosh et al., 2020). Thus, the pandemic impacted the tourism industry radically and pushed the people, involved directly or indirectly in the tourism industry, into vicious circumstances. The Ministry of Civil Aviation of India witnessed the cancellation of almost 30% of international tours immediately (Jamal et al., 2020). Foreign tourist arrival radically declined to 1.52 million in the year as compared to 2.74 million in the year 2020 (MoT Gol, 2022). The Federation of Associations in Indian Tourism & Hospitality (FAITH) has estimated losses of INR 5 lakh Crore to INR 10 Lakh Crore (PTI, 2020).

Thus, the COVID-19 pandemic put an unavoidable halt on travel and an urge for limited human interference, which resulted in the radical and rapid adaption of technology. It became mandatory for industry stakeholders to invest in technological innovation to survive in the future (El-Said & Aziz, 2021). Thus, it is found that the research literature is pointing out the need for the adoption of technology and advancement in innovation to go beyond this situation. In this vein, the present research studied the smart city mission of India and analyse the possibilities and challenges of the development of smart destinations in India. Further, the framework was provided to transform these smart cities into world-class smart destinations.



## REVIEW OF LITERATURE

### SMART TOURISM DESTINATION

The word “Smart” is a new trending word to describe solutions, procedures, functions, and developments fueled by technologies that are heavily dependent on sensors, big data, cloud computing, ICT, robotics, and many other innovations (Chavan & Bholra, 2014; Gretzel et al., 2015; Ivars Baidal et al., 2017; Tourism et al., n.d.). The concept of Smart Development focuses on improving the quality of life of people in three dimensions; environment, economy, and equity (Randhawa & Kumar, 2017).

The concept of a smart city was introduced through Kyoto Protocol signed by 192 all over the world. The main purpose of the protocol is to limit CO<sub>2</sub> emissions for environmental protection (Randhawa & Kumar, 2017). The concept of a smart city introduced the concept of a smart destination in the field of tourism. The development of smart destinations contributes towards smart services and destination sustainability (González-Reverté, 2019).

There is no uniquely identified and commonly accepted definition of a Smart Tourism Destination. The researchers define and conceptualize the term in diverse ways, however, most of them primarily emphasise the role of ICTs (Tyan et al., 2020). The origin of ICT ignites a thought of smart cities & smart tourism destinations (S. Kumar, 2016). López de Ávila (2015) has defined the smart destination as “*an innovative tourist destination, built on an infrastructure of state-of-the-art technology guaranteeing the sustainable development of tourist areas, accessible to everyone, which facilitates the visitor's interaction with and integration into his or her surroundings, increases the quality of the experience at the destination, and improves residents' quality of life.*” Smart tourism represents the integration of ICT and tourism which denotes the renovation of tourism through technology (Lee et al., 2020).

Several tourism destinations around the world have started implementing smart city projects aimed at improving quality of life and destination sustainability which motivated the emergence of the concept of a smart tourism destination (STD) (Cavalheiro, Mariana Brandão Joia et al., 2021; Randhawa & Kumar, 2017). It focuses on providing smart infrastructure and utilities to urban towns with the integration of modern technology (ICT) which provide a different kind of experience and joy to tourists (JASROTIA & GANGOTIA, 2018; Randhawa & Kumar, 2017). Innovation and sustainability are the pillars of the development of STDs (Gretzel & Jamal, 2020; Vargas Sánchez, 2016). The development of smart destinations involves minimal impacts on the surrounding environment and society through responsible behaviour which includes developing the local economy and society (A. Kumar, 2020).



Besides the infrastructural benefits, smart technologies provide supplementary advantages like the ease in tourist mobility, increase in the discoverability of destination areas, facilitate the accessibility of non-tourism infrastructure, increase the competitiveness of the place and lead towards better tourist satisfaction (Gajdošik, 2018; Gretzel & Jamal, 2020).

## **SMART CITY MISSION AND ITS ROLE IN SMART TOURISM DEVELOPMENT IN INDIA**

India, being a well-known country for its rich culture and diverse tourism products, attracts many foreign and domestic tourists (Satghare et al., 2017). The country, being a developing nation (Chaudhary & Walia, 2021), has experienced speedy urbanization significantly in its Tier-1 cities. The adverse effect of this development has been seen in the standard of living in such areas and hence various initiatives have been taken up by the Government of India to overcome these challenges.

The smart city mission is one of the initiatives, introduced by the government of India on 25<sup>th</sup> March 2015, to have smart but sustainable development in the cities of India (Chaudhary & Walia, 2021; Randhawa & Kumar, 2017). According to the Ministry of Housing and Urban Affairs (n.d.), the main purpose of the mission is to improve the economy and quality of life of the residents. In the initial phase, approximately one hundred cities were selected for execution of the mission in the five-year plan of 2015 – 19 through the two-stage selection procedure (Intra-state level selection and National level). It is assumed that the mission will provide the framework for such development which will be later applied to all four thousand cities of the country. The Indian Government has announced to aid one hundred smart cities in the respective Five-Year Plan and the process for selection is based upon a methodology that is divided into two stages: selection of cities.

According to Randhawa & Kumar (2017), smart tourism has greater potential in India as it is one of the fastest-developing countries. Further, the huge technological evolutions in upcoming years within the country will create a favourable environment for such developments in the tourism industry (Choudhury et al., 2018). The earlier literature has found that there is a strong link between the development of smart cities and smart tourism destinations (Huertas et al., 2021; Jasrotia & Gagotia, 2018).

Unfortunately, tourism researchers criticized the smart city mission due to the absence of a strong conceptual ground and an unidentified development model (Randhawa & Kumar, 2017). Ministry of Housing and Urban Affairs (n.d.) stated that the concept of a smart city varies from region to region and hence there is no universal definition. Thus, it is important to identify and standardize the concept in the Indian context. Further, it is highlighted that the government



lacks concerns towards the essential dimension of the natural environment in the mission hence there is a dire need to design and implement sustainable plans for the development of these smart cities, which will result in the development of smart destinations in India (Jasrotia & Gagotia, 2018; Randhawa & Kumar, 2017).

Prominent studies on the topic of Smart destinations in India were conducted by S. Kumar (2016), A. Kumar (2020) (studied Ahmedabad city), Sahoo et al. (2017) and Choudhury et al. (2018) (studied Bhubaneswar city) etc. It is observed that very scarce literature is available on the topic of smart city missions and smart tourism development in India. In this vein, to fill this void, the present exploratory research aimed at studying the national smart city mission in the context of the development of smart tourism destinations.

## RESEARCH METHODOLOGY

The exploratory research is based on qualitative analysis. The study aimed:

1. To study the Smart city mission of India
2. To analyse its role in the development of smart tourism in India

To achieve the said objectives following research questions were set:

1. Which crucial tourism cities are covered in the smart city mission of India?
2. Which parameters of the smart city mission are linked to smart tourism development in India?

The study is grounded on secondary data collected from the official website, news articles, reports, research papers etc. The temporal scope of the study is from 2015 to 2022.

## FINDINGS

**Table 1: List of cities and their tourism importance**

Agartala	Erode	Lucknow	Shimla
Agra	Faridabad	Ludhiana	Shivamogga
Ahmedabad	Gandhinagar	Madurai	Silvassa
Aizawl	Gangtok	Mangaluru	Solapur
Ajmer	Greater Warangal	Moradabad	Srinagar
Aligarh	Guwahati	Muzaffarpur	Surat
Allahabad	Gwalior	Nagpur	Thane
Amaravati	Hubli-Dharwad	Namchi	Thanjavur
Amritsar	Imphal	Nashik	Thoothukudi
Aurangabad	Indore	Naya Raipur	Tiruchirappalli



Bareilly	Itanagar	New Delhi	Tirunelveli
Belgaum	Jabalpur	New town Kolkata	Tirupati
Bengaluru	Jaipur	Panaji	Tirupur
Bhopal	Jalandhar	Pasighat	Tumakuru
Bhubaneshwar	Jammu	Port Blair	Udaipur
Biharsharif	Jhansi	Puducherry	Ujjain
Bilaspur	Kakinada	Pune	Vadodara
Chandigarh	Kalyan-Dombivali	Raipur	Varanasi
Chennai	Kanpur	Rajkot	Vellore
Coimbatore	Karimnagar	Ranchi	Visakhapatnam
Dahod	Karnal	Rourkela	
Devangere	Kavaratti	Sagar	
Dehradun	Kochi	Saharanpur	
Dharmashala	Kohima	Satna	
Diu	Kota	Shillong	

Data Source: (Ministry of Housing and Urban Affairs, 2022) retrieved on November 11, 2022  
Note: The names of the cities present on the official website of the smart city mission are listed only.

The above list includes the names of several very well-known and heritage tourist destinations like Agra, Aurangabad, Allahabad, Amritsar, Bhubaneshwar, Jaipur, Gwalior, Indore, Jhansi, Lucknow, Madurai, Surat, Thanjavur, Visakhapatnam, Udaipur, Ujjain, Varanasi, Visakhapatnam etc. The cities are endowed with many world heritage sites. The list also includes crucial hill stations like Dharamshala, Shimla, Shillong, Dehradun etc. The inclusion of the Tech-city of Chennai, Pune and Bengaluru, the wine city of Nashik, planned city of Chandigarh are helpful in the development of business tourism. Further, Panaji, Jammu, and Sri Nagar, with the inclusion of many north-eastern cities could gear up the tourism development in the region. Thus, the development of smart mechanisms in these cities would bring forward drastic changes in them contributing towards smart tourism development.

## INITIATIVES

The main objective of the Mission is – “to promote cities that provide core infrastructure, clean and sustainable environment and give a decent quality of life to their citizens through the application of ‘smart solution’”(Ministry of Housing and Urban Affairs, n.d.). Thus, the mission aimed at infrastructural development, sustainability, quality of life of citizens and bringing up smart solutions.

Further, the following table listed the core infrastructure elements in a Smart City proposed by the Ministry of housing and urban affairs (2015) and their significance from the aspect of smart tourism (Table 2):



**Table 2: Core infrastructure elements and their significance in the development of smart tourism**

SN	Core infrastructure elements	Significance for smart tourism
1.	Adequate water supply	The efficient management of water resources is key to ensuring the sustainability of tourism destinations (Cole et al., 2020)
2.	Assured electricity supply	The critical component for the tourist they consume directly or indirectly (C. G. Lee, 2013)
3.	Sanitation, including solid waste management	The sector is particularly intensive in solid waste generation and improper solid waste management portrays a negative image of the destinations (C. G. Lee, 2013; P. Lee et al., 2020)
4.	Efficient urban mobility and public transport	Developing public transport and tourism are interconnected (P. Lee et al., 2020)
5.	Affordable housing, especially for the poor	No direct connection but it can help improve the aesthetic view of the city
6.	Robust IT connectivity and digitalization	As ICTs have a significant role in the development of smart tourism (Buhalis & Amaranggana, 2014; Ivars Baidal et al., 2017; P. Lee et al., 2020)
7.	Good governance, especially e-Governance and citizen participation	The smart destination must be guided by good governance and policy for sustainability (Gretzel & Jamal, 2020; P. Lee et al., 2020)
8.	Sustainable environment	Sustainability is a vital component of smart tourism development (González-Reverté, 2019; A. Kumar, 2020; Randhawa & Kumar, 2017)
9.	Safety and security of citizens, particularly women, children, and the elderly	Safety and security are key elements of smart tourism (Ruiz-Sancho et al., 2021)
10.	Health and education	The research identified a connection between smart destinations (Göktaş Kulualp & Sarı, 2020) and smart health systems. Developing smart health and education systems could result in positioning the destination as a health and education tourism destination.

Data Source: Developed by the researcher

Thus, the analysis revealed that out of ten core infrastructure components nine are directly supporting the development of smart tourism at the destinations. The development of these components will boost the smart destination development in the city, resulting in the transformation of the Indian tourism industry.



Further, the mission looks forward to inclusive development by creating replicable models which will apply to other cities. This will lead to the development of overall tourism destinations in the country. Sustainable and inclusive development will be helpful for the survival of the industry in the post-pandemic period.

## **LIMITATION AND FUTURE SCOPE FOR FUTURE RESEARCH**

The present research is based on secondary data, therefore the collection of primary data through the surveys of the residents, and administrators of the selected cities could portray the actual picture of the development. Further, the interviews of officials of the smart city mission will clarify the true progress and plans related to the development of smart cities. Further, a review of present progress and its link to smart tourism development can be conducted.

## **CONCLUSION**

The tourism industry is facing big challenges during the post-pandemic period which are related to revival strategies, rebranding strategies, process transformation, digitalization, application of smart technologies and so on. The Indian tourism industry which has witnessed a huge effect of COVID 19 is in a state of revival. The earlier literature and the industry experts are suggesting destinations apply smart tourism strategies for reducing human interference and increasing sustainability practices in the industry. In this vein, the present research studied the role of the smart city mission of India in the development of smart tourism.

The qualitative study analyzed the city selected for the smart city mission and studied the core infrastructural element of the mission. The study found out that the list of cities includes very crucial tourism destinations. The development of smart infrastructure at these places will surely pave the path towards smart tourism. Further, the core infrastructure elements are also strongly interrelated to smart infrastructure, like mobility and public transport, IT connectivity, safety and security mechanism, sustainable environment, etc., needed for smart destination development.

To conclude, the smart city mission, if executed full-heartedly, can surely lead the smart tourism development in India. Most of the projects under the mission have deadlines between 2019 to 2023. Presently, the government is working on almost 140 cities in the country and Further from the year 2022 the government is thinking of turning the mission into a movement with the name of Smart city mission 2.0. The model developed from these 140 cities will be applied to all four thousand cities in India. So, we can hope that in the coming years, there will be a strong boost to the development of smart tourism in the country.





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# TOURISM MANAGEMENT PRACTICES AT LOKTAK LAKE, MANIPUR



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## ABSTRACT

Being the largest freshwater lake in South Asia, Loktak Lake of Manipur, India is a popular biodiversity destination. It is the home for the Keibul Lamjao National Park - the only floating national park in the world. The lake is turning into a sustainable tourist destination considering the importance of its preservation and conservation. Using exploratory research, the paper aims to explain its flora and fauna, the pattern of the lake, water quality and usage, and about the phasmid vegetation. The work furthers the documentation available on the subject and is of use for tourism lovers, researchers and policy makers.

<b>Keywords</b>	sustainable tourism, water management, lake management, phasmid, manipur tourism
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## INTRODUCTION

Loktak Lake is the largest freshwater lake in South Asia and is located at Moirang in Manipur, India. “Lok” means “stream,” and “tak” stands for “the end”. It is famous for phumdis which are large heterogeneous or mass of vegetation, soil, and organic matter at various stages of decomposition. Loktak Day is observed on October 15 every year. This ancient lake is of economic value to the state. It serves as a source of livelihood for the rural people, especially the fishermen. The lake was designated as a wetland of international importance under the Ramsar Convention on March 23, 1990, considering its ecological and biodiversity values. The lake is well connected by road and air for visitors and tourists. Imphal, the capital of Manipur, is thirty-nine kilometres away from the lake. The lake is a unique destination for tourism and offers an excellent opportunity for visitors to enjoy the beauty of the lake floating with phumdis of different geometrical shapes. The two islands - Sandra and Phubala - offer facilities to tourists. The Sandra Island has a cafeteria in the middle of the lake and is an ideal tourist spot. Visitors get a bird eye view of life on the lake.

The only floating national park in the world, the Keibul Lamjao National Park is located on the Loktak lake is the last natural habitat of the Sangai, the dancing deer of Manipur. Fishermen living in floating islands called as phumdis in floating hut known as Phumsangs are unique sights of this lake

The lake is broadly divided into north, south and central zones. However, Loktak lake is rich in biodiversity comprises of 233 species of aquatic macrophytes of emergent, submergent, free floating and rooted floating leaf. There are fifty-seven species of water birds. The lake is also facing some threats and issues like loss of vegetation, deforestation, and shifting cultivation in the catchment areas have resulted in soil erosion resulting in the lake shrinking and an increase in salt level. It is also noticed that the decrease in phumdis has decreased in the Keibul Lamjao National Park, thereby threatening the survival of Sangai deer and interference in the migration of fishes. It is noticed that the livelihood of people depends upon the sale of edible fruits and rhizome of lotus plant products, and plants have also degraded because of polluted water.

To address all these issues, the Government of Manipur has set up the Loktak Development Authority under the Manipur Loktak Lake Protection Act, 2006, to provide administration, control, protection, improvement, conservation, and development of the natural environment of the Loktak lake.



## **RESEARCH METHODOLOGY**

Exploratory Research Methodology is followed in this study. The basic idea of the research is to have better understanding on Loktak lake. Secondary data sources are used for collecting the data necessary for the research.

## **OBJECTIVES THE STUDY**

- To understand the importance of water preservation at Loktak lake.
- To create awareness on Loktak lake as a natural site.
- To promote Loktak lake as a sustainable tourist destination.

## **NEED OF THE STUDY**

The study intends to understand the importance of the preservation and conservation of Loktak lake water as a natural attraction and floating national park, which has to be preserved and maintained. Loktak lake is an important source because it is the shelter for about 230 species of aquatic plants and around 400 species of fauna. Moreover, it is a visual treat for birdwatchers.

The study shows that due to farming practices, urbanization, massive destruction by people, and poorly planned development activities, wetlands from a large portion of the globe have disappeared. Through this study, awareness among the local community is highlighted as such exploring resources where fibrous plants play main role to local women.

The study will help the local community to protect and preserve this natural attraction. Incoming of tourist's book for a homestay along the lake to get a first-hand experience of life by the lake. This lake offers first-hand experience to explore the lake by boat in long fishing boats in the early hours of the morning.

However, this place offers a lot for tourists, like homestay, huts, and green rings of Loktak, but it was to be removed so that the lake can be rejuvenated. This was a decades-old struggle between the authorities and the local people, including fish folk and homestay owners who believed that the clean-up is a cosmetic measure meant for the benefit of foreign tourists.

## **SCOPE OF THE STUDY**

Loktak lake is under the Ramsar convention, where the lake has been designated as a wetland of international importance and is rich biodiversity. Wetlands supply a number of economic, social and ecological benefits. Loktak lake is considered as the lifeline of the people



of Manipur due to its importance in their socio-economic and cultural life. The lake is known to provide ecological and financial security to the people.

Moreover, there are six villages situated nearby the Keibul Lamjao national park, Manipur and their communities residing are found that collection of aquatic vegetation from the park, fishing, rearing ducks and cattle are income for the local community. Loktak lake uses the lake for drinking and households uses, hydroelectricity power generation, irrigation, biodiversity, recreation etc.

## **RESULTS AND DISCUSSION**

### **FLORA AND FAUNA**

Blessed with a varied variety of flora and fauna. Depending on the hill ranges, the climatic conditions. The Shirui lily festivals celebrates the state flower of Manipur and the event is a part of Manipur tourism efforts to develop and implement sustainable and responsible tourism in the state and increase awareness about the endangered species of Manipur Shirui lily found only in the Shirui hills. The festivals are organized from around April to May every year. The department of tourism will organize the fourth state-level Shirui Lily festival from 25 to May 28 2022.

Every year the state of Manipur celebrates the Manipur Sangai festivals from 21st to 30th November. The festival is named after the state animal, Sangai. The festivals are labelled as the grandest festival of the state today and helps promotes Manipur as a world class tourism destination. The festivals showcase the tourism potential of the state in the field of art and culture, handloom, handicraft, indigenous sports, cuisine, music and adventure sports of the state. The festivals reflect the tourism potential in the state. The Manipur Sangai festival showcase state cuisines at a number of food stalls which is opened during the festivals. Manipur popular dishes include fish curry and Eromba (a dish prepared with boiled vegetables and fermented fish) Every Manipur dish whether vegetarian or non-vegetarian has its own distinctive flavour because of the natural and indigenous ingredient used in preparing these dishes.

### **PATTERN OF LOKTAK LAKE**

Loktak lake comprises of small lakes locally called Pats, which becomes one sheet of water during monsoon. The lake is oval in shape with maximum length and width of 32km and 13 km respectively. Loktak lake is called a floating island. The development activities include water resource and agriculture development. Loktak lake ecosystem and people living in and around is also affected because of increasing human demand and agricultural forms which is



the single sources of livelihood of the community. Rapid increase in population insignificant increase in the cultivated area has led to land degradation, increase in soil erosion, pressure on the forest and increase in fertilizer usage.

## **WATER QUALITY AND USAGE**

Loktak lake is in danger due to increasing pollution, however lake water is used for irrigation and ecological purposes. Analysis of water quality of various zones especially in the northern and southern zones. Intense use of fertilizers usage in the agriculture field and fish farming in the northern zone are also major factors for water quality deterioration.

Fishery is an important economic resource of Manipur contributing to three percentage of the state GDP. Loktak lake provide more than 50% of fish production. Sadly, it is seen that use of exploitative fishing techniques and inadequate marketing infrastructure are the barriers to the growth of this lake leading to decline of fishes.

## **KEIBUL LAMJOO NATIONAL PARK**

Within the lake body in the southern zone the national park, a distinctive natural habitat known as Sangai. The habitat comprises of floating phumdis, hillocks and elevated strips of land. Sangai the state animal lives other animals like hog deer, wild boar and large indian civet. The park is rich in fauna and account for 81 species of animals. Degradation of Loktak lake, particularly after construction of Ithai barrage has seriously affected the park habitat. This lake has been a source of sustenance for around fifty-five villages of India and serve them with fresh water, food, shelter and sustenance. The lake is famous with another name as a floating lake it is because of the large vegetation that it supports.

## **LOKTAK LAKE IMPORTANCE**

Loktak lake originates from Manipur River in Moirang, Manipur. This lake is the largest freshwater sources for fifty-five villages for domestic use. A dam was built in the 1980 which is responsible for high power generation. Loktak Lake has a floating national park named Keibul Lamjao national park that locates on Phumids. The Loktak lake is a perfect destination and the reason is the phumdis, people go boating and explore the lake. Through boating you can reach different floating islands which is a unique experience for people throughout the world. Keibul Lamjao National Park is the only natural floating national park in the entire world, it is famous for Bro-antlered deer and dancing deer.

## **OTHER DISCUSSION**

Seven water quality parameters like temperature, pH dissolved oxygen, alkalinity, chloride and hardness were studied. The temperature of the water was measured by digital



thermometer and is expressed in degree celsius, according to the study pH value was determined by Hanna digital pH meter dissolved oxygen and biological oxygen demand by Winkler Titrimetric method, alkalinity by using potentiometric titration method and chloride content was measured by using Mohrs argentometric method. The pH of Loktak lake varied between 6.2 and 8.2 during the study period. The pH of lake water is almost uniform throughout the season with a little variation. Lake becomes acidic in winter and slightly alkaline in spring and post monsoon.

A total of four sampling sites was taken that is site one, site two, site three and site four. Water sampling was performed during rainy season, morning between 6:30 AM to 9:30 AM and then the samples were given for testing, analysing the seven parameters given above.

According to the observation all the four sites carried different pH value during rainy and winter season. Moreover, the higher dissolved oxygen contain may be due to luxuriant growth of algae and aquatic plants resulting to higher photosynthetic rate as a result of increased temperature. However, biological oxygen demands most important parameter in water is the oxygen and it is seen that high BOD is visible in site I, i.e. more of domestic waste from local community.

High alkalinity is found in site iv is due to the use of detergent and soap for domestic purpose by the local villagers near the site. Along with alkalinity there is chloride is one of the important water parameters and it is found in nature in the form of salt of sodium, potassium and calcium. Chlorides in water are the indicators of large amount of non-point source pollution by pesticides, grease, oil, metal and other toxic material.

## CONCLUSION

Loktak lake is famous for its floating vegetation called a phasmid. Phumdis is the circular vegetation that is made up of mixture of soil, vegetation and other organic matter. The mixture thickened into solid since past years. It is home to aquatic species of plants and species of animals.

A dam was built on the lake in 1980 and today it supplies hydropower to different states of India. Loktak lake supports floating islands and a national park. Manipur river is the sources for the formation of this lake. Moreover, there are two main zones of the lake which are known as buffer zone and core zone. Buffer zone is known as balance area and core zone is known for the protected area.

In the study it is seen that domestic waste and sewage waste into the lake which cause a risk pollution for this freshwater source. Due to urbanisation the lake has been turning





polluted. The consistent drainage of municipal waste, pesticides and fertilisers has been draining the quality of water. Domestic human activities like bathing, washing clothes and utensils is a serious threat. This study shows that quality drained over the years and what other human activities are responsible for harassing the natural beauty.

It is also noticed that high dependency on Loktak lake by those people residing in and around it is for consumption purpose and household financial earning because of human activities the lake was found to be polluted and destruction of the surrounding natural environment occurred resulting in poor socio-economic condition of the community.

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