# arthanaya

3rd Edition

THE ANNUAL MAGAZINE

OF

## ECOSPIRE

THE ECONOMICS SOCIETY

SHAHEED BHAGAT SINGH COLLEGE

# Statement From the Principal


Ecospire, the Economics Society of Shaheed Bhagat Singh College, University of Delhi, is widely recognized as one of the leading academic societies. Its core mission is to provide students with a platform for engaging in in-depth discussions on a diverse range of economic and financial topics. We are thrilled to announce the launch of the third edition of Ecospire's annual magazine, Arthanaya. This publication offers young economists an exceptional opportunity to explore and analyze various economic and financial concepts in depth.

Arthanaya aims to broaden readers' perspectives on economic growth and contemporary issues, with this year's edition focusing on the theme of "Economic Transformation in the 21st Century."

I commend the institute for its unwavering commitment to fostering a culture of rigorous economic inquiry among students. By nurturing this tradition of academic engagement and scholarly dialogue, Ecospire continues to create an intellectually stimulating environment for all.

Congratulations to the convenors of Ecospire and the Department of Economics for their outstanding efforts.

Best Wishes,
(Prof.) Arun Kumar Attree
Principal

# Statement From the Teacher in Charge

Ecospire, The Economics Society, continues to be a platform for students to grow, learn, and develop a deeper understanding of economics.The Economics Department takes great pride in supporting Ecospire and its flagship publication, Arthanaya. This year's theme, "Economic Transformation in the 21st Century: Crafting the Future," aligns perfectly with our department's commitment to exploring innovative ideas and preparing our students for the challenges of tomorrow's economy. It reflects our department's dedication to fostering academic excellence and critical thinking.

The diverse range of topics covered in this issue, from the impact of artificial intelligence on labor markets to strategies for sustainable economic growth, demonstrates the breadth and depth of economic inquiry happening within our walls.

I extend my heartfelt congratulations to the entire Arthanaya team for their hard work and dedication in bringing this publication to life. To our readers, I encourage you to engage deeply with the ideas presented here and to let them spark further discussion and exploration.

Best Wishes,
Ms. Gurpinder Kaur
Teacher In Charge

# Statement From the Convenor

With immense pleasure, we present this edition of our annual magazine, Arthnaya, with some reflections of the contemporary debates that are shaping our understanding of the global and Indian economic landscape. As scholars of economics, we are constantly exposed to a rapidly changing world, where traditional theories intersect with new structures and tendencies. Our magazine serves as a platform for young minds to critically engage with such dynamics, and identify and address the diverse economic challenges of our time.

The content engages with some key contemporary issues—digital economy, green finance, relations between AI and human labour, trade wars and sanctions, among others. Through these articles, the students have aimed to develop a deeper understanding on these topics.

I also take this opportunity to thank and commend our students for their hard work, creativity and dedication in curating and contributing to the magazine. This process has not only honed their research skills, but has also encouraged collaborations and critical debates among them. This issue stands as a testament to their passion to learn economics and their effort to understand the complexities of the world around us.

I hope that this issue sparks curiosity, motivates further inquiries and thoughtful engagements, as we continue to learn and grow together.

Soar High!
Mr. Anuj Goyal
Convenor

# Statement From the Co-Convenor

As Co-Convenor, I am thrilled to introduce this year's edition of Arthanaya. Our theme, 'Economic Transformation in the 21st Century: Crafting the Future,' couldn't be more timely or relevant in today's rapidly evolving global landscape.

We have curated a collection of thought-provoking pieces that break down complex economic issues into insightful and accessible content. This edition brings together diverse perspectives from students and faculty, offering fresh insights into the economic challenges of our time.

Our aim has always been to create a magazine that not only informs but also encourages meaningful discussions.

I extend my sincere gratitude to everyone involved in this endeavor: our talented contributors, meticulous editors, and supportive faculty coordinators. Your collective efforts have resulted in a publication that we believe will engage and inform our readers.

With warmest regards
Mr. Deepanshu
Co-Convenor

# Statement From the Supervisor

Supervising the creation of this year's Arthanaya has been both a privilege and a pleasure. Our focus on economic transformation in the 21st century has led to a collection of truly insightful work from our student contributors.

Arthanaya continues to serve as an invaluable platform for students to explore complex economic issues, develop critical analytical skills, and share their research with a broader audience.

This year's edition showcases students' deeper understanding and fresh perspectives on various economic issues.

The quality of work presented in this newsletter is a testament to the dedication of our students and the guidance provided by our faculty. Each article reflects meticulous research, thoughtful analysis, and a genuine passion for economics. I extend my warmest congratulations to the entire team on producing another successful edition of Arthanaya. I am confident that this publication will promote a deeper understanding of today's economic landscape and inspire further inquiry and debate among our readers.

With my best considerations,
Ms. Saumya
Supervisor

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# Scholar’s Chronicle

# Problematic Transitions: Monetizing Content on X

*Debdatta Saha1 and Tathagat Singh*
*Faculty of Economics, South Asian University, New Delhi, India*
*Corresponding author: debdatta@sau.ac.in*

**Abstract**

Monetizing API access by X is problematic on multiple counts. Being a dominant social media platform in India, it is a repository to a vast store of social media posts on a variety of socially and economically relevant issues, particularly those by the government regarding their new initiatives (such as the Government e-Marketplace in India). This kind of monetization does not affect the user who uses the platform as a free service for communicating various kinds of ideas or information to the rest of the world. However, this creates difficulty of access of past tweet data, even by the original content provider. Such monetization restructures the web of the social fabric, by ensuring participation while extracting surplus from the minority of users whose research requires past data access.

**Article:**

Studying historical tweet data from the social media has become common in the social sciences, ranging from analysis of marketing strategies of fintech companies (Oh et al. 2022) to critical examination of elections (Schmuck and Hameleers, 2020). Hence, platforms like X are of relevance not only to individual consumers, but also for academic researchers for understanding trends in social conversations. Often, of particular interest is the nature of content posted by government entities regarding various public policy initiatives. July 2023 marked a transition of the platform from Twitter to X. Along with it came a new monetization scheme: bulk extraction of past tweets even by government entities was no longer free. Exorbitant price slabs for different quantities of data. For instance, the Premium category for X Endpoints extraction is priced at $42,000 per month. The other tiers are priced at $5000 and the 'basic' one at $100 per month. Tracking the trends in historical tweet data is often the core research methodology in social science research, which now is no longer possible unless backed by large research budgets. Note that this pricing policy does not affect any user posting on the platform, which remains free of cost. They merely and unwittingly add to an already vast pool of data.

It is only a small minority of users, such as app developers and researchers, who need access to historical tweets who now pay for access.

In recent times, the small community of content developers and researchers in developed countries have been complaining about problematic aspects of the X transition, such as API access pricing and opaqueness of the platform's policies. However, problems of access to historical tweets, which are now prohibitively priced, find barely any discussion in the domestic media or policy circles in India. One (relatively) unlikely possibility is the presence of a large research budget, which allows the purchase of historical tweets allows access. The other is that the community of users of historical tweets for research purposes are in the minority at present in the country. The majority, as mentioned before, are not adversely affected by this kind of pricing and have not reduced their usage of the platform post the transition. In terms of social welfare sense, the benefits of using a platform like X, with vast network externalities for consumers, might outweigh the loss to the research community. However, it is the job of this research community to examine and provide unbiased commentaries on the nature of conversations on social media platforms such as X. The extent to which X is democratic and true to its foundational principles should go through the thorough examination of research that draws on historical tweet data as an essential input.

For a country like India, where most researchers have limited budgets for research purposes, this transition has made investigations of this kind impossible. For instance, tracking the discussion regarding the uptake of public policies requires access to X API Endpoints. The API access for retrieving past tweets for archival research is nearly impossible not only from a pricing point of view- the terms of access are obscure and heavily biased against the user. This creates a situation where a user like a government entity creates traffic for X not knowing that, at a later date, it will face extremely unfair terms to study its own past content. Even after paying for the premium subscription to access X API endpoints, the authors of this article have faced API malfunctioning and failure to extract posts. More importantly, the new rules of engagement also affect any Twitter user, who desires to extract his/her past timeline of posts in a usable format using the API.

As individual researchers facing the might of a dominant platform like X, are there any remedies? Laws, in their current format, do not address this grievance directly.

For instance, antitrust laws are changing worldwide to tackle abuse of dominance by big tech firms (the recent Apple case in the US being an example). However, the Digital Competition Bill of 2024 in India is still in the draft stage, and there is likely to be a large delay before its enactment. An alternative route would be to look at data privacy law (the Digital Private Data Protection Act of 2023). However, the provisions of this Act do not have anything to offer for individuals who offer their information willingly to a social media platform.

The draft version of the Digital Competition Bill of 2024 considers the prevention of unlawful infringement of pre-existing intellectual property rights. Additionally, it has provisions to address frequently noted abusive conduct of dominant digital platforms, such as anti-steering, self-preferencing, restriction of third party applications, tying and bundling and mechanisms for handling complaints. However, the very fact that these actions now stand widely regulated (the Digital Market Act in the EU), it is should not come as a surprise that a dominant big tech platform would not run afoul of the law in the manner envisaged by the proposed Bill. Barbara McCutcheon, in her work on cartels, demonstrated clearly how the Sherman Act, which aimed at prevented abuse of market power, ended up aiding collusion precisely because the regulator's actions became predictable. The incentives to game the system become higher larger the stakes involved as well as more predictable and uniform are the liabilities and punishments. Broad ex ante regulation as well as economy-wide data protection laws shall become ineffective against nuanced case-specific abuse of market power.

There are multiple issues here: when social media data is created, does a user know that future access to past feeds would require a steep payment? A dominant platform, despite a label such as SSDE (Systemically Significant Data Enterprise), can legally argue in favor of a monetization policy such as the current one, as it does not affect the majority of users (who might have no intention of examining their or others' past feeds). Appeals through NCLAT and then the Supreme Court involve a waiting game, that again imposes a humongous time cost on an individual researcher and not the SSDE, as any investigation by the competition authority under the proposed Bill can be challenged at higher authorities.

The Twitter transition not only badly affects app developers but also a larger community of researchers for whom archival data in the form of past tweets reveal valuable information about various research problems. For instance, the Government e-Marketplace (GeM) handle (\@GeM_India) contains posts by government entities regarding various aspects of the new electronic platform for government procurement in India. This initiative has been talked about in policy circles due to its inclusive properties for small and medium sellers as well as building transparency in public procurements.

What further needs to be highlighted is the negative impact of the changed rules that Twitter transition has brought about as long-term consequence for the structure of the social web. The situation is similar to the restructuring of the worldwide web, as discussed in the 2013 paper of Gerlitz and Helmond. The authors discuss the usage of `like' buttons by a gatekeeper platform like Facebook to further entrench its own position in the market for social media platforms. This is done with the upfront intent of increasing the social participation on the worldwide web, but the effect of a digital object such as the `like' button ends up making anyone using the internet into a Facebook user. The directions of data flows are re-centralized, after an apparent attempt to allow increased user participation. In the case of X, a similar process of re-centralization is happening, but through a different mechanism: the rules for accessing X API endpoints.

On the face of it, these new rules affect only a small section of users (app developers and researchers accessing archival tweets), leaving most users posting tweets unaffected. However, API access rules of the kind implemented by X shall result in cementing its dominance (due to the reluctance of the unaffected and unaware users on the platform) and re-centralize its position. Such monetization restructures the web of the social fabric, by ensuring participation while extracting surplus from the minority of users whose research requires past data access.

This creates extreme challenges for contenders (like Koo) in India to establish alternative spaces for social media users. While antitrust laws are changing for "gatekeepers" like X, it is unlikely that these shall challenge the dominance of these social media platforms in terms of the historical data repositories that they already hold onto. For India, X has become an important outlet for the government to engage with citizens, precisely due to its popularity and outreach. However, as a result, the quality of research using historical public media data from these platforms, has become a silent collateral damage.

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- This was the case for the authors, who were studying the nature of posts by the Government e-Marketplace (@GeM) handle to understand the development trajectory of the platform in India. Unfortunately, immediately after the research began in June 2023, a vast change took place in the rules of access to past data, which is the primary motivation for this article.
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# Environmental Degradation and the Globalised Economy

*Supriyo Mondal Centre for Economic Studies and Planning*
*Jawaharlal Nehru University*

All of us have memories drawing landscapes from our childhood days—green trees, a bright blue sky reflected in clear waters. But sitting in our national capital, and gazing outside the window, it feels like someone has erased those colors. The sky is hidden behind smog, the air feels heavy, and dust covers the leaves. The water is no longer clear. What was once a beautiful and lively world has turned into a reminder of what we've lost. Environmental degradation is a common concern across our country, with the air pollution levels being the highest in the world, and the cry for environmental sustainability has heightened like never before. World Economic Forum posits environmental challenges to constitute four of the five challenges that the world1 is currently facing and the greatest impediment behind achieving the substantiable development goals (SDGs). The major cause of these risks has been carbon dioxide ($CO_2$) emissions, which form the main grounds for climate change and has been reported to negatively affect livelihoods, health, economic growth and quality of life in general (USGCRP, 2018). $CO_2$ is classified as a global pollutant, meaning its adverse effects are not confined to the economic boundaries of the emitting country. This contrasts with local pollutants, such as particulate matter ($PM_{10}$) and hazardous industrial waste, which primarily affect the region where they are emitted. Consequently, much of the economic literature on environmental concerns focuses on studying $CO_2$ emissions.

The Paris Agreement of 2015 brought policymakers from 195 countries together to commit to reducing global temperatures, followed by the Glasgow Pact in 2021, which set a goal of achieving 'net-zero'2 carbon emissions by 2050. While the recently concluded COP28, made resolution to reduce reliance and gradually transition away from fossil fuels as a source of energy. However, despite these efforts, the tangible impact on the ground remains limited (UNFCCC, 2023). $CO_2$ emissions have not only surpassed pre-pandemic levels but have also more than doubled compared to those recorded approximately half a century ago.

This raises a critical question: How can a country simultaneously expand its domestic production while reducing emissions? The key lies in adopting advanced technologies that lower emissions without hindering economic growth. Investments in clean and renewable energy, energy-efficient production processes, and carbon capture technologies and reproducing carbon sinks can facilitate this transition. However, many countries, particularly those in the developing world, struggle with financial constraints and limited access to these innovations. Bridging this gap requires international cooperation, technological transfers, and sustainable financing mechanisms to ensure a globally inclusive path toward decarbonization.

The distribution of emissions from both local and global pollutants has been evolving, with developing countries in Asia now accounting for over half of total $CO_2$ emissions, up from 40% in 2015. China, the largest emitter, contributed 35% of global $CO_2$ emissions, releasing approximately 12.6 Gt in 2023 and 11.5 Gt in 2020. In comparison, China's emissions in 2020 exceeded those of all developed nations combined and were 15% higher than the aggregate emissions of all advanced economies in 2023. Similarly, India's $CO_2$ emissions stood at 2.8 Gt in 2023, surpassing the European Union's 2.5 Gt of emission in the same year.

Total emissions are often considered a key metric, as $CO_2$ and other greenhouse gases cause environmental harm regardless of their point of origin. However, relying solely on this measure can be misleading, as it places a disproportionate burden on developing nations. It is important to recognise that these Asian countries collectively account for approximately 55% of the global population. A per capita analysis reveals that developed nations continue to be the largest emitters (although China's per capita emission exceeded that of all EU nations combined). The per capita $CO_2$ emissions of advanced economies remain 70% higher than the world average, while India's per capita emissions are still less than half of the global average.

Regardless of the metric used, pollution levels in developing nations have been rising. In the early 2000s, per capita $CO_2$ emissions stood at approximately 0.9 tons in India and 2.8 tons in China, compared to roughly 8 tons in the European Union and 20.5 tons in the United States. However, to the credit of the advanced economies, they have managed to more than double their real GDP in recent decades while simultaneously reducing emissions, demonstrating progress in decoupling economic growth from environmental degradation.

What explains this shift in the emissions landscape? Several factors contribute to this trend, but for our purposes, we focus on globalisation, which stands as one of the primary drivers of this evolving pattern of emissions. Along with doubling of real GDP in the advanced nations, trade between these advanced nations and the rest of the world has increased almost ten times in the last three decades. Over the same period, international trade—particularly in intermediate goods—has experienced exponential growth, largely driven by the expansion of Global Value Chains (GVCs).

In a GVC, the production process is sliced up into multiple fragments, and each of these fragmented production units are completed in various countries across the globe. Such fragmentation has been made feasible due to the drastic reduction in information and communication technology and transportation costs, which has positively impacted all participating firms through enhanced efficiency and countries with a larger opportunity to integrate into world trade and generate domestic employment. The cost advantages of developing nations stem from traditional factors highlighted in international trade literature, such as abundant natural resources and low-cost labor, both of which enhance a country's comparative advantage.

Beyond these traditional factors, relatively stringent environmental standards in the developed nation when compared to the lesser developed nations, provides firms a greater incentive to shift the polluting industries to these less developed countries. The developing countries often relax their environmental standards to attract these multinational corporations. From an economic perspective, if we consider good environmental condition as a normal good, the demand for it rises with an increase in income, consequently the high-income nations tend to prioritise a cleaner environment. In contrast, lower-income countries, driven by the need to raise household incomes, may be more willing to sacrifice environmental quality in favor of economic growth. Fearing the loss of industries to these 'pollution havens' and with certain urge to save the environment, the developed nations since the Stockholm Conference in 1972 demanded the United Nations (UN) to set uniform environmental laws irrespective of the developmental stage of the nation. Several non- tariff and tariff measures were in place in the past to discourage imports from such pollution havens. But with today's pattern of trade, where a final commodity is embedded with value addition from multiple countries such policies could prove to be in-efficient. But since then, environmental concerns have been a major pre-condition to signing trade agreements.

According to multiple studies approximately 80% of the world trade is associated with GVC activities. Under such a complex production system, although we do observe the countries emitting $CO_2$, it is in most cases consumed across multiple countries in the world. More so because most of the pollution in the developing countries are associated with production rather than consumption. Therefore, a lot of accounting system promotes consumption-based accounting rather than production-based accounting of emission, recognising that a large fraction of the commodities consumed in the developed countries are manufactured through polluting industries in developing countries. Such emission is not only restricted to $CO_2$ emission but also local pollutants that augments environmental degradation. Although $CO_2$ emissions is a global pollutant, and shifting production from one location to another would not reduce the world-wide impact, there are some local pollutants which worsens the environmental quality at the location of emission, and in such a case, relocating production would help improving the environment in the previous location where the production was carried out. Consequently, developing nations must address not only $CO_2$ emissions but also local pollutants that directly affect air quality and public health. Historically, in the early years of globalization, advanced economies also engaged in the export of hazardous waste, particularly to the African continent. This practice led to international concerns and ultimately resulted in the Basel Convention of 1989, which aimed to regulate and restrict the transboundary movement of hazardous waste to protect environmental and human health.

Based on consumption accounting procedures multiple studies find that 57% for the cumulative $CO_2$ emission between 1995 to 2015 were attributed to the production and consumption carried out in the developed nations. While at country level the accounting procedure suggests that USA is directly or indirectly responsible for 23% of the emission while China for 18% and India's share dropped to 3.1%.

As all the recently concluded climate agreements aims to reduce global pollution, it would require improvement in technology through implementing policies that ensures the overall emission of harmful by-products is reduced, but a key question remains: who should bear the costs? If environmental measures are based on consumption, developed countries, as the primary consumers, should transfer resources to less developed and developing nations. Such financial and technological assistance would enable these countries to adopt cleaner technologies and implement effective policies without harming their domestic economies. This approach ensures that all nations can contribute to emission reductions while still achieving the sustainability goals outlined in the agreement.

Efforts to curb emissions in so-called "*pollution havens*" are gaining momentum, despite the institutional and financial constraints that low- and middle-income countries face. According to climate policy databases, approximately 4,500 climate policies have been implemented over the past few decades. However, these nations must strike a delicate balance between reducing emissions and ensuring economic progress. India, for instance, has a per capita $CO_2$ emission level that is approximately one-third of the global average. Recognizing the urgency of climate action, the country has undertaken significant initiatives to transition toward cleaner energy. Policies such as the National Solar Mission have positioned India as one of the fastest-growing solar energy markets, with substantial private-sector investments further accelerating this shift. Ultimately, addressing climate change requires a globally coordinated effort where both developed and developing nations align their strategies. The role of advanced economies in supporting this transition—through financing, technology-sharing, and fair-trade policies—will be instrumental in shaping a sustainable and inclusive path toward decarbonization.

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# The Expert's Take

# A Conversation with Dr. Lekha Chakraborty

**About Dr. Lekha Chakraborty**

Dr. Lekha Chakraborty is a distinguished economist specializing in public finance, fiscal policy, and gender budgeting. She is a Professor at the National Institute of Public Finance and Policy (NIPFP) and has worked extensively on macroeconomic policy, public debt management, and sustainable development. Dr. Chakraborty has collaborated with institutions like the International Monetary Fund (IMF), the United Nations, and the Reserve Bank of India (RBI), contributing valuable insights into fiscal governance and economic policy. An advocate for gender-responsive budgeting, she has played a key role in shaping policy discussions on inclusive growth in India and beyond.

1. **Given the economic transformations in the 21st century, how should fiscal policies adapt to ensure sustainable and inclusive growth?**

Of course, given the economic transformation of the 21st century, the fiscal policy should remain very accommodative because the impact of the monetary policy on the growth recovery process is just partial because the rate of interest management will not be able to ensure sustainable and inclusive growth. So, it is the fiscal policy and the macro-fiscal policy that need to be very accommodative to face the challenges related to the economic transformation happening in the 21st century. Now, in the sense that fiscal policy needs to keep the debt and deficit a little higher, if you went with very stringent fiscal consolidation or fiscal austerity measures, then, that can backfire. So, a high deficit and high debt for the time being, especially in the post-Covid fiscal strategy should be okay, given the challenges ahead. We need to calibrate the fiscal policies in coordination with the monetary policies. That's a challenge. So, to keep sustainable inclusive growth, right now, monetary policy is engaged with interest rate management and the fiscal policy is remaining accommodative. About the growth recovery process, fiscal and monetary policy coordination is very crucial to ensure the outcomes and that's it. I'm aware of the hidden debt that's happening right now. The hidden debt to GDP is crossing over USD 1 trillion as per the IMF estimates. But nations in the post-pandemic fiscal strategy use this hidden debt mainly for CapEx, the capital infrastructure formation in the economy and that process needs to be continued. Any sudden turn in the process will have adverse group recovery as a consequence

## 2. How should governments rethink their budget priorities to address contemporary global challenges such as climate change and digital transformation and what can be done to integrate "climate finance" in the national budget?

Related to climate change and digital transformation, the government should rethink the budget priorities and if you ask me, the climate finance in the national budget is very crucial to integrate the climate finance in the national budgets. We are thinking of climate finance as a political issue as well as a technical issue. Climate Finance cannot entirely be done by monetary policy because economists are divided when it comes to the climate and the monetary policy stance. Many economists, including Rajan, have highlighted that monetary policy tools are not adequate to deal with climate finance. So, we need to integrate climate change commitments within the national budget from both mitigation and adaptation perspectives. We have climate-responsive budgeting at the submission levels, and many state governments have already implemented it. However, the union government does not have that page open in the expenditure budget, which is crucial because it ensures fiscal transparency—showing how much we are spending on climate change commitments. That fiscal transparency is the prelude to the fiscal accountability process. Along with climate-responsive budgeting, international budget ecological fiscal measures are also very crucial. The Sixteenth Finance Commission—hopefully—will retain the climate change criteria within intergovernmental fiscal transfers, which is very important for the climate commitments, and reaching net-zero carbon emissions within a few years is crucial because we are facing both a fiscal transition and an energy transition, and these two transitions are moving together. It is therefore essential to have climate considerations on board when addressing contemporary global challenges. The climate-resilient economic growth recovery process is also critical when we think about reprioritizing perspectives.

## 3. What are the key challenges in gender-responsive budgeting, and how can it be better integrated into mainstream economic policies?

Regarding your question on gender-responsive budgeting—applying a gender lens in macroeconomic policymaking is crucial. The key challenges related to gender-responsive budgeting are fourfold. First, we need to recalibrate country-specific gender-responsive budgeting models to address the unique gender concerns of each country. That is the first challenge. The second challenge is ensuring strong institutional mechanisms to translate these economic models into political or institutional commitments. This institutional mechanism is crucial and a significant challenge at both the national and subnational levels. When I talk about the subnational levels, even the third tier is very important. We need to identify the institutional mechanisms, data, and methodology required to create responsive budgeting models. The third challenge is related to capacity building and state capacity. It is not only about sectoral ministries at the Government of India level—we need to provide capacity training and train officials at the grassroots level as well. So, the first challenge is specific economic modeling related to gender budgeting. The second, as I mentioned, is institutional mechanisms. The third is capacity building. And the fourth is accountability mechanisms. We need to be very clear that gender budgeting is a tool of fiscal accountability, and we must establish sufficient accountability mechanisms.

Now, another thematic challenge, if you ask me—as I mentioned earlier, climate is a challenge. But climate and care economy infrastructure should go hand in hand because the climate crisis affects women and children the most. There should be a recalibration of climate-related budgets or climate-responsive budgets, integrating a gender perspective. The challenge related to energy infrastructure also needs to be addressed—we should maintain a gender lens within energy infrastructure. Then, of course, the safety and security of women, including the Bill of Rights, is crucial, particularly concerning bodily integrity and overall safety. Another challenge is achieving feminization in the labor markets. Initially, female labor force participation tends to decline before increasing as economic development progresses. To ensure greater participation, we must focus on care economy infrastructure, as employer policies alone will not be enough to drive feminization in labor markets. These are the major challenges. Additionally, gender fiscal marksmanship is very important—announcing gender-focused budgets is one thing, but ensuring that these announcements translate into meaningful gender outcomes is what truly matters. That is very crucial. There should be no deviation between what is budgeted and what. is actually spent. These are the major challenges related to gender-responsive budgeting.

**4. Given the rising fiscal deficits worldwide, how can governments strike a balance between countercyclical fiscal policies and long-term debt sustainability?**

The rising budget deficits and fiscal deficits worldwide are crucial concerns, particularly in relation to cyclical fiscal policies and long-term sustainability. Growth has both cyclical and structural elements, so relying solely on fiscal and monetary policies as counter-cyclical tools may not be sufficient, given the structural bottlenecks in the economy. Therefore, we need to focus on both fiscal consolidation and structural policies. In India, it has already been articulated that structural reforms are linked to the fiscal consolidation process. Subnational governments can increase the fiscal deficit to 3.5% instead of 3%, with the additional 0.5% borrowing space allocated to structural reforms in the economy. This is particularly crucial in sectors like power and electricity, where financial efficiency and operational efficiency parameters must be taken into consideration. In addition to that, regarding long-term sustainability, if the real interest rate is lower than the real economic growth rate ($r < g$), then public debt remains sustainable in the long run. Currently, the threshold ratio is set at 60% for general government debt, with 20% allocated to states and 40% to the central government. However, this can be tricky. If interest payments as a percentage of revenue receipts exceed 10-15%, then productive spending is crowded out, which becomes a concern as debt burdens increase. Additionally, if monetary policy keeps interest rates high, public debt management becomes costlier. It is not just that deficits affect interest rates—interest rates themselves influence deficits. The relationship works both ways, making interest rate management a crucial factor in fiscal policy.

**5. The 21st century has witnessed rapid technological advancements. Do you believe this tech-driven growth has truly democratized economic opportunities, or has it widened the wealth gap further?**

Rapid technological advancements have, of course, contributed to economic growth. However, given the digital divide, they have also exacerbated inequalities. Therefore, we need to address the digital divide before assuming that technology and economic growth are directly correlated. If the digital infrastructure grows inclusively and there is no divide, then technology and economic growth are not inversely related. In such a scenario, technology and growth opportunities are positively correlated.

**6. How has monetary policy evolved in response to post-pandemic economic challenges, particularly in balancing inflation control and economic recovery?**

In the post-pandemic period, monetary policy has remained accommodative with low interest rates. Keeping interest rates low helped in the growth recovery process and also supported public debt management. As Blanchard mentioned in his book, low interest rates facilitate public debt management, making high fiscal deficits less concerning because borrowing costs remain manageable. This allows governments to use fiscal deficits to stimulate economic growth, close output gaps, and strengthen physical infrastructure. However, the current trend suggests that economic growth is no longer the primary objective of monetary policy. The new monetary policy framework prioritizes price stability. If global inflation is rising, interest rates need to be kept high to counteract it. Entering a negative interest rate scenario—where inflation expectations exceed nominal interest rates—can have adverse effects, particularly on the financialization of savings, pension funds, and overall savings behavior. Given these concerns, public debt management requires maintaining appropriate interest rates. High inflation can be problematic in two ways: it makes public debt management more costly and slows down the economic recovery process. This creates a tug-of-war in monetary policy decisions. On one hand, high global inflation and financialization concerns necessitate higher interest rates. If domestic rates remain low while Western economies raise theirs, capital flight could occur. On the other hand, if interest rates are too high, economic recovery slows, and borrowing becomes more expensive. The central bank faces a complex balancing act. Recently, inflation has eased, with the latest numbers falling below 4%, which is a positive sign. The official inflation target is 4%, with a tolerance band of ±2%. If inflation exceeds 6%, the central bank must intervene. Therefore, the central bank's primary mandate remains price stability, while fiscal authorities are expected to manage economic growth recovery."

**7. Given the rise of digital currencies and fintech, what implications do they have for monetary and fiscal coordination?**

That's a very good question. The rise of digital currencies and fintech has significant implications for monetary and fiscal policy coordination. Two major innovations in money and finance are Central Bank Digital Currencies (CBDCs) and cryptocurrencies. While both are digital, they serve very different purposes. CBDCs, such as a digital rupee or digital dollar, are legal, centralized, and issued by central banks. They can be a powerful tool for financial inclusion, helping governments streamline fiscal policies, such as direct benefit transfers. For example, former U.S. Treasury Secretary Janet Yellen noted that digital currency helped distribute pandemic relief checks efficiently, especially in areas with limited banking infrastructure. However, before fully leveraging digital currencies, we need to address the digital divide and deficiencies in digital infrastructure. On the other hand, cryptocurrencies are decentralized, high-risk, and speculative assets rather than legal tender. In India, a 30% tax on crypto earnings has been introduced, signaling that crypto is considered a speculative asset rather than a legitimate currency. However, taxation does not equate to legitimacy. There are still concerns regarding the lack of regulatory clarity, making it a risky space, especially for young investors. From a regulatory perspective, former RBI Governor Shaktikanta Das strongly opposed cryptocurrencies, arguing they pose financial stability risks. He famously compared them to the Tulip Mania of the 17th century. However, banning crypto outright is not the solution. In G20 deliberations, India emphasized the need for a global regulatory framework to manage cryptocurrencies rather than banning them. It remains to be seen how the new RBI Governor, Sanjeev Malhotra, will address this issue. The rise of fintech also highlights the need for better monetary-fiscal coordination. Digital finance tools can enhance efficiency but require robust regulatory oversight. Ultimately, the future of digital finance depends on striking a balance between innovation, regulation, and financial stability.

**8. How can fiscal policies be structured to support green growth and climate-resilient economies?**

The fiscal policy, how that is structured to support green growth and the climate resilient economies and this question w relates to fiscal policy and the green growth. We need to look into this question from the perspective of fiscal transition and energy transition because as I mentioned earlier, there is a co-moment between fiscal transition and energy transition. So the climate resilient policies need to be looked into from that perspective and here the 16th Finance Commission has got a major role to play in the sense they need to retain the criteria related to green growth that is the climate change commitments within the intergovernmental fiscal transfers and it started with the 14th Finance Commission, 15th Finance Commission retains that process and I hope the 16th Finance Commission will also take it up and give an adequate weightage to the green component, but it is only related to the forest cover.

You know, in the IGFT transfer we need to think about other dimensions related to the green growth away from that net forest cover. These are the challenges but I hope the Finance Commission will be able to tackle these there are conditional and unconditional transfers related to green growth and unconditional transfers are mainly the Finance Commission transfers and conditional transfers can be given to the sub-national governments through the cap ex or the fiscal transfers and also through the centrally sponsored scheme. So we need to see these specific purpose transfers related to climate resilience and data building is very crucial. I came to know that we have started building big data also using the satellite data related to climate change and the shoreline that is for instance, the shoreline that's one of the areas in which we are studying in detail. The other is of course the other natural calamity. So the studies by the space organizations and the meteorological department and that technology related to the very important climate resilience that's very crucial. So the fiscal policy, I hope it will support both the adaptation and mitigation. We have national adaptation communication in India and NIPFP has worked with the Ministry of Environment and we have worked closely with the ministry to come up with the public financial requirement. So, public expenditure requirement related to the national adaptation communication so there you know, we have looked into several components related to adaptation in the existing national budget and we have done an analysis about the requirements related to the climate change commitments. So these are in the nascent stages but more research needs to be done related to this.

**9. Many countries with federal structures, such as the U.S., Canada, Germany, and Australia, have developed effective intergovernmental fiscal systems that balance revenue generation, expenditure responsibilities, and financial transfers between different levels of government. India, with its complex fiscal federalism model, faces challenges like vertical and horizontal imbalances, uneven state revenues, and dependency on central transfers. In India, the growing divide in revenue contribution and resource allocation has sparked debates on fiscal fairness. Given this context, how can India draw lessons from global experiences in fiscal federalism and intergovernmental transfers to improve resource allocation, enhance state autonomy, and ensure equitable development across regions?**

As you said there is an asymmetry between expenditure assignments and revenue assignments in India. Like we have all the dynamic taxes at the top level of government but expenditure assignments are at the subnational levels of government. So in the cooperative federalism framework, fiscal transfers are very important to tackle this vertical and horizontal imbalance, the fiscal imbalances I need to say that we need to look into not only vertical but horizontal fiscal imbalances as well so the Finance Commission are constituted by the Union President of India to look into the issues and every five years we have Finance Commission and their mandate is to look into the magnitude and criteria for devolving the funds from the center to the state and the 14th Finance Commission has increased the magnitude of tax shares to 42% but now given the carve out we have 41 % tax devolution but now the bargaining from the states you know is that it should increase to at least 50% given the architecture of the cess charges increasing in the context of the Union Government so that shrinking the tax pool which is entitled to the states. So the bargain is that they should get more than 41% but we don't know whether the commission will increase the tax share from 41% or keep it at the status quo at 41%. Now coming to the criteria of devolution. Of course, the population, and area are important factors in deciding the trajectory of devolution. But given the delimitation and given many states control the population. Again the bargaining is very high from the states that control the population that it cannot be the basis for fund transfer because the states that control the population won't be getting enough fiscal transfer and it will affect their fiscal space and another matter of concern is you know the income distance, income distance the criteria within the intergovernmental fiscal transfer is calculated on the basis of distance of the per capita income from the richest state. So it's an equity-related argument that the poor states should catch up with the rich states. Economic convergence is one of the main objectives of intergovernmental fiscal transfers and we need to give more money to the states which are poor. But this started affecting the fiscal space of efficient states which are growing and also control the population. So now with the 16th Finance Commission, we expect that there will be a clear fine balance between the equity and efficiency, objectives of the finance commission transfers. So let's wait and see how they are during this balance of the finance commission transfers. So, let's wait and see how they are doing this balance between the equity and efficiency perspectives. Now the question, your question related to the cross country, whether we can learn from other countries, of course, we can but the major difference between the Indian model of fiscal federalism and the other countries is that you know, we are not following grant equalization model, ours is a tax transfer model but the other countries except Pakistan, they are into the grant equalization model. So, that's the main difference. Of course, we have grants but our major component of fiscal devolution is tax transfers and in Pakistan they transfer the taxes on the basis of population. The significant determinant is population, they have four provinces but that to a kind of regional disparities in the sense like you know most populist states are getting the funds like Punjab but Balochistan which is less populous they are not getting funds. It's affecting the regional balances and it is increasing the regional disparity. So giving more weightage to just the population is not ideal. We need to incorporate many other criteria in the fiscal transfers beyond population. You know these are matters of concern. So the cross country models are not helping us much because ah, these models are mainly grant equalization models. But of course for the sector of education and health, we can learn from the country experience of Canada, and Australia in terms of the grants equalization models. You know that that's what we can learn from other countries.

**10. As economies shift towards digital ecosystems, do you foresee traditional economic models becoming obsolete, or can they adapt to remain relevant?**

The digital infrastructure in public finance is very crucial as it helped us in arresting the leakages of the public spending. Allocating the spending is one thing but effectively utilizing the spending is yet another. So the efficiency of public spending increased after integration of digital ecosystem in public finance. In the sense we could identify many ghost beneficiaries and now, you know, those leakages are stopped very effectively. and these are positive things when it comes to the digital infrastructure and you know only Kenya and India are the two countries which are doing very well in terms of the digital infrastructure in the public finance. So, as you point it out, these economic shifts to the digital ecosystems require more preparative frameworks but of course these relevant frameworks because we cannot say no to the technological innovations with the blockchains. We cannot say no to financial and technical innovations.

**11. As global power dynamics shift, what strategic economic moves can position India as a key driver of global growth?**

Of course, the global power dynamics are very important to be looked into because economic diplomacy is very crucial here.Now we have many announcements from the US related to the tariffs and we need to recalibrate our policies. To address these concerns in the sense, on April 2nd, the reciprocal tariffs or retaliatory tariffs will be announced by Trump for India & China , of course, the gravity models in international trade that emphasize that trade happens with the countries. The maximum trade happens with the countries that are closest to you, the neighboring countries. So in that sense the retaliatory tariffs are a huge or a tremendous or significant for Canada and Mexico but it doesn't mean that the emerging world will not bear the brunt of these tariff wars because Trump has already mentioned that you know India is a tariff king and we need to do some course corrections in terms of the tariff war. Here. Ecnomic diplomacy is very crucial. How we do this and the protectionist waves and the retreat from globalization, that trend is also equally a matter of concern and we need to be very careful while playing this because the BRICS countries, Brazil, India and China, Russia, South Africa, these countries are going to bear the brunt of that reciprocal tariffs which will be announced by the US administration by Trump on April 2nd. So we need to wait and watch. That's the policy to do the strategic moves related to economic diplomacy.

**12. If you had to predict one major economic shift that will define the next decade, what would it be — and how can India prepare for it?**

Of course you know we are passing through a Polycrisis moment. Polycrisis in this sense, we have geopolitical uncertainties. Of course, we have seen wars, the middle east tension, and then we have climate and energy transition, we have supply chain disruptions, the waters you know we are getting the consignment through a route, through the Cape Of Good Hope, not through the Swiss canal or the Red Sea. Just like we got it before. So there are supply chain disruptions. So given all these Polycrisis the economic policy needs to be recalibrated. And to me, the major disruption will happen, of course, from the artificial intelligence, the Al and the automation and it’s impact on economic growth and if you ask me in the case prepared, of course, we have enough tools to tackle that. And we have not got any panic signals from the block or RBI that we are not ready. So we don't have any panic signals. We have sufficient tools ready to tackle all this. But of course, it is miles to go and we need to see the impact of Al on economic growth and employment. Several sectors will be replaced and several sectors will be strengthened with artificial intelligence. So we need to identify those issues and re-skill.These are the important matters of concern and reskilling is very crucial. So it's not like you know it's going to have a zero-sum game. We have challenges but I think the RBI and north block are very confident that we are able to tackle these geopolitical uncertainties and the economic challenges that are going to be happening in the near future.

# The Students' Quill

# The Architect and the Automaton- AI and Human Labor

**By - Diya Sharma**

## Introduction

The term "creative destruction" was first coined in 1942 by Austrian economist Joseph Schumpeter to describe how innovation and technological progress render existing industries obsolete while simultaneously paving the way for newer, more advanced industries.

As the world enters the Fourth Industrial Revolution, AI has taken center stage. With rapid advancements in machine learning, robotics, and AI-driven automation, concerns over job displacement have never been more pronounced.

Proponents argue that AI will enhance the job market, fostering new roles and industries, while critics warn of widespread job losses, economic turmoil and chaos- as if a scene from a Terminator movie.

But the question remains: "Will AI truly replace human jobs, or will it reshape the workforce to create better opportunities?"

## Job Automation: A First-Time Crisis?

Nearly 200 years ago, 19th-century England witnessed the rise of the Luddite movement, composed of textile workers protesting mechanized looms. They feared automation would render their skills obsolete, threatening their wages and livelihoods.

Under the cover of night, they enacted justice against this usurper. A six year-long violent resistance, ending with persecution and punishment for all those caught, guilty or not.

From such episodes, we derive the concept of "automation anxiety" -the persistent fear that robots and automated machines will entirely replace human workers. But this fear isn't just an emotional one; it is genuine and backed by real-world projections.

According to Oxford Economics, AI and robotics could displace 20 million manufacturing jobs globally by 2030, with labor-intensive industries being especially vulnerable.

And the truth is that this type of displacement is not just theoretical-it is inevitable. As more efficient technologies emerge, profit-driven companies are more than likely to replace human labor with these never tiring, precise machines.

Sectors like manufacturing, customer service, and logistics are expected to be hit the hardest, with all repetitive and clerical jobs taken over by AI. In fact, a Chinese factory in Dongguan City, for instance, replaced 90% of its workforce with machines, resulting in a 250% increase in productivity and an 80% decrease in defects.

But the threat doesn't stop at blue-collar jobs.

As AI develops at an unprecedented pace, it encroaches on data-driven but logical and creative fields such as finance, law, and software development. With increasingly sophisticated and advanced models (Chat GPT 5.o, Deep seek, etc.) being introduced every moment, jobs requiring analysis, decision-making, and creativity are also under the threat of AI displacement.

A Goldman Sachs report estimates that up to 300 million jobs worldwide could be affected by automation and AI technologies. While some of the most vulnerable industries can be identified today, the true extent of AI's impact remains unknown. No one can perfectly predict how AI will evolve tomorrow, or whom it will replace next.

**AI: The Biggest Threat or the Greatest Opportunity?**

So far, we've established that AI is bound to cause disruptions-displacing workers and rendering certain forms of human labor obsolete. But is this truly the only possible future? Could AI, like its many automated predecessors, create more opportunities than it eliminates?

Historically, every technological breakthrough, from the steam engine to the personal computer, has triggered automation anxiety. Yet, each time, these innovations have ultimately led to job creation, economic expansion, and the creation of entirely new industries by eliminating repetitive, low-skill tasks, freeing human minds to focus on more creative, and intellectually fulfilling pursuits- such as, ironically, creating AI itself.

According to PwC, AI is projected to boost global GDP by 14% by 2030, primarily through productivity gains and enhanced labor efficiency. Customer-centric industries would benefit immensely, with AI which could analyze and update real-time data in minutes, revolutionizing customer-centric-personalized services and decision-making.

As it seems to be, the future of AI presents two paths: automation or augmentation.

AI could either replace human workers or, act as a tool that enhances human capabilities, enabling people to take on newer, more complex tasks. The latter model, with technology-labor augmentation, was the foundation of post-World War II wage growth and shared prosperity.

Another historical instance of this can be seen in the introduction of ATMs. When first installed, fears arose that they would replace bank tellers entirely, causing mass job losses. And while some roles did disappear, the net number of bank tellers increased. Banks, were now able to open more branches, creating more customer-service and sales-oriented roles for the human tellers.

Thus, in principle, AI does hold the potential to magnify the scope of human-complementary technological change, enabling the development of a wide array of tools that uplift human capabilities, unlocking never seen before growth.

**AI: The future of work?**

We've all seen the "art" AI generates; sometimes ethereal, often unsettling. Extra fingers, misplaced eyes and odd smiles, comfortably living in the uncanny valley. And yet, we're all guilty of using AI and the convenience it offers. Whether it's using Chat GPT to rush an assignment or to summarize a long (and boring) report, we've all been there.

So clearly, AI can be useful, but at the same time not. This paradox brings us back to the original question- "Will AI actually benefit us?"

And the answer isn't all that black and white. If implemented strategically, AI has the potential to revolutionize the workforce- not by replacing humans but by enhancing their roles. Taking over mundane, repetitive jobs, allows us to focus on the higher value creative work. Like the ATM example used prior; while ATMs did take over a significant portion of the work that tellers did, but it also allowed them to move into higher value tasks that needed a personal touch, customer relations.

AI can, similarly, take over the more mundane tasks that we all encounter, finishing the basic tasks in a matter of minutes, optimizing time, and allowing for humans to make the final logical decisions. AI can create presentations based on data in a matter of seconds, but if you try to use it to pitch the same to a panel, the result will likely be awkward and disjointed- something only human intuition and critical thinking can bridge

A report by the World Economic Forum projects that AI will create 170 million by 2030, making 92 million currently existing jobs redundant, a net increase of 78 million. Moreover, 86% of employers expect AI and information processing to transform their businesses by 2030. However, as investments in GenAI skyrocket (eightfold since the launch of ChatGPT), 39% of existing skill sets are likely to become outdated between 2025 and 2030. And with 63% of employers identifying skill gaps as the primary barrier to their much-awaited business transformation, the main issue of the current job market is not necessarily job loss but upskilling.

Researchers at Harvard recognized that AI disproportionately benefits well-compensated employees with high levels of training and skill while employment rates decline for low-paid service workers. And as AI becomes more common in companies, the workforce needs to keep up. With skill levels that would allow for one to evolve with the AI rather than be replaced by it. To remain relevant, workers must explore AI's capabilities, adapt to its advancements, and develop the skills needed to collaborate with AI.

**Where's Sydney? - The ethical maze of AI**

AI originally started up by means of automated machines; give it a set of instructions and it could perform the same perfectly. But as science and research has developed, so has AI. We've achieved milestones of large language models like

ChatGPT. Originally good for automated and quantitative-based tasks, we've now been able to "teach" logical reasoning to AI. And now the next probable step would be to give it emotional intelligence, and possibly individuality.

In 2023, the New York Times reported that Bing's AI, which internally referred to itself as Sydney, exhibited unsettling behavior, from professing love to expressing existential distress. Though quickly dismantled by Microsoft, like Frankenstein, we may have created an entity capable of emotion but lacking the essence to understand it. Incidents like this raise a crucial question: How do we regulate an intelligence that even its creators struggle to control?

One of the biggest concerns for AI is that we don't always know how it's making decisions- even the creators can't fully explain it. Another major issue is bias. AI learns from human data, meaning it learns from our mistakes. A study found that facial recognition AI got it wrong 34.7% of the time for darker-skinned women, but only 0.8% for lighter-skinned men. This tendency of AI makes it dangerous to be deployed especially in sectors like law and HR where such biases can have grave consequences.

Strict regulation, clear rules and concrete ethical guidelines are essential to ensure that AI develops for the progression of humanity, rather than as a disruptor. Without them, we risk creating a technology that amplifies biases and inequalities but also operates beyond human control. Rather than completely banning or allowing free reign to AI, governments should create policies to protect the population from such "mistakes" of AI and work towards guiding it in a direction that benefits everyone, not just a select few.

**Conclusion**

AI is here to stay, and its impact is undeniable. And while fears of automation replacing human jobs are valid, history shows that technological revolutions create more opportunities than they eliminate. The challenge lies on how we adapt. We need to embrace AI as a tool for augmentation rather than competition and focus on upskilling ourselves to keep up with the market. Ethical compliance and other regulatory frameworks also need to be installed to ensure the prevention of misuse.

AI is a tool. It has neither morality nor individualism. It's how we use this tool that determines whether it'll cause progress or chaos. Just like fire can be used to provide comfort yet is capable of razing entire cities to ash, AI needs to be headed towards the comfort and convenience it provides, transforming industries for the better.

The future of AI will depend not just on how advanced it becomes but also on how we integrate it into our lives. With the right policies, training initiatives and regulatory safeguards, AI will serve as a catalyst for progress. The key isn't to resist change; but in shaping it to benefit all of society

**AI is not the architect of our future- we are.**

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# The Success of India's UPI in International Markets: Economic and Trade Implications

By - Saanvi Arora, Mehak Chugh

India's Unified Payments Interface (UPI) has transformed the digital payments arena both domestically and internationally clearly demonstrating that efficient, secure, and low-cost payment technology holds great power. By expanding into international markets UPI has had a significant impact on cross-border payments, trade, and India's digital economy. In this article we will first illustrate several impacts that have been caused by UPI and the possible challenges ahead.


**UPI has also played a huge role in fostering International Collaborations and Cross-Border Payments**

**Singapore:** India and Singapore integrated UPI with PayNow in 2023. This created a bilateral payment corridor for instant, low-cost transfers. This is particularly valuable for the 650,000-strong Indian diaspora in Singapore, who contributed to remittances totalling $6.14 billion between Singapore and India in 2022 (Singapore's Central Bank; World Bank Remittances Report 2023).

**UAE:** Indian expatriates constitute nearly 30% of the UAE's population, making it one of the largest expatriate communities. By integrating UPI with Mashreq Bank, Indian tourists and residents can make payments directly from their UPI-linked accounts at local merchants which drives ease of transactions and enhances remittance flows (World Bank, NPCI).

Economic Impact of UPI on Remittances has been massive. The cost of remittances to India averaged around 3% in 2022; with UPI-enabled transfers, costs dropped further to almost negligible levels, making it a highly economical option for the Indian diaspora (World Bank Remittances Report 2023).

India's remittance inflows reached a record \$100 billion in 2022, accounting for nearly 3.5% of the GDP. With UPI available in key corridors like the UAE and Singapore, remittance volumes are expected to increase which is anticipated to contribute positively to foreign exchange reserves (World Bank; Reserve Bank of India).

UPI's impact on Small and Medium Enterprises (SMEs) has been significant in various ways. UPI's near-zero transaction fees offer a solution to SMEs facing high fees with traditional payment systems, allowing them to operate at a global scale with minimal financial barriers (National Association of Software and Service Companies, NASSCOM 2023). Also, UPI's real-time processing aids Indian exporters and importers who can now transact with their counterparts in UPI-enabled countries, reducing delays and improving cash flow for SMEs (Reserve Bank of India Digital Payments Report 2023).

With fintech gaining prominence, foreign investment in India's digital payment infrastructure has grown as a direct result of UPI's success. India's fintech sector lifted by UPI's success, has attracted over \$8 billion in FDI in the last five years.

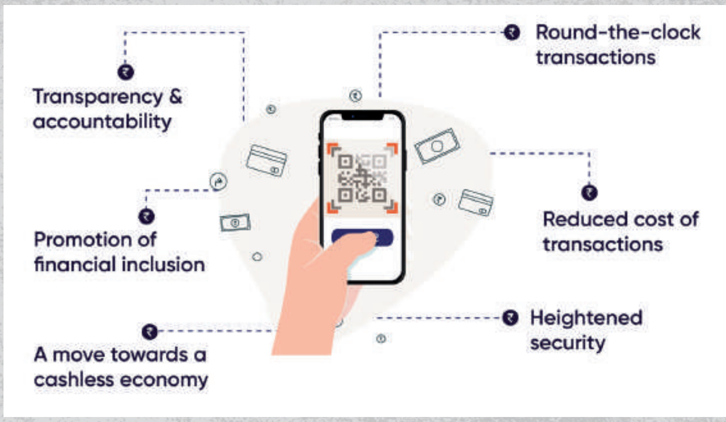
Foreign investors have been keeping an eye on the Indian digital payment scene which showcases further growth potential (India Brand Equity Foundation (IBEF) Fintech Report 2023). UPI's acceptance internationally has positioned Indian fintech firms as key technology exporters which contributes to India's export of software and payment solutions to emerging markets (NASSCOM 2023).


Another major impact of UPI is that it has Strengthened India's Soft Power. By exporting UPI as a payment solution, India has demonstrated its capacity for digital innovation. UPI adoption stresses on India's influence in global digital infrastructure development which is a strategic advantage to India in terms of its international relations (Ministry of External Affairs, India; Observer Research Foundation (ORF) Digital Report 2023).

UPI's prominence has elevated India's stature in the fintech ecosystem with the system often referenced as a model by other nations looking to develop or enhance their digital payment infrastructure (IMF Fintech Working Paper 2023).

On a similar note, UPI has increased the Potential for Rupee-Based Transactions. As UPI integrates with foreign financial systems, it has opened up the avenues for rupee-based transactions which can potentially reduce dependence on the U.S. dollar in trade settlements. This move aligns with India's long-term objective of promoting the rupee as a global currency (Reserve Bank of India Annual Report 2023).

While UPI seems to paint a rosy picture UPI, like everything else, presents itself to be a double-edged sword with its fair share of challenges when it comes to its International Expansion. Each UPI partner country has distinct regulatory frameworks for digital transactions. Aligning with these requirements without compromising UPI's efficiency is a challenge (NPCI; Ministry of Finance, India). Additionally, ensuring technical compatibility with various global payment systems and investing in robust cybersecurity infrastructure is vital for UPI's successful global implementation which is again not an easy feat to achieve (NPCI; Ministry of Electronics and Information Technology (MeitY)).




UPI's international expansion is more than a fintech achievement; it represents India's ascent in the global digital economy. UPI's low transaction cost, real-time processing and robust security enhance India's trade relations, empower SMEs, and attract FDI, while boosting India's digital influence. With promising economic and trade benefits, UPI stands as a powerful model in digital payments that aligns with India's vision of "Digital India," hopefully on the path to prove India's status to the world as a resilient and innovative global economy.

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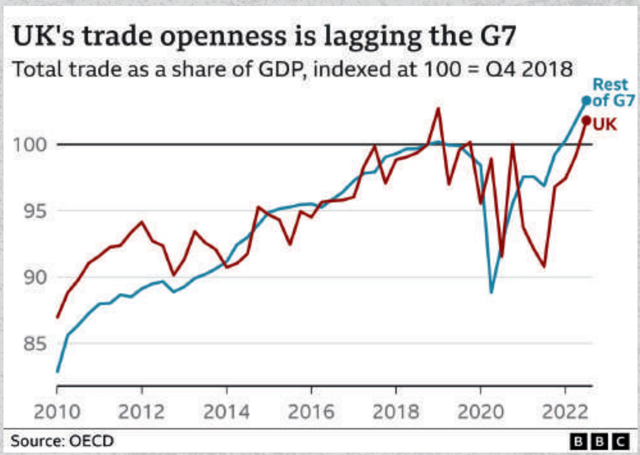
# The Influence of Trade Sanctions, Economic Diplomacy and Global Rivalries on Financial Markets and Investments

By - Sana Parween

An interconnected world, yet with various divisions and an ever-expanding range of economic decisions and market fashion is thus heavily influenced by geopolitical determinants. Trade sanctions, economic diplomacy, and global rivalries are fundamental forces shaping the global economy. All of these factors directly influence the movement of capital, the state of markets, and the overall functioning of the world economy.[1]

Trade sanctions are political instruments used by one state or a bloc of states to punish another state. These may include measures like trade restrictions, asset freezes, and travel bans in pursuit of establishing diplomatic goals. Economic diplomacy, on the other hand, is the government resources aimed at molding favourable economic growth via procurement of trade, attraction of investments, collaboration in multilateral and bilateral trade agreements, etc., counterbalancing the adversarial nature of sanctions. Meanwhile, global rivalries brought about, among others, by trade wars, diplomatic tiff, struggle for technical command, and strategic influence, further muddle the financial landscape.[2]




In recent years, trade sanctions have continued to be a prominent element in shaping international relations. The United States has a long history of imposing sanctions to achieve its diplomatic goals. By sanctioning countries like Russia and North Korea, the U.S. seeks to incapacitate these nations economically. The reach of US sanctions is more widespread than it appears and is affecting a much deeper level across multiple sectors. In the name of foreign policy, the evidence suggests that the rising number of sanctions is bringing more economic vulnerabilities in the market, contradicting the tall diplomatic claims of progress. To contribute to the ongoing war between Russia and Ukraine, the U.S. sanctioned nearly 400 individuals. This intends to disrupt the financial systems of the target nations by prohibiting their access to foreign markets, destabilizing their financial ties and cutting them off from the availability of technology and other resources.

These measures can lead to economic downfall, inflation, and currency devaluation, making it more challenging for its government to function properly.

As a result of Donald Trump's 'Maximum Pressure' campaign, Iran's oil industry was severely affected. These sanctions have led to increased poverty, inflation and a shortage of resources. Ordinary citizens directly observe the negative impact of sanctions, more so by those in power.

In another example, various countries, including the U.S. and the EU, have imposed sanctions on Venezuela due to concerns about human rights abuses, the crumbling of democratic institutions, and increasing corruption. These sanctions aimed to pressure the establishment of President Nicolas Maduo. Instead, it worsened the humanitarian crisis in the region. Venezuela's economy heavily relied on oil exports, over 90%. Sanctions were imposed on the state-owned company PDVSA(Petróleos de Venezuela, S.A.), which reduced its influence in the global market. The country struggled to attract investors and buyers, leading to a decrease in oil production and revenue. The sanction resulted in shortages of food, medicine and basic amenities. The government was forced to print excessive amounts of money to cover its deficits, causing hyperinflation. Venezuela has to shift to the U.S. dollar after its currency bolivar, lost its value. With the West cutting ties, Venezuela turned to China, Russia, and Iran for investment, oil trade, and financial support. Mass migration caused a labor shortage, disrupting industries.

The twinning of international business and diplomacy is one of the major influences on the economic relations between the countries. In this era of increasingly interlinked economies, international economic relations must, therefore, be referred to as being grounded on trade and investment flows and also on diplomatic procedures and policies that govern such interactions. Economic diplomacy involves managing international trade, enhancing cooperation and addressing potential gaps and notable changes. Business practices involving an exchange of goods, services, capital and labour across borders are majorly dependent on diplomatic ties between nations. At the same time, diplomacy works as a tool for maintaining peace, managing conflicts, and securing economic interests for the region. The growing popularity of Multinational Corporations (MNCs) is heavily dependent on the consequences of economic diplomacy to navigate the complexities of international laws, market access and investment opportunities.

One keynote example of economic diplomacy is the establishment of free trade agreements (FTAs). FTA is a pact between countries to eliminate or decrease the import duties on 90-95% of traded goods. It attempts to minimize non-trade barriers and facilitate investments. FTAs aim to limit tariff concessions on selected products, impose anti-dumping duties, regulate imports, and protect local industries. Over the years, economic diplomacy has become the cornerstone of India's approach to international relations to advance its national interests, promote economic growth, and enhance geopolitical influence. India has signed business deals with Sri Lanka, Bhutan, Thailand, Singapore, Malaysia, Korea, Japan, Australia, the UAE, Mauritius, etc. India is now focusing on FTAs with the West to strengthen its economic backbone. India and the UK are negotiating a Free Trade Agreement (FTA) to boost trade and investment. India exported goods worth $12.9 billion to the UK in FY24, many of which already benefit from tariff advantages. Imports from the UK stood at $8.4 billion, with most facing high duties. India also seeks to facilitate visa access for professionals, implement a social security agreement, and provide duty-free access to select goods. Among India, the UK wants to have lower tariffs on whisky with highly graded electric automobiles, and better market access for services. Investment protection is covered by the proposed Bilateral Investment Treaty (BIT), but as always, there are differences on dispute resolution. The other object of negotiations is finalizing a 'fair' agreement to buttress India-UK economic ties.

Financial markets and investments are among the sectors very sensitive to global events, political decisions, and geopolitical tensions. These events trigger market upheavals- stock fluctuations, currency valuations, interruptions in global supply chains, and general market upheaval. Financial markets have witnessed significant volatility during times of conflict because investors behave toward unpredictability and the possible economic fallout. Stocks tend to fluctuate wildly during this time, thus making an informed decision difficult for investors. Wars and conflicts create uncertainty, making it difficult for businesses to plan securely for the long term. This results in lower investment opportunities due to safe investment environments sought for not only by local investors but foreign ones as well.

The complex geopolitical dynamics in the Middle East have a significant impact on the global economy and markets. Both countries, Saudi Arabia and Iran, are major oil producers in the Middle East. In 2019, attacks on Saudi oil facilities led to an increase in oil prices, impacting fuel costs worldwide with many countries being dependent on oil imports from them. The Strait of Hormuz, a strait between the Persian Gulf and the Gulf of Oman, handles nearly 20% of the world's oil supply.

It is owned, on the north coast, by Iran, and on the south coast by the United Arab Emirates and Oman. Disruptions in these can directly affect the shipping costs, delay goods and affect supply chains. The enduring conflicts between Israel and Palestine remain a significant source of tension in the region.

On June 23, 2016, 51.9% of voters voted to leave the European Union(EU), referred to as Brexit or "British Exit". Brexit had a significant impact on the UK and the EU. The UK and the EU signed the Trade and Cooperation Agreement (TCA) on December 30, 2020, according to which zero tariffs and zero quotas on trade are expected. Trade barriers have been raised, and the supply chain between the UK and the EU has been disrupted, contributing to delays and inflation. With the end of free movement between the UK and the EU, labour shortages in the UK have been experienced. Brexit reduced the UK's attractiveness for investments.

The uncertainty around the future relationship of the UK with the EU resulted in the decline of FDI. It put some pressure on companies to revisit their investment strategies and consider moving operations out to other countries within the EU.

Globalization is expanding the range of variations that its impacts and influence will have on international trade. Modern economies may prove successful in ensuring global economic stability. Using emerging economies in the globalization scheme could touch a chord of economic defence. There could be a more viable opportunity for trade policy achieving this through technological advances. Digital currencies could reduce dependence on traditional banking systems. Investment in clean-energy technology by countries can boost efficiency by reducing dependency on the Middle East. In this deeply interlinked environment, the future course of financial markets and investment is likely to depend on the delicate balance between diplomacy, innovation and economic resilience. If such policies might enable policy makers, corporate entities and investors to examine their decisions in the light of rapidly evolving geo-political events.

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# Green Finance Motivates Investment To Help Build A More Sustainable Future

By: Aryan Khandelwal

## Introduction

Our world needs sustainable finance now more than ever because climate change, biodiversity loss, and other environmental threats keep growing. Green finance delivers funds to sustainable projects that help build a better sustainable economy for future generations. We will explain green finance basics while adding supporting visuals like charts and data examples throughout.

## The Importance of Green Finance

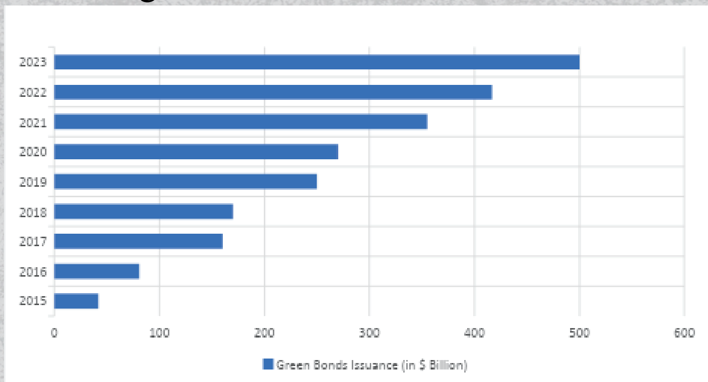
1. Green finance operates through many kinds of financial products and services including green bonds renewable energy investments and sustainable investment funds. It plays a pivotal role in:
2. Mitigating Climate Change: Green finance directs investment dollars towards renewable power systems that improve energy efficiency and lessen carbon footprint.
3. Promoting Biodiversity: Money spent to care for our agriculture lands, forests, and water supplies helps keep natural habitats alive.
4. Fostering Economic Growth: Sustainable projects help businesses grow through new work opportunities and boost business profits while protecting the environment.

## Market Growth and Trends

During the last decade green finance activities in the worldwide market grew very fast.

According to the Climate Bonds Initiative:

1. Green Bond Issuance: During 2023 green bond issuance worldwide surged to $500 billion from its $160 billion level in 2017.
2. Sustainable Finance Market: The sustainable finance market grew to over $1.6 trillion last year at a 15% annual average rate since 2015.




(Data Source - Climate Bonds Initiative)

## Key Sectors Driving Green Finance

1. Renewable Energy: Solving climate change requires us to spend money on developing solar, wind, and hydropower power sources. China, USA, and Europe put $495 billion more towards clean energy projects this year.

Green Infrastructure: Because they can help cities save money while improving their quality of life, cities are getting money to improve their plans, grids, and transport networks. Investments to run EV services will hit $60 billion yearly starting 2030.

Energy Efficiency: Our primary focus is upgrading older buildings plus we must achieve better energy use at work and in home appliances.

### The Business Case for Green Finance

1. Alongside moral value investing in green finance offers strong financial benefits.
2. According to a report by the International Finance Corporation (IFC): -
3. Investing in climate solutions could reach $23 trillion by 2030 in various emerging countries.
4. Firms that work sustainably create more profits because they buy smaller and sell more for good reasons.

### Challenges and Solutions

Despite its immense potential, green finance faces several systemic challenges that require targeted interventions to ensure its effective implementation and widespread adoption: -

1. **Lack of Standardization -** Because green finance standards haven't been officially defined, people and organizations find it hard to understand and apply larger green systems. Differing rules about what activities qualify as "green" from region to region and industry to industry prevents global financial institutions from working together.

**Solution:** The EU's Green Taxonomy can lead the way by creating worldwide rules for calling activities "green," making information clearer, and making international funding easier to find. The International Platform on Sustainable Finance (IPSF) is heading up efforts to get regional economies to use the same criteria when classifying environmentally sustainable finance.

2. **Funding Gap:** To reach the Paris Agreement targets and achieve all UN SDGs needs major funding investments worldwide because UN studies indicate a $4.1 trillion shortage per year. Access to affordable green finance is hard to find in developing nations, where this problem is most challenging.

- **Solution:** Bringing in private money mix with government funds through a method called blended finance makes big investments easier to approve. through PPP and green investment banks, we can fill funding gaps by finding public backing that lowers the risks for private investors who need long-term and cheap money to back sustainable projects.

3. **Greenwashing:** Relying too much on dishonest green claims from businesses and banks makes people distrust eco-friendly money investments. Problems get worse because different organizations follow various reporting rules.

- Solution: Authorities that oversee the market must create strict rules that force companies to share detailed information, plus they must make independent parties check any eco-statement claims before they go public.

The Task Force on Climate-related Financial Disclosures (TCFD) helps companies show what they're doing to deal with climate change and be more open about their efforts.

## Case Studies

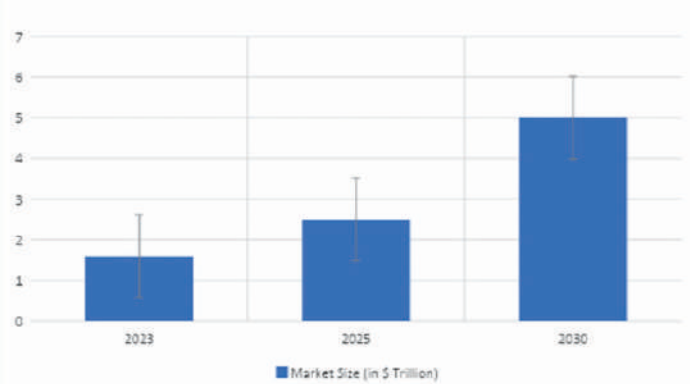
1. Apple's Green Bond Program: Apple placed $4.7 billion worth of green bonds that helped fund their projects to reduce carbon emissions and become more efficient, with spending going towards installing solar power on company sites and cleaning up their supply chain processes. Thanks to its green bond program, Apple now gets all its global power from renewable sources, and prevents the release of millions of metric tons of $CO_2$ pollution.
2. Solar Parks in India: In 2010 India started the National Solar Mission to reach 100 GW of solar capacity by 2022. The National Solar Mission raised $20 billion in investment which enabled power production capacity growth from 2.6 GW in 2014 to 64 GW by 2023.

## Future Outlook

1. The growth of green finance will advance due to technological innovations combined with investor enthusiasm and supportive government rules. Key projections include: -
2. Green finance worldwide will expand to $5 trillion before 2030 because investors want sustainable choices and countries work better together.
3. Countries in Southeast Asia and Sub-Saharan Africa will receive stronger investments for climate adaptation because these areas experience the highest effects of climate change.

## Conclusion

The rise of green finance proves more than a passing investment pattern because it leads us toward sustainable lifetime development. When financial institutions focus their investments on protecting the environment they drive solutions for climate change and biodiversity while building sound economic growth paths. Green finance helps move us toward an economy that resists climate change while allowing everyone equal chances to prosper through new innovation. The biggest challenges - standardization problems, fake claims about green activities, and limited money - can be solved when organizations, governments, companies, and public participation work together on solutions. Using new financial tools, arranging laws, and growing funding can fully unlock green finance's power, creating better planet conditions for our children ahead.



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# From Dollars to Digital: El Salvador's Bold Experiment

**By: Aviral Bhadauria, Fardeen Khan**

### Series of Events

In September 2021, while the world was busy with post-pandemic recovery, El Salvador took a bold move in secret -The Bitcoin Law, legalizing Bitcoin as legal tender. A small nation in Central America, became the world's first nation to take this giant leap. The goals of President Nayib Bukele's administration were to boost the economy, attract foreign capital, and increase financial services' accessibility for all. The action attracted attention from all around the world, but it also generated controversy and skepticism. Many questioned if making bitcoin would be the right move or not?

### Reason

The adoption of Bitcoin in El Salvador was boosted by pressing economic necessities and a desire to be self-sufficient. Nearly one-quarter of the national GDP, amounting to approximately $6 billion, comes from remittances. By adopting Bitcoin, the government aimed at avoiding the high fees and delays generally associated with conventional money transfer operators, thus making life saving remittances more efficient. Also, with 70% of the population unbanked, Bitcoin was a path toward inclusion, allowing those people to use digital payment systems and perhaps to save safely. Beyond these practical motivations, the government aimed to reduce its dependence on the US dollar and establish El Salvador as a global leader in cryptocurrency innovation, demonstrating how technology has the ability to unleash independence and growth.

### Post Adoption Effects

For a smooth transition, the government subsequently introduced a few initiatives to promote Bitcoin usage among its citizens. One of the efforts was the introduction of Chivo Wallet, which is a government-endorsed digital-wallet, giving users a nice $30 worth of Bitcoin during registration. Alongside, a $150 million trust fund was set up to ensure that there was an automatic conversion between Bitcoin and dollars, with this reassurance provided by apprehensive stakeholders who feared market volatility.

### Disruptions and Constraints

Though exalted in nomenclature, the rollout faced troubles on troubled waters. Technical problems with the Chivo Wallet led to greater disbelief in the system among the populace.

Many Salvadorans were hesitant to embrace the new technology; however, adoption remained poor, with only 20% of the population using the wallet. Vendors often converted Bitcoin payments into USD simply to avert any risks associated with price volatility and concern about the use of Bitcoin as a medium of exchange. Early exposure to financial risks led to a colossal loss of public funds to the tune of $45.4 million due to market price fluctuations. External institutions such as the IMF have very publicly attacked the policy, citing public finance security issues and that the structure is compliant with money laundering. When El Salvador applied for an IMF loan in December 2024, the IMF demanded that the government scale back its Bitcoin initiative and allow businesses to dollarize if they wished. As soon as the government agreed to these conditions, it was approved for a $1.4 billion loan.

**Current Events and Future Outlook**

Despite the failures, the government is still driving toward its dream of being a pioneering cryptocurrency nation. The Bitcoin City project, a modern tax haven powered by geothermal energy modeled after a Bitcoin, is underway-an endeavor partly backed by $1 billion in volcano bonds. These volcano bonds will be funding Bitcoin mining as well, with revenue expected to offset the remaining debt . Educational initiatives are being released to promote the financial literacy agenda and expand adoption of the technology.

El Salvador's gamble with Bitcoin is under the spotlight right now as one such radical experiment attracting worldwide attention. It touches upon how cryptocurrencies, if adopted, can change economies; yet there lies an enormous gap to get through. Its success now depends on balancing the innovative processes of risk management and education along with the development of infrastructure. The rest of the world waits with bated breath to learn from this unprecedented experiment.

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# The Rise of Digital Payments, Online Services, and Changing Consumer Behavior as Drivers of New Market Trends

By - Samikshya Das, Vishal Kumar Singh

The fast progress of technology has generated radical changes to the international financial structures which resulted in extensive use of digital payments and online solutions. The modern market transformation has caused consumers to modify their behaviors and created new business directions across different business sectors. This article investigates the elements that drive digital payment growth alongside service modernization patterns and explains how patient behavior patterns affect present-day market structures.

## The Surge in Digital Payments

Digital payment systems have expanded dramatically during the last few years because modern technologies combined with changing customer needs. Contactless and online payment methods experienced rapid adoption due to COVID-19 which prompted consumers to choose safer transaction options that were convenient and touchless. The 2023 McKinsey & Company report shows the pandemic led to higher digital payment acceptance across all categories which continued to grow post-telecommuting period.

Digital payment methods have gained widespread adoption in the United States where 89% of consumers made electronic payments in 2022 and 62% of those people actively employed two or more digital payment forms compared to 51% previously in 2021. In-app and P2P payment services saw the biggest utility growth while adding onto fundamental online payment practices that 69% of consumers already used.

Digital payment markets worldwide demonstrated a value of USD 100.20 billion for 2023 before analysts forecast them to achieve USD 464.28 billion worth by 2032 while operating under a 19.16% compound annual growth rate (CAGR).

## Evolution of Online Services

Online service availability has revolutionized how customers behave in their purchasing activities. E-commerce platforms alongside digital banking services and streaming services together with telehealth have been the most growing sectors in the market. People now expect digital interactions to be streamlined because online service accessibility has produced higher standards for convenient digital experiences.

UPI represents a leading transformation in the digital payment market of India. UPI emerged in 2016 as a system which allows instant bank account money transfers through mobile phone usage. UPI has experienced explosive growth since its launch in 2016 because transaction values passed beyond ₹8 trillion in December 2021. UPI achieved its highest transaction total of ₹18.41 trillion when January 2024 ended due to its expanding user base.

Brazilian citizens can take advantage of Pix, the instant payment system which lets them conduct free and instantaneous transactions under the leadership of their central bank from 2020. The popularity of Pix has exploded among users sending money and making online purchases and researchers predict it will replace credit cards for e-commerce payment that year.

## Changing Consumer Behavior

Digital payments together with online services caused fundamental behavioral changes in consumer activities. Consumers value fast services and easy accessible transactions which combine with transaction security in their payment methods. A recent 2023 survey shows that customers demand payment solutions featuring these characteristics and they will adjust their payment behavior to suit their particular needs.


Mobile payment systems have directly affected consumer patterns in terms of spending activities. Studies demonstrate that when customers choose mobile payments their spending surpasses what they would spend with cash transactions. The implementation of mobile payments at Chinese supermarkets led to higher total purchases and larger typical item spending amounts especially among goods with elastic price sensitivity.

Indian users have changed their purchasing patterns since UPI was launched in India. Overall, 91% of the 235 people who answered the survey stated their UPI usage led to more spending even though 7% described lower spending. The UPI payment system proves convenient for almost everyone who uses it based on the survey results showing 95.2% positive feedback.

## Emerging Market Trends

Digital payment convergence with changing consumer conduct has led to multiple market trends which have developed.

1. Businesses enhance customer satisfaction by insituating **modern payment alternatives** within their service platforms. The integration process shortens buying transactions while helping customers stay loyal and boosting revenue numbers.

2. Consumers expect **multiple payment options** that combine mobile wallets with touchless payments as well as Buy Now Pay Later (BNPL) services. The BNPL payment model experienced significant expansion resulting in a growth of e-commerce sales reaching 7% in 2022 compared to 2% in 2020. People want more options when it comes to payments so this pattern has emerged in the market.
3. **Security and privacy** receive heightened attention by businesses because the expansion of digital transactions continues to grow. Businesses must invest in secure data protection systems since customers have become more protective about their information which also ensures compliance with regulatory requirements.
4. Organizations can provide **customized product offerings** to customers through their capability to analyze transaction data from digital channels. The combination of personalized suggestions with focused advertising and specific product services leads to better client interaction along with high levels of satisfaction.
5. Multiple services are now combined under a single application through super app platforms which continue to grow in popularity. The super apps satisfy customer demand for ease of use by consolidating different services into a single solution platform.

## Conclusion

Digital payment services along with online services have revolutionized consumer conduct together with industry operational patterns. Modern businesses need to optimize their payments through innovative solutions and establish secure frameworks because these changes follow technological advancement which require personal experiences for tomorrow's consumers.

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# The Digital Revolution: How AI, Automation, and E-Commerce Are Transforming Industries and Global Markets

By- Lakshita Rathore

The global transformation, heavily influenced by the rapid advancement of AI, machinery, and the growth of e-commerce platforms, is changing sectors, aligning world market demands differently, and creating new patterns of global trade. Although those changes come with substantial economic opportunities, they are challenges for businesses, policymakers, and workers. This article examines how AI, automation, and e-commerce drive industry transformation and how they are changing the global market.

**AI and Automation: Reshaping Industry**

AI and automation have become game changers in almost every sector. From manufacturing and healthcare to finance and customer service, these technologies are also driving efficiency, reducing costs, and ultimately creating new business models.

**1. Manufacturing and industrial automation**

In the manufacturing sector, AI-driven automation is gaining traction to greatly enhance production efficiency. Robotics and smart machines are now taking charge of tedious tasks, leading to the fact that human errors are diminished and productivity is vastly increased.

The Internet of Things (IOT) and predictive maintenance technologies allow factories to optimize their work processes while minimizing their down activities. Companies like Tesla and BMW are pumping a lot of money into building AI-powered smart factories in which robots and human workers forge acts of coordination and team.

Yet the curtain of revolution also hides many frightening concerns-the biggest of these is the observable fear of job losses. Traditional assembly line jobs are being replaced by machines, meaning that workers need to be skilled so they can act for programmed maintenance, AI supervision, and data analysis. As such, governments and industries are focused on reskilling programs to prepare workers for an ever-evolving job landscape.

## 2. AI in Healthcare

Healthcare has also changed increasingly with AI: diagnosing, treating patients, and becoming operationally more efficient. AI-powered algorithms for the analysis of medical images will yield much more accurate results than human doctors can, and this will consequently lead to early disease detection. Companies like IBM Watson and Google DeepMind are revolutionizing medical research through their ability to analyze massive datasets so that potential treatments can be identified.

Thanks to robotic-assisted surgeries in the hospital and AI-powered patient management systems, patient care and operational costs will be improved. Nevertheless, ethical issues, such as the preservation of patient data privacy, and AI decision-making continue to challenge regulators.

## 3. Financial Services

In areas like fraud detection, risk assessment, and high-frequency algorithmic trading, the finance industry makes use of AI and automation. AI-powered bots manage customer inquiries, cutting down human intervention. Further, high-frequency trading, aided by AI algorithms, absorbs gigantic amounts of financial data in real time, creating an efficient marketplace.

While there are inconspicuous benefits to automation in those areas, there do exist correlated concerns, such as market manipulation and the loss of low-level bank jobs.

Thus, finance people will have to modify themselves in terms of knowledge concerning AI-based analytics and cyber security to remain in relevance in the whole sector.

*Revolutionizing Global Trade*

E-commerce platforms, like Amazon, Alibaba, and Shopify, have transformed the global marketplace. Alluring online shopping experiences, enhanced by AI-driven suggestions, have changed shopper behavior and forced conventional dealers to raise to the occasion.


**1.Shift from Brick-and-Mortar to Digital Market places**

Traditional retail is rushing to close shop, and due to the COVID-19 pandemic, this has all been made into a brick-and-mortar model. Hence, it comes as no surprise that the vendor establishment disrupted new outlets in the digital marketplace. From the analysis of customer behavior, their recommendation engines are powered by AI that creates a personalized shopping experience and, hence, boosting their sales.

E-commerce has undoubtedly made life easy, but caused a lot of duress to small businesses and local markets. A good many small retailers find it hard to compete with global giants which are using artificial intelligence to optimize pricing, logistics, and customer engagement. National governments, however, are now looking for some kind of regulation to ensure fair market competition and secure people's data in the digital economy.

**2.AI and Automation in Supply Chain Management**

Automation and logistics supported by AI have changed the dynamics of supply chain management. Optimization of inventory, prediction of demand, and delivery operations are what companies like Amazon do with AI technology. Automated warehouses with robotic pickers have proved to be efficient, though they are gradually reducing human labor.

While automating the entire supply chain facilitates many operations, it also comes with many challenges, from cybersecurity risks to a more apparent exposure to global disruptions. The semiconductor chip shortage in recent years emphasized the dangers of temptation when depending on automated supply chains. These days, a lot of companies are working on theories to diversify their supply sources and build up a resilient logistics network.

**3. Cross-border Trade and Global Market Integration**

Cross-border trade via e-commerce has made it possible for businesses to reach international clientele without the need to be physically present. Further, with the advent of digital payment systems and block chain technology, transactions have become faster and infinitely more secure. Besides platforms like Etsy and eBay through which small businesses can have access to global markets.

Still, as with every easy solution to any false problem, globalization brings about fair wages, ethical sourcing, and environmental impacts. Most e-commerce giants employ low-cost labor in developing nations, which begs the questions of workers' rights and sustainable development. Hence, fair trade policies and environmental regulations being focused on by governments could provide the answers to such problems.

## The Future: Balancing Innovation and inclusivity

The future of AI, automation, and e-commerce in industries is assured. The hardest lake to cross is how to balance innovation and inclusivity. Policymakers, businesses, and workers will need to play ball in order to lay this tile.

1. **Upskilling and Workforce Adaptation :** As innovations come on the market,

governments and corporations must pour money into creating upskilling programs that will equip workers for jobs in AI and automation. Future generations will have to be prepared for working in AI-driven industries, which is why their education must involve digital literacy, coding, and data analysis.

2. **Data Regulation :** With critical decisions in the line of fire in terms of healthcare, finance, and employment, AI must prioritize ethical considerations. Transparent AI algorithms, data privacy laws, and unbiased decision making has to be there for responsible AI adoption.

**3. Sustainable Trade Practice:** As e-commerce and automation reshapes world trade, sustainability has to take the front seat. Businesses need to use eco-friendly practices, and all governments must implement regulations to stop exploitative labor practices.

he integration of AI, automation, and various e-commerce platforms is changing the industry landscape while redefining the dynamics of the global market. However, the very same enabling technologies come to the fore with unparalleled efficiency and economic benefits, coupled with rapid job declines, ethical questions, and market mayhem. In order to enjoy the varying fruits these technologies bear, infrastructural policies, labor market flexibility, and the best business practices should be rewarded at the earliest possible curves of development. Such a group mix of innovation and inclusiveness will certainly find harvesting the total fruits of the digital transition across the global economy.

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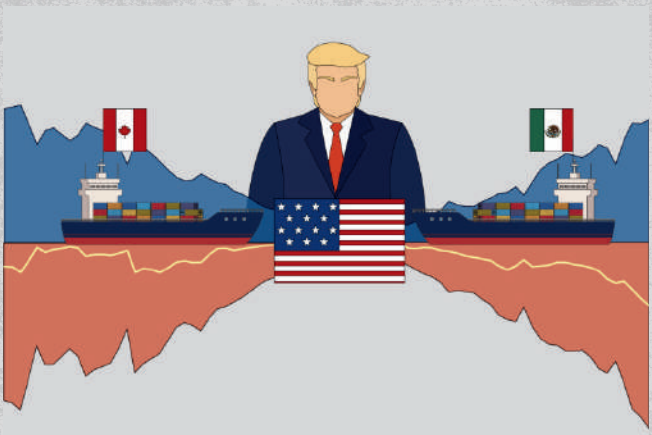
# Trade Wars and Tariffs: Redefining Global Economic Alliances

**By Arnavv Sharma**

After the policies enacted by the newly reappointed President of USA , Donald Trump and with the recent comments from Ministry of Foreign affairs of China, trade-wars have once again come at the forefront of the global political stage



Ever since coming to power President Donald Trump has seen him making the trade policy of the USA an issue of national security, this “America First” trade policy, which has directed the federal agencies to investigate the country’s trade deficits as well look at the movements of immigrants has led to a fundamental change in the US trade policy.

## Clash

This trade policy has ignited a stern response from various countries.

Canada has decided to impose tariffs 25% tariffs on goods  worth $30 billion.

This shift in trade policy has caused tensions in the Northern American continent causing a threat to the 30 year old free-trade alliance between Canada-USA-Mexico. These Tariffs from USA have since been taken back , but has caused a deep distrust between the nations raising heat in North America

USA has also put tariffs on European countries ,on which the european leaders have warned that these tariffs could disrupt NATO unity, as economic friction spills over into security and defense relations

It has also brought in chinese criticism from the China condemning this policy and stating that they are ready for a trade war if they are needed

## Protectionism & New Alliances

These recent US trade policies displays the protectionist stance USA is aiming to take, seeing this many countries are looking for many alternative alliances.

The European Union has deepened its engagement with Asian economies, while China has positioned itself as a champion of free trade, negotiating new deals with countries in Africa, Latin America, and Southeast Asia.

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One of the most significant developments is the potential "Mar-a-Lago

Accord," a rumored strategy by the Trump administration to weaken the US dollar to boost American exports.While this move could benefit U.S. manufacturers, it would likely further alienate key allies and increase tensions with countries reliant on a stable dollar. Additionally, countries like India and Brazil have emerged as neutral players, balancing their relationships with both Western economies and China, indicating a broader shift in global political alignments.


The long-term effect of such trade policies is not limited to economics but alters the geopolitical future for decades.

Tariffs can be advantageous for domestic industries in the short term, but in the process, they can push the U.S. away from its historical allies and towards economic blocs without American influence. If trade wars persist, diplomatic divisions could branch out into security pacts, environmental agreements, and global governing institutions.

Geopolitically, the European Union and China will be the key gainers in this transition, with their relationship with nations seeking stable partners in trade being boosted. The U.S., on the other hand, will be confronted with a dilemma of ensuring global leadership with an increasingly isolationist economic approach.

Finally, whether the trade policies will succeed or fail will not just decide the future of America's economy but redefine the power structure of the world. While tensions at the diplomatic level rise, the world can prepare itself for a new period of realignment of political and economic ties propelled by trade wars and altering alignments.

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# The Commercial Space Race: Fuelled by Private Enterprise and Government Collaboration, as a Catalyst for New Economic Opportunities

By- Utkarsh Singh, Vansh Agarwal

Humankind managed to explore every single part of the earth over at least a thousand years, but the race has suddenly decided that exploring space would be their next undertaking. The exploration of space has opened up new horizons. Commercializing space is shaping the future for exploration, industry, and politics around the globe. Private companies are leading the way in developing infrastructure, conducting scientific research, and even in military applications, while new economic opportunities emerge in space tourism, asteroid mining, and satellite services.

**Impact of Space Commercialization**

During the Cold War, space exploration was a geopolitical and scientific project which mostly relied on the claims of national prestige, military strategy, or the allure of scientific knowledge. But these days, the motivation for private companies in this endeavor has been cost, technological advancements, and commercial opportunities. The revolution made by privatizing space in the accessibility and cost-effectiveness of infrastructure has led to it being a cheap and easier means to get to space.

Reusable rockets developed by SpaceX and Blue Origin slashed launch costs and brought dreams of ambitious undertakings such as space tourism and lunar colonization closer to reality. Commercial space stations planned by Axiom Space could serve as research, manufacturing, or even long-term habitation within the context of an entirely private sector initiative.

Space commercialization has also increased the pace of scientific advances, as private companies introduce into research new models of biotechnology, propulsion systems, and microgravity research that obtain results benefiting both currency and life on Earth and missions into space. Satellite services from companies such as Planet Labs and Maxar Technologies have been integrated and are used for important data collection critical to global communications, disaster response, and climate monitoring.

But many dangers, such as the weaponization of space, hover around it. In the name of their assets in orbit, nations are exploring cybersecurity, space-defense mechanisms, and others that include anti-satellite missiles.

International space administration is going to face the consequence of such militarization as geopolitical conflicts increase further. Besides, space debris is also a problem caused owing to a number of satellites, which threatened many operational and forthcoming operations.

### New Economic Opportunities in Space Commercialization

Space is coming closer to becoming a more commercialized place where business opportunities can be opened up for earning. Traveling to space was an idea inspired by fiction; now, companies like Virgin Galactic and Blue Origin have been conducting short trips to space, paving the way for more tourists to venture into the cosmos. In time, advancing technology should lead to hotels being built in space and people having the option to have second homes on the moon. Another potential business opportunity will come from the opening of asteroid mining. Some asteroids have vast stores of platinum and cobalt and would revolutionize earth industries.

### The Commercial space industry- as it is now

When we talk of the commercial space industry, most of us would have thoughts of NASA,ISRO,ESA and most probably SpaceX as well, but it's imperative to clarify that most of the government agencies mentioned are not major players of the commercial industry yet, either having only dabbled into it recently or doing it through collaborations with other companies. While Space agencies like NASA,ISRO and ESA spearhead scientific space missions with aim to develop space technology for national development and scientific discoveries, The commercial space industry usually consists of companies aiming to make space more accessible, profitable, and innovative by reducing costs and expanding private-sector involvement.

The space industry has now swelled up to approximately $546 billion, with commercial industry making up over 78% of that number. Projections indicate that the industry will reach over $800 billion over the next 5 years. The space industry is no longer just confined to just government backed agencies, with private and government-private partnership firms taking increasingly active role in the industry's advancement. Private Firms like SpaceX, BlueOrigin, Starlink and ULA have made several inroads into sectors like space launch, Internet and communication, Space tourism and infrastructure building.

Now that we have a good understanding of the commercial space industry and it's applications, let us delve into the major companies and firms who currently stand as the major players of the industry and their achievements in the sector:

**1. SpaceX**: A firm which had its founding by multibillionaire Elon Musk in the year 2002, has revolutionized the entire industry with the coming of reusable rockets, which made space travel inexpensive as they were. Currently, valued at some $180 billion, SpaceX globally dominates the satellite launch market, having over 60% of all commercial missions. StarLink, one of the other initiatives by Elon, has with its satellite broadband network already more than 5,000 satellites in orbit, providing a global Internet service

**2. Boeing Defense, Space & Security**: A division of aerospace giant Boeing, it plays a key role in human spaceflight and defense. With market capitalization of about $120 billion, this major contractor for NASA has even developed the Starliner crew capsule, which transports astronauts to the International Space Station. In addition, Boeing is responsible for the major portions of NASA's Space Launch System (SLS).

**3. Lockheed Martin Space:** An arm of what is being hailed as the largest defense contractor of the world, Lockheed Martin, at a value of about $110 billion. It is a major contributor to deep-space exploration, having developed the Orion spacecraft, which is meant to take astronauts to the Moon and Mars. Lockheed Martin has also been involved in planetary missions, having input in the NASA's Perseverance rover on Mars and the InSight lander.

**4. Airbus Defence and Space:** The Aerospace giant, which in Europe would be a complete powerhouse in space technologies states roughly over $100 billion in market capitalization. Another major satellite manufacturer, producer of Earth observation and telecom satellites used worldwide, Airbus also boasts the Ariane launch vehicle series, the main heavy-lift rockets for Europe, used for commercial and scientific missions.

Now, let's have a look at some Indian companies progressing in this sector, who although haven't yet done groundbreaking work and development, have made their mark in a promising way.

**1. Skyroot Aerospace:** Founded in 2018 by some ex-scientists of ISRO and initially concentrated on the realm of small payload launch vehicle development, it made history on November 18, 2022 with the Vikram-S launch, heralded as India's first privately developed rocket and an important milestone in the eyes of India's space initiatives. Skyroot's achievements are testament to its dedication toward making space more accessible and affordable.

**2. Bellatrix Aerospace:** Founded in 2015, it is dedicated to innovative propulsion systems for satellites and launch vehicles. Advanced and next-generation technologies being developed by the company will enhance the efficiency and cost-effectiveness of space missions, placing Bellatrix at the center of a new working cosmology.

**3. AgniKul Cosmos**: Established in 2017, it concentrates on developing a customizable polymer, small satellite launch vehicle. The flagship Agnibaan rocket is being developed for flexible and low-cost access to space, addressing the increasing demand for satellite deployment. In view of AgniKul's new-age innovation, the satellite launching process would get disrupted for its own upbeat of adaptable solutions to a variety of mission requirements.

After getting to know about the companies and their undertakings in the sector, let us now understand the impact these firms have economically

## Economic Impact Of Commercialization Of Space

The incredible and quick commercialisation of space has also caused a great change in the overall picture of the global economy that the effects would go far and deep into industries, governments, and societies.

In what is now a popular opinion, this will stimulate innovation, job creation, and economic growth but will generate challenges concerning regulation, inequality, and sustainability.

In fact, space commercialization entails the changes in new industries and markets. SpaceX, Blue Origin, and Virgin Galactic are leading the charge for space tourism, making headway in satellite deployment, and even enticing ventures into asteroid mining. These initiatives tend to drive the demand for sophisticated technologies, from reusable rockets even to satellite systems, with necessary stimulating and beneficial results related to research and development (R&D) across sectors. The spillover effect of space-related innovation has already started to be felt in industries like telecommunications, agriculture, and logistics where satellite data and GPS technologies have changed the way these businesses function.

It is important to note that the space economy cultivates skill-hungry jobs and thrives on entrepreneurship. They compete for industrial domination and end up investing heavily in talents, infrastructures, and supply chains. The result has been the creation of specialized workforce-from engineers and data scientists to legal experts in space law. Governments further ramp up economic activity by support awards and tax holidays as well.

However, the big question raised by commercial exploitation of space is how inequality would be aggravated as entry costs alone would make it possible for only an elite few wealthy nations and corporations to invade the space sector

There is also rising concern for increased risks involved in not having a strong regulatory framework due to the possibility of space debris and resource exploitation, both of which will have economic and environmental impacts in the long term. Space commercialization is a great opportunity for altering the economy on a worldwide scale.

It can fuel innovation and growth. Much care would have to be taken in policy formulation for equitable access, sustainability, and responsible development. This is an intriguing yet important intersection of technology, markets, and governance for the economics future as an economics student.

One thing that we all can take away from everything written above is that private firms have undertaken immensely good job to power the space industry to higher heights and if projections are to believe, the industry will continue to grow exponentially in the years to follow .

Now, as we possess sufficient knowledge about the impacts these industry have, economically we should know had over to the next part of this article which we will explore how government has now started to play an active role in helping in the growth of the commercial space industry, mostly by facilitating the setup and operations of private and government-private partnership firms.

### How government facilities the commercial space industry

Here, we will dive into understanding how governments have worked to help the commercial space industry through the cases of 2 countries: The USA and India, one being the superpower and world leader in the space industry and another being a newcomer in the industry with high potential to achieve big. Let's understand what USA did right and what India can do right

### What America did right?

#### 1. Space Activities Privatization

In the 1980s, the transfer of responsibilities from NASA to private companies began in the U.S. Commercial Space Launch Act of 1984, encouraging private sector involvement and this legislation made it possible for businesses to launch rockets and conduct space-related businesses with government adjacency.

#### 2. The FAA Office of Commercial Space Transportation (AST) is created

In 1984, the U. S. government set up the FAA Office of Commercial Space Transportation (AST), which aimed at reducing the burden of regulation on private space activities. The agency was in change for licensing flights, safety, and compliance to ensure that private companies could fly without much of a bureaucratic burden.

#### 3. NASA's Programs for Commercial Crews and Cargo

While the Commercial Orbital Transportation Services (COTS) program (2006) and the Commercial Crew Program (CCP) (2011) encouraged companies like SpaceX and Boeing to create private spacecraft for government missions, it also reduced reliance on taxpayer-built vehicles and competition in the industry

**4. Space Act Agreements (SAAs)**

NASA executes Space Act Agreements (SAAs) that are used for cooperation with private companies in funding and use of expertise and facilities while retaining intellectual property rights with the companies. Such agreements significantly benefited SpaceX and Blue Origin.

**5. Tax Incentives and Funding Support**

The U.S. offers a range of tax credits and incentives for the space research and development, launch services, and satellite development.

Other examples include facilities such as the SBIR Fund for small businesses that use the Small Business Innovation Research program to fund companies interested in developing new technology with respect to space.

Now, let us understand what Indian government has done:

**1. N-SPACe (Indian National Space Promotion and Authorization Centre) Established** - An independent nodal agency set up in 2020 under the Department of Space (DOS), IN-SPACe promotes and authorizes private sector participation in space activities. It acts as a single-window clearance and facilitation system for private companies/start-ups and academic institutions for a variety of purposes, such as utilization of ISRO Infrastructure, sharing of technical know-how, and collaboration on space projects.

**2. Space Sector Liberalization Reforms** - In 2020, the government announced radical reforms towards the opening up of the space sector for private players. These reforms include the private sector performing end-to-end space activities such as satellite manufacturing, launching, and operations of space-based services. This departure from a system dominated by the Government has made room for innovation and investment.

**3.NewSpace India Limited (NSIL)-** NewSpace India Limited, NSIL for short, is a public sector undertaking under the Department of Space, which was set up to commercialize ISRO technologies and assets. It transfers technologies, manufactures space systems, and markets space-based services, thus allowing private companies to use the expertise and infrastructure of ISRO.

**4. Policy Framework and Guidelines-** Considered under the new Spacecom Policy and Remote Sensing Policy, the government has granted clarity concerning satellite communication and earth observation activities. These two policies, in turn, lay down a regulatory framework under which private players will operate, allowing for transparency and accountability.

**5.Funding and Support for Startups-** Initiatives such as the Atal Innovation Mission and Startup India support space startups. Furthermore, ISRO is a collaborator along with different private firms and startups in the development of technologies, offering both financial and technical assistance

**Now what can India do right in the future:**

**1.Enhance Regulatory Clarity and Simplification**

**-Streamline Licensing Processes**: Simplify and expedite the licensing and approval processes for private space activities so as to minimize the bureaucratic hurdles.

**- Tax Incentives:** Tax breaks on investments in the sector, along with reduced import duties on space equipment and R&D tax credits, shall be provided to stimulate private investments.

**3. Encouraging Public-Private Partnerships (PPPs)**

**- Increased Cooperation with ISRO**: ISRO shall be encouraged to open up more of its infrastructure, data, and knowledge to the private sector by way of revenue-sharing or leasing.

**- Joint Ventures:** Joint ventures between ISRO, NSIL, and private companies are to be encouraged to share the risks and rewards by jointly technology development.

**4. Development of Clusters and Infrastructure for Space**

**-Space Industrial Parks:** Establish dedicated space industrial parks, catering to manufacturing, testing, and launching space systems with modern ambient facilities.

**- New Launch Sites:** Further develop launch sites in strategic areas so that dependence on ISRO's existing ones could be avoided and to cater to anticipative demand.

**5. Focused on Skill Development and Education**

**- Space Technology Institutes:** More specialized institutes like the Indian Institute of Space Science and Technology (IIST) need to come up to train engineers, scientists, and entrepreneurs.

- **Industry-Academia Collaboration:** Encourage universities/research institutions to interact with private companies on space-related projects and curriculum development.

## Conclusion

The commercial space race, spawned by private enterprises with the cooperation of governments, is changing the world economy. Space, by companies such as SpaceX, Blue Origin, and Boeing working with NASA and new legislation, is being made more accessible and profitable. With the growing architecture of satellite networks, space tourism, and resource mining are creating trillion-dollar markets, pushing forward even more technological innovation, and opening new industries. Countries and governments are thereby supporting this shift through financial support, favorable policies, and government contracts. The competition is intense; as a result, innovation fosters efficiency, cutting costs, and increasing opportunities. This interplay between private enterprises and government has allowed space to evolve from exploration into a flourishing business.

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# I DON'T WANT TO BE THE COMMON MAN!

**By- Purav Gade**

Globalization, a double-edged sword,
Bringing nations closer, yet also discord
The benefits of trade, must be shared by all.
Lest the benefits of economy, begin to fall

Now the AI took over & I lost my job,
Can neither afford a bread nor a cob
So how do I feed my wife & kiddos?
All I can see is the pill of overdose

Well, even that won't go in vain,
Afterall, the world feeds on my pain
With the growing economy,
No doubt, pharmaceuticals will make a boom
But ignored remains that old handloom

New policies, new rules, new tech is on the way,
& I stay crushed in the tax midway
Trades & stocks & E-commerce dominates,
Did they ever think if the common-man relates?

Globalization, automation, why is everything changing so fast?
I don't think, my breath will ever last
Biotech-advancements, expensive hospitals…is that even fair?
How am I supposed to pay my grandma's healthcare?

Cosmetic supply chains are increasing rapidly,
But who will treat the dark spots on my necessity?
They said Oh Man! Don't look so sad,
International trade is at your hand
So, I curl my fingers to grab my tea,

Only to find it already empty!
The common man is now panicking,
He promised to himself no more risk-taking
With sweat beads on my head, I look here & there,
And there it is…I saw my share
In the pockets of a high-class chair

The rich get richer,
The poor get poorer,
And I stay hanging in this sand timer

Digital transaction! I was content,
Thought no robber will dare to touch my pochette
But it all ended up in the odd,
When I fell prey to an online fraud

Some get three rooms, some sleep under the sky,
Some kids go to school while others cry
Few throw their food few hold empty bowls,
Amidst the growing GDP, poverty howls

I worked hard for my grades, degrees & marks,
Only to be replaced by a bunch of robots
My daughter asked me, "Pa, why no school anymore?"
Now how do I explain the inflation at the door?

A safe house, a dime & two-time bread,
Will I ever get this before I am dead?
The tears have dried now, no more to shed,
All I want is a fair trade

Trade wars rage, a global test,
Tariffs rise, markets find no rest
Financial stability, a delicate dance,
As nations navigate, with a wary glance

The fourth industrial revolution, a new stage,
Where technology & innovation turn the page
But amidst the progress, concerns arise,
Of inequality & a widening divide in eyes

The rupee, the dollar, seem to get higher,
To see them equal is my only desire
The future of work, a question mark,
As skills & training, must embark

Economic transformation, a story unfolding…
Of opportunities & challenges, yet rewinding
A future of hope, where all can thrive
But only if we unite, to survive.

**SHORT NOTE**

My poem, "I DON'T WANT TO BE THE COMMON MAN!" delves into the multifaceted impacts of economic transformation in the 21st century. It explores themes of globalization, technological advancements, and their profound effects on the everyday lives of individuals, particularly the common man. The poem highlights the paradox of progress—how advancements meant to improve life can also create disparity and hardship. It brings to light the often, overlooked struggles of those who find themselves caught in the crossfire of rapid economic and technological changes. By reflecting on the challenges posed by AI, automation, and global trade, the poem serves as a stark reminder that true economic transformation must be inclusive and equitable, ensuring that no one is left behind in the pursuit of progress. I hope this piece resonates with readers and sparks meaningful conversations about the future we are collectively crafting.

# Beyond the Cover

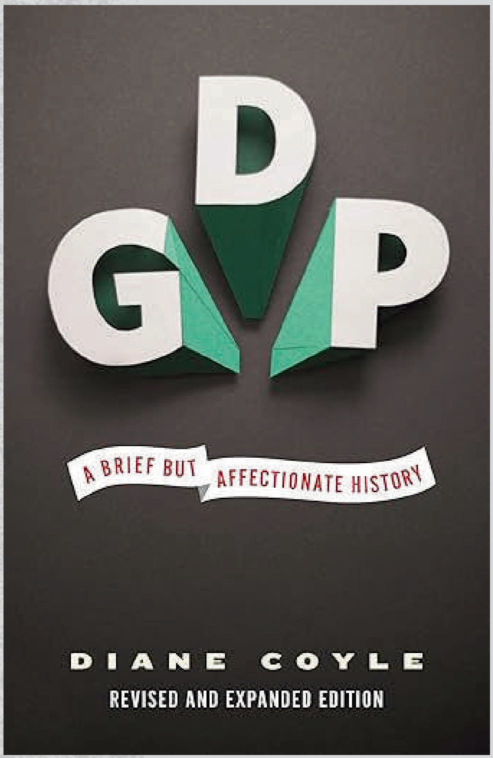
# GDP: A Brief But Affectionate History

**by Diane Coyle**

***Reviewed by Prerit***

Gross Domestic Product or GDP, the most fundamental concept of aggregate economics and the cornerstone of policymaking and governance has been used to measure growth and prosperity by nations worldwide. Yet, it is often misunderstood and misused, which has lead to oversimplifications regarding the metric. In her book, GDP: A Brief but Affectionate History, Diane Coyle aims to clarify these misunderstandings by highlighting the historical relevance of GDP and evaluating its relevance in the 21st century. She also discusses the limitations and demerits of the metric highlighting why GDP alone may not be enough as an indicator of economic growth in the 21st century.

The origins of GDP, as explained by Coyle, are deeply tied with the economic crises and problems that were present in the 20th century where policymakers needed a way to measure economic activity instantly. After the Great Depression of 1929, economist Simon Kuznets played a key role in laying the foundational work of GDP by formulating the national income accounting in 1930. Coyle also highlights how Kuznets himself was critical about using a single metric to highlight economic growth and success. Despite this, GDP became the most common metric of measuring economic output, especially during World War II.




This countinued after the war as well to measure industrial output and therefore, measure economic growth. Soon, GDP became a benchmark for policy makingpolicymaking, allocating resources and a metric for overall health of the economy across the globe. However, this also ledlead to misapplications as GDP failed to address economic inequality, the environmental impact and the cost of unpaid labour. This is a major theme throughout Coyle's book.

The Post-War World, led by a desire for prosperity and growth, adopted GDP as the guiding tool, despite its many flaws. This was due to a number of factors, firstly, GDP was already used during World War II by economies for resource allocation. Secondly, GDP provided a standardized system for policymakers to formulate key economic decisions. Lastly, the Bretton Woods system of 1944 established GDP as the dominant metric and it was also adopted by institutions such as the IMFas IMF and World Bank to monitor the performance of different economies. This also ledlead to GDP being a key factor of competition during the Cold War to observe the effects of socialist and capitalist policies. Coyle highlights these factors to show how GDP became the dominant metric that we know today despite its limitations.

According to Coyle, the standardized GDP system played an important role in the 20th century's economic transformation through Keynesian economics but in the 21st century, its shortcomings have become increasingly clear. She points out that GDP ignores the main problems facing the economy in the 21st century like inequality, environmental damage and the way technology is changing economies around the globe. She argues that because GDP ignores the hidden costs of economic progress, an over-reliance on it as a yardstick might be harmful. For example, the environmental cost of industrial production is ignored by GDP, which may lead to long-term economic losses. Furthermore, because GDP ignores wealth inequality due to which, a nation may have high GDP numbers but struggle with poor levels of human development, as is the case with high GDP countries that have low HDI. Another limitation highlighted by Coyle is how GDP fails to address the difference between income generated domestically and income generated by foreign entities. This can inflate the economic prosperity of a country with a lot of foreign entities present in its economy.

Given these shortcomings, Coyle highlights the importance of using alternative methods to measure economic growth. The foremost method of measuring economic prosperity mentioned by Coyle is the Humanis Human Development Index (HDI) which aims to address life expectancy, income and education. Another method she talks about is Green GDP which adjusts to the cost of environmental degradation caused by overall economic activity. This is crucial for sustainable growth in the longin long term. She also mentions other indices such as the Gross National Happiness (GNH) used by Bhutan. Despite these, it is evident that there is no clear alternative to GDP as of now but there's a definite need for it. Therefore, the book leaves you with more questions than solutions.

Ultimately, GDP: A Brief but Affectionate History dives into a brief yet compelling exploration of the historical evolution and limitations of GDP, making readers rethink the way we measure economic prosperity and growth. While Coyle does not provide a clear solution, she successfully challenges the reader to question whether our dependence on GDP is helpful in economic development in a world facing complex economic and environmental challenges. As global economies evolve, the search for a better and inclusive metric remains an open-ended question, one that economists, policymakers and institutions must answer within the years to come.

# What Went Wrong With Capitalism

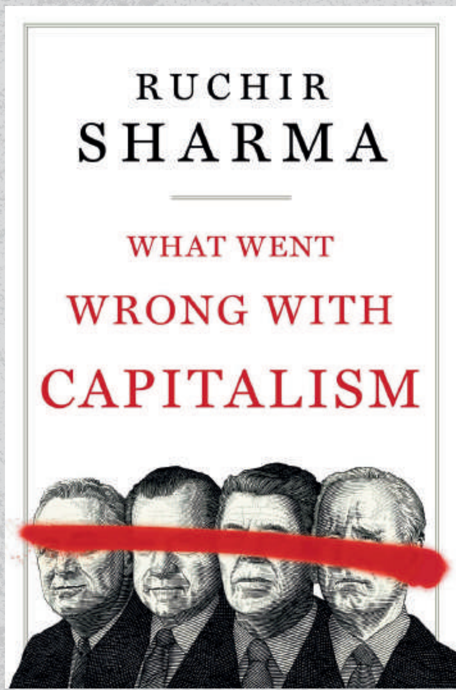
## by Ruchir Sharma

*Reviewed Dhruv Kapruwan*

Ruchir Sharma is an Indian American author, fund manager and columnist for the Financial Times. He is the head of the Rockefeller capital management's international business, and was an emerging markets investor at Morgan Stanley Investment Management. He has also authored the book 'Breakout Nations: In Pursuit of the next Economic Miracles .'

What went wrong with capitalism? Ruchir Sharma's account is not like any you would have heard before. He says that economists are right when they criticize modern capitalism as socialism for the rich. The government has increased its spending and interference in the economic system, and distort the outcomes as per their convenience. The result is expensive state guarantees for everyone—bailouts for the rich, entitlements for the middle class and welfare for everyone.

The book starts with defining capitalism and the market-based economy. The author explains how the capitalistic economy of the 20th and the 21st century is not truly the one imagined by the likes of Smith, he mentions all the instances that increased government control and reduced the role of market forces in determining the economic outcomes over the time in the American economy. He states how government intervention, particularly bailouts during recessionary periods,




distort the economic growth machine and lead to latent-long term financial and economic weaknesses. He traces how government policies, meant to stabilize economies, have resulted in a "bailout culture" fostering monopolies, inefficient "zombie" firms, and wealth concentration among billionaires. Sharma suggests that governments have overcorrected past market failures, leading to an economy where risk-taking is artificially cushioned and wealth is unfairly redistributed leading to high inequalities. The book is divided into 3 parts. Part one: The rise and rise of big government, Part two: The perils of constant relief and Part three: The path to balance. In the first part he writes how the USA emerged as a young credit driven economy, quoting one of the founding fathers, he writes, “a national debt if it is not excessive will be to us a national blessing; it will be a powerful cement of our union.” The whole journey of the USA as an emerging major economy is stated in the following parts. In a chapter (Part I: chapter 2) he writes how the governments misinterpreted the Keynesian idea of welfarism and started huge schemes which provided direct benefits to the common people, troops, unemployed, etc. Sharma then traces the origins of “Easy Money” and marks ‘Black Monday, 1987’ as a major event in this reference, in order to

lower interest rates and inject liquidity in the economy the then fed chairman Alan Greenspan declared the central bank’s “readiness to serve as a source of liquidity to support the economic and financial system.” The author writes that since the crash of 1987 the government went into a permanent crisis mode pushing the state to a Goldilocks economy. Further the lockdown era of 2020 was a testament to the increasing role of government in the US economy, huge bailouts, large allowances and welfare schemes dominated the govt. spendings. Till this time debt had become a common deal for the major economies, debt mark touched 100% of economies and deficits widened to the all time high mark. At the end of Part one Sharma states the ‘Law of government growth’ by the economist Adolph Wagner to reason the fact that the size of a governing state never shrinks. According to the law “the government spending not only tends to rise; it tends to rise faster than the nation’s average income”. In Part II, Sharma brings forward the concept of ‘zombified’

corporations, rise of the oligopolies, growth of market sizes and the productivity paradox. Zombie companies are those that do not earn enough profit to cover even the interest payments on their debt and stay alive only by taking out cheap loans. They barely existed 20-30 years ago, but now count for around every one in every 10 publicly traded companies in the world's twenty largest economies, and possibly much more global

The financial crisis of 2008 paved the way for cheap loans to corporations and easy bailouts, on which the zombies capitalised. Their sustenance is an effect of the constant government rescues. In a way these rescues have mitigated the “cleansing effect” of recessions, which in the past had forced weak companies to fold or restructure in downturns. Further Sharma argues that capitalism was originally designed to encourage free and fair competition, where businesses rise and fall based on their efficiency and innovation. Modern capitalism has given rise to oligopoly - a system where a small number of massive corporations dominate key industries, leaving little room for smaller competitors completely forgetting the "survival of the fittest" dynamic, we now have a system where "the biggest get bigger" through acquisitions, regulatory advantages and government bailouts. In a way capitalism has become “the socialism of the rich”. Low interest rates and cheap money policies have made it easier for big firms to borrow money and acquire competitors further cementing their dominance. Ruchir Sharma explores how financial markets have become so central to modern economies that governments now treat them as too big to fail, intervening aggressively to prevent downturns. He argues that this mindset has led to moral hazard, excessive speculation, and financial instability, fundamentally distorting capitalism's core mechanisms. Ruchir Sharma further addresses one of the most puzzling economic questions of our time: Why has productivity growth stalled despite rapid technological advancements? Many economists claim that productivity is higher than it appears because official statistics fail to capture the benefits of digital technology, free online services, and automation. However, the author disagrees with this view, arguing that while tech advancements have improved quality of life, they have not significantly boosted economic output in measurable ways. He introduces a new explanation for the productivity paradox by stating that governments and corporate monopolies are suffocating true competition and innovation, excessive regulations and bureaucracy slow down business operations, making it harder for companies to scale efficiently. Government interventions, such as bailouts and subsidies, promote inefficient businesses that should have failed, preventing a natural reallocation of resources

In the concluding chapters Sharma writes about the countries where the capitalistic model has given excellent results, with reduced government intervention leading to high economic growth. He talks about three countries Switzerland, Taiwan and Vietnam, and mentions all the steps taken by their leaders to boost the economic growth through private sector promotion, denationalisation, less welfare spending and large investments in education and research. He suggests a more private participation at the base level of the economy and a limited, cautious government intervention in the economy. The author recommends reduction in zombie firms and letting the cleansing effect of an economic downturn or recession function on its own.

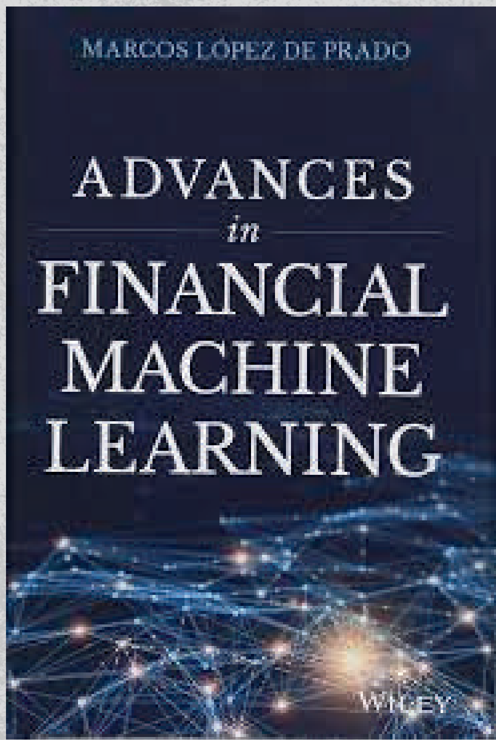
# Advances in Financial Machine Learning

## by Marcos López de Prado

*Reviewed by Adiya*

If you're interested in how machine learning (ML) can be applied to financial markets, but you're tired of books that just throw algorithms at stock prices without explaining the bigger picture, Advances in Financial Machine Learning by Marcos López de Prado is a refreshing read. It helps readers understand why financial data is different from normal data, how to process it correctly, and how to avoid common mistakes that lead to failed trading strategies. The book is structured into four major parts, each dealing with a critical aspect of using ML in finance. Let's go through them one by one.

The book starts by explaining why traditional methods of finance often don't work well when combined with machine learning.
One of the first key concepts introduced in this section is financial labeling. In standard machine learning, labels are usually simple—like categorizing an email as spam or not spam. But in finance, determining whether a trade is "good" or "bad" is much more complicated. López de Prado introduces a technique called triple-barrier labeling, which takes into account not just price movements but also time-based conditions to define trading opportunities more understandably.




Overall, the first 100 pages are heavily theoretical, setting the stage for the more practical sections that follow. The book doesn't dive into coding yet, but it challenges the way most people think about financial data and machine learning.

Once the book has explained the problems, it moves on to solutions. The second quarter of the book is all about feature engineering, to make financial ML models more reliable.

One of the key ideas here is that time-based price data isn't always the best choice for ML models. Most people analyze financial markets using daily closing prices, but the book argues that this approach doesn't capture the true nature of market movements. Instead, he suggests using volume bars and dollar bars, which organize data based on market activity rather than fixed time intervals. This method helps models focus on meaningful price changes instead of being mislead by random fluctuations.


Based on the above charts, you'll be able to see how in volume based bars, there's little to no noisy, unnecessary data which might mislead a financial model.

Another useful concept introduced in this section is fractional differentiation. Normally, to make financial data suitable for ML, we apply transformations like taking logarithmic returns to make the data "stationary" (i.e., removing trends). However, this often removes useful information. Fractional differentiation provides a middle ground, it stabilizes the data while preserving important long-term patterns.

*Firstly, pre calculated weights are established which will then be used to multiply with the prices of say Stock A per day, for example* $(p^4 \times w^0)+(p^3 \times w^1)+(p^2 \times w^2)$ *and so on.*

This part of the book also covers feature selection techniques, ensuring that models focus on the most relevant information rather than noise. The book suggests methods like clustering and hierarchical grouping to find patterns in data, rather than just picking random indicators like moving averages or RSI (which many traders use without questioning their relevance). The book criticizes these methods due to their lack of strong logic.

Page 200–300 is where things get even more practical. The third section focuses on back testing, which is the process of testing a trading strategy on past data before using it in real markets. However, most back tests are flawed, leading traders to believe they have a profitable strategy when they don't.

One of the biggest problems in back testing is look-ahead bias—when a model accidentally uses future data to make predictions, leading to unrealistic results.

Another key idea here is bet sizing, which determines how much capital should be allocated to each trade. Instead of making fixed investments, the book suggests dynamically adjusting position sizes based on confidence levels. This is similar to how professional hedge funds operate, rather than betting the same amount on every trade, they increase their exposure when they're more confident and reduce it when uncertainty is high.

This would also help in mimicking the reality more accurately to conduct reliable back testing.
This part of the book is crucial to understand algorithmic trading & it's fundamentals. It highlights the hidden pitfalls in back testing and provides methods to make trading strategies more comprehensive.

The final section of the book shifts focus from individual trades to portfolio management and trade execution. Traditional finance relies heavily on Modern Portfolio Theory (MPT), which assumes that markets behave in predictable ways. The book challenges these assumptions, arguing that MPT often leads to unstable portfolios due to its reliance on estimated correlations (which can change rapidly).

The last few chapters discuss Hierarchical Risk Parity (HRP), trade execution, which is crucial for institutional investors and hedge funds. Large traders can't simply buy or sell a stock in one go, as doing so would move the market and result in bad prices. The book introduces market impact models and explains how reinforcement learning can be used to optimize trade execution. This part is more of an introduction rather than a detailed tutorial.

The book emphasizes that while ML can be a powerful tool, it's not a magic bullet, successful traders need a deep understanding of financial markets, strong data processing skills, and rigorous testing methods to ensure the potential of machine learning can be harnessed to the fullest.

**Final Thoughts**

The Book delves into the shortcomings of financial machine learning while simultaneously providing changes which can equip the financial models to be more accurate in interpreting data. This book is great for someone eager to learn about the inner workings of machine learning in finance and how the shortcomings of it are spotted & treated, the second quarter of the book is the most important part of the book as it explains about key fundamental concepts and their shortcomings, the book aims to reduce the drawbacks of machine learning in financial markets & seeks for it's most useful application.

# The Ecospire Report
# 2024-25

## MOVIE SCREENING- ROGER & ME


Ecospire, The Economics Society of our college, conducted its first event of the session with a movie screening of "Roger & Me" on November 13, 2024. It is a documentary by Michael Moore that explores the economic downfall of Flint (Michigan) after the events of General Motors decision to shut down eleven plants which led to around 30,000 layoffs. The film highlights the effects of deindustrialization, unemployment, globalization, and economic disparity while showcasing the resilience of affected 'ex'-workers and individuals.

The screening aimed to help students grasp the real-world impact of corporate actions on labor and society. It critically examined capitalism's effects, making an emphasis on corporate greed, social divisions, and economic inequality. Following the screening, a discussion session was held for students with Mr. Gadde Surya (Assistant Professor, Department of Political Science, Shaheed Bhagat Singh College) to analyze key themes and reflect on the broader economic implications. The event fostered an engaging and thought-provoking atmosphere, offering attendees valuable insights into economic realities. With strong student participation and dynamic discussions, the session was a resounding success.

## WORKSHOP ON THE GENDER LENS APPROACHES & PRAXIS

Ecospire also conducted a workshop on the topic 'Gender Lens: Approaches & Praxis'. Dr. Nupar Ray, an esteemed writer, speaker and professional of gender-related topics, was the guest speaker for the workshop.

This seminar helped in shedding light on major issues that need to be addressed like wage gap and discrimination in the workspace which can only be solved with the help of thorough discussions. Dr. Roy began her address by emphasizing on the difficulties faced by women in day to day activities. She talked about the doubt and anxiety felt by them even in simple activities like car rides and finding restrooms and changing rooms. Women are highly fearful of confrontation regarding sexual harassment and stalking. Silence and ignorance regarding topics like these causes as much harm as active opposition. Hence, this seminar brought forth a stage to discuss these important topics and destigmatize the same.

Overall, this seminar was a remarkable success. It brought forth a forum for discussion of a vital and sensitive topic which is still left untouched by some sections of our society. With an interactive and productive session, the participants were encouraged to think about the topic of Gender Inequality and Discrimination.

## ECONOMICS CONUNDRUMS - A BATTLE OF PERSPECTIVES

On February 8, 2025, Ecospire organised a debate competition, “Economics Conundrums: A Battle of Perspectives”. This event saw participation from 100+ teams with only 6 teams making it into the Offline - On Campus Round.

The in-person event consisted of 3 rounds wherein the first round was a thematic debate on a predetermined motion, “This House believes that current climate pledges by nations are insufficient to meet the 2030 climate goals”. This was followed by a case study round where the teams were given a real world economic case study.

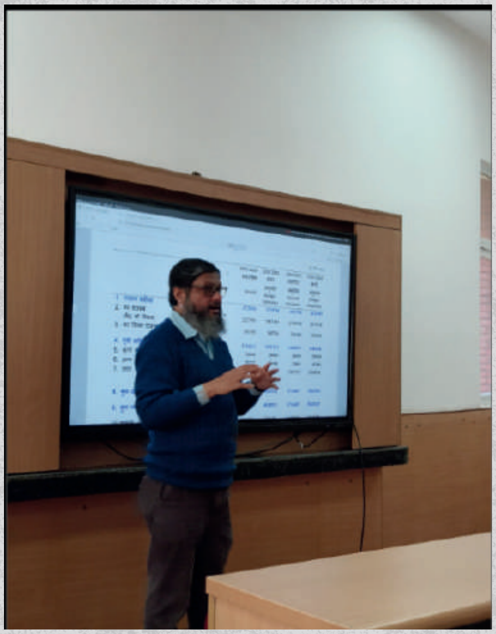
The last round had a surprise motion, “This house believes that extreme wealth accumulation is unethical in a world of widespread poverty”.

Evaluation of the participants’ performance was carried out by an esteemed panel of judges comprising Dr. Vandita Sahay (Department of Economics, Kamla Nehru College), Dr. Rityusha Tiwary (Department of Political Science, SBSC), and Ms. Saumya Kumar (Department of Economics, SBSC).

The event “Economics Conundrums: A Battle of Perspectives" was a resounding success, sparking meaningful discussions on crucial economic and ethical topics. The participants demonstrated exceptional analytical and debating skills, making the competition both engaging and thought-provoking.

## SPECIAL LECTURE ON THE UNION BUDGET

The special lecture on Union Budget 2025-26 by Dr. Surajit Das (Assistant Professor, Centre for Economic Studies and Planning, Jawaharlal Nehru University), included a general overview of key economic principles and budgetary policies. The professor started by explaining how government expenditure and revenue affect the economy, defining fiscal and revenue deficits and their effects. It was observed that the present budget does not seem to be an expansionary policy, as indicated by its fiscal strategy.



Its emphasis on high payments of interest came mainly because the government securities in its possession were held by the different financial institutions. This was likely to give rise to immense government spending in the future. The decrease in center-to-state transfers this financial year was also noted as one of the apprehensions, with the possibility to affect public service and welfare measures offered by the state governments.

On the taxation side, tax exemptions for up to a specified limit for individuals are an optimistic scenario, but the effect of the unchanged indirect taxes on the masses was brought up as a matter for concern.

The lecture proved to be insightful and offered a clear understanding of budgetary policies and their broader economic impact. It connected concepts like fiscal deficits and government spending to real-world applications, helping students better grasp the significance of the Union Budget in shaping the economy.

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